CHARTER TOWNSHIP OF ORION
PLANNING COMMISSION REGULAR MEETING AGENDA
WEDNESDAY, JANUARY 18, 2023 - 7:00 PM
ORION TOWNSHIP MUNICIPAL COMPLEX BOARD ROOM
2323 JOSLYN ROAD
LAKE ORION, MI 48360

---

1. OPEN MEETING 2
2. ROLL CALL
3. ELECTION OF OFFICERS 3
4. MINUTES
   A. 12-21-22, Planning Commission Regular Meeting Minutes 4
5. AGENDA REVIEW AND APPROVAL
6. BRIEF PUBLIC COMMENT - NON-AGENDA ITEMS ONLY
7. CONSENT AGENDA
8. NEW BUSINESS
   A. PC-2018-49, Hills of Woodbridge Final PUD plan extension, located on a vacant parcel 09-26-451-004 north of 3805 S. Lapeer, vacant parcel 09-26-402-020, and vacant parcel 09-26-402-021 (both west of 40 Hi-Hill Dr.). 14
9. UNFINISHED BUSINESS
   A. PC-22-39, Hudson Square Planned Unit Development (PUD) Concept Plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021). 17
   B. PC-22-29, Baldwin Village Final PUD, located at 4410 & 4408 S. Baldwin Rd. (parcel 09-32-301-001), an unaddressed parcel 09-32-301-014 located at the NW corner of Morgan and S. Baldwin Roads, an unaddressed parcel 09-32-151-020 located north of 4408 S. Baldwin, and 4292 S. Baldwin (parcel 09-32-151-021). 294
10. PUBLIC COMMENTS
11. COMMUNICATIONS
12. PLANNERS REPORT/EDUCATION
13. COMMITTEE REPORTS
14. FUTURE PUBLIC HEARINGS
15. CHAIRMAN'S COMMENTS
16. COMMISSIONERS' COMMENTS
17. ADJOURNMENT

In the spirit of compliance with the Americans with Disabilities Act, individuals with a disability should feel free to contact Penny S. Shults, Clerk, at (248) 391-0304, ext. 4001, at least seventy-two hours in advance of the meeting to request accommodations.

CHARTER TOWNSHIP OF ORION PLANNING COMMISSION
* * * * * A G E N D A * * * * *
REGULAR MEETING – WEDNESDAY, JANUARY 18, 2023 - 7:00 P.M.
ORION TOWNSHIP MUNICIPAL COMPLEX BOARD ROOM
2323 JOSLYN ROAD, LAKE ORION, MI 48360

---

1. OPEN MEETING

2. ROLL CALL

3. ELECTION OF OFFICERS

4. MINUTES

A. 12-21-22, Planning Commission Regular Meeting Minutes

5. AGENDA REVIEW AND APPROVAL

6. BRIEF PUBLIC COMMENT – NON-AGENDA ITEMS ONLY

7. CONSENT AGENDA

8. NEW BUSINESS

A. PC-2018-49, Hills of Woodbridge Final PUD plan extension, located on a vacant parcel 09-26-451-004 north of 3805 S. Lapeer, vacant parcel 09-26-402-020, and vacant parcel 09-26-402-021 (both west of 40 Hi-Hill Dr.).

9. UNFINISHED BUSINESS

A. PC-22-39, Hudson Square Planned Unit Development (PUD) Concept Plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021)

B. PC-22-29, Baldwin Village Final PUD, located at 4410 & 4408 S. Baldwin Rd. (parcel 09-32-301-001), an unaddressed parcel 09-32-301-014 located at the NW corner of Morgan and S. Baldwin Roads, an unaddressed parcel 09-32-151-020 located north of 4408 S. Baldwin, and 4292 S. Baldwin (parcel 09-32-151-021).

10. PUBLIC COMMENTS

11. COMMUNICATIONS

12. PLANNERS REPORT/EDUCATION

13. COMMITTEE REPORTS

14. FUTURE PUBLIC HEARINGS

15. CHAIRMAN'S COMMENTS

16. COMMISSIONERS' COMMENTS

17. ADJOURNMENT

In the spirit of compliance with the Americans with Disabilities Act, individuals with a disability should feel free to contact the Township at least seventy-two hours in advance of the meeting when requesting accommodations.

Charter Township of Orion

2323 Joslyn Rd., Lake Orion MI 48360
www.oriontownship.org

Planning & Zoning Department
Phone: (248) 391-0304, ext. 5000

TO: The Charter Township of Orion Planning Commission

FROM: Tammy Girling, Planning & Zoning Director

DATE: January 9, 2023

RE: Election of Officers

As requested, I am providing a suggested motion for the matter mentioned above. Please feel free to modify the language. The verbiage below could change based upon the Planning Commissions' findings of facts. Any additional findings of facts should be added to the motion below. Please note that it was suggested to me that on matters that involve rezonings, PUD's, Special Land Uses or variances that I provide language indicating that the matter can be **approved or denied.**

ELECTION OF OFFICERS, SITE WALK COMMITTEE, & ZBA APPOINTMENT

Chairman, Vice-Chairman, and Secretary

(nominations are made and supported then.)
Move that nominations are closed and a ballot be cast to elect (or re-elect if no change) _____ to serve as the Chairman, _____ to serve as Vice-Chairman, and _____ to serve as Secretary, for 2023.

Recommendation of ZBA Appointment

Move that the Planning Commission recommend to the Board of Trustees to appoint _____ as the representative from the Planning Commission to serve on the Zoning Board of Appeals for 2023.

Site Walk Committee

(per the PC By-Laws, the Chair appoints members to committees)
Chair: I appoint _____, _____, and _____ to serve on the site walk committee for 2023.

CHARTER TOWNSHIP OF ORION PLANNING COMMISSION
****** MINUTES ******
REGULAR MEETING, WEDNESDAY, DECEMBER 21, 2022

The Charter Township of Orion Planning Commission held a regular meeting on Wednesday, December 21, 2022, at 7:00 p.m. at the Orion Township Municipality Complex Board Room, 2323 Joslyn Road, Lake Orion, Michigan 48360.

PLANNING COMMISSION MEMBERS PRESENT:

Don Walker, PC Rep to ZBA
Don Gross, Vice Chairman
Kim Urbanowski, BOT Rep to PC
Scott Reynolds, Chairman
Joe St. Henry, Secretary
Jessica Gingell, Commissioner

PLANNING COMMISSION MEMBERS ABSENT:

Derek Brackon, Commissioner

1. OPEN MEETING

Acting Chairman Gross opened the meeting at 7:00 p.m.

2. ROLL CALL

As noted above.

CONSULTANTS PRESENT:

Eric Pietsch (Township Planner) of Giffels Webster
Mark Landis (Township Engineer) of Orchard, Hiltz, and McCliment, Inc.
Joseph Lehman (Township Engineer) of Orchard, Hiltz, and McCliment, Inc.
Tammy Girling, Township Planning & Zoning Director

OTHERS PRESENT:

Daniel Johnson

3. MINUTES

A. 12-07-22, Planning Commission Regular Meeting Minutes

Moved by Vice-Chairman Gross, seconded by Commissioner Gingell to **approve the** minutes as presented. **Motion carried**

4. AGENDA REVIEW AND APPROVAL

Moved by Trustee Urbanowski, seconded by Secretary St. Henry, to **approve** the agenda as presented. **Motion carried**

5. BRIEF PUBLIC COMMENT – NON-AGENDA ITEMS ONLY

None.

6. CONSENT AGENDA

None.

7. NEW BUSINESS

A. PC-21-90, Ridgewood Final PUD, located at 625 W. Clarkston Rd., (Sidwell #09-15-226-007), the vacant parcel west of 625 W. Clarkston Rd. (Sidwell #09-15-226-006), and the vacant parcel east of 625 W. Clarkston Rd. (Sidwell #09-15-226-008).

Chairman Reynolds asked the applicant to give their name and address for the record.

Mr. Daniel Johnson with IN-SITE, LLC presented.

DRAFT

Mr. Johnson stated that they were here almost a year ago in January for the earlier project version. They made some revisions to the project and came back in June, received their approval, and then received the Board of Trustees' approval in August.

Mr. Johnson said with respect to the final PUD process they did their submission in late November, and they are here tonight December 21st.

Mr. Johnson stated they came back with revising the project from a townhouse unit approach of 50 units to a duplex approach which has 30 units. A significant reduction in density, traffic, etc. Part of their approval had certain conditions that were articulated, number one had to do with the setback from Clarkston Road. They made an adjustment from what was 35 ft. to 40 ft. which corresponded to a front yard setback. Being sensitive to the street vista comment that was raised during that meeting.

Mr. Johnson said that as far as unified control the project is going to have an HOA and they submitted Master Deed documents as part of their submittal this past November.

Mr. Johnson stated that there was a unit design comment about pallet colors, they have addressed that topic as well.

Mr. Johnson said that one of the things they wanted to talk about specifically had to do with the Clarkston Rd. vista landscaping. One of the comments had to do with addressing this topic and looking at it more closely from their standpoint. They felt that being able to take the approach of deferring on the pathway and making a contribution to the fund was equivalent to the cost of that pathway, there was an estimate in their package. It allowed them to really preserve many existing trees. He added that they are trying to be sensitive to the landscaping considerations, and the existing trees in that location are unique to this part of the street.

Mr. Johnson stated as far as density they felt that they reduced the project by 40%. They felt it demonstrated consistency with the Master Plan and the objective of addressing the missing middle housing needs. This project would promote new construction for the building in comparison to a new single-family project. They have attempted to address the planner's comments from the correspondence of May 20th as well.

Mr. Johnson showed the Board the updated site plan showing it looking south on the property where the majority of the units will be located. He showed them that there was no pathway depicted along Clarkston Rd.

Mr. Johnson said there were 15 buildings, 30 units duplex units approximately 1,800-sq. ft. and they have two bedrooms with a flex room.

Mr. Johnson stated to illustrate the pallet discussion they had last time they put together a couple of illustrations that would do that and will expand on that topic.

Mr. Johnson said with keeping the same open space design amenities that they had talked about last time in terms of the pathway system and the south part of the property and he showed the Board the gazebo element for the community.

Mr. Johnson stated that as far as the metrics are concerned, they really don't change that much from the last submission as far as less than two units per acre.

Mr. Johnson said as far as environmental sustainability initiatives the tree counts are slightly different given the number associated with this proposal on Clarkston Rd, a number of features that would address environmental sustainability.

Mr. Johnson stated he felt the EV connection for each of the duplex units is a big one in terms of looking for and supporting that type of housing, the project, and the density from the previous Master Plan. Looking at the current Master Plan in terms of areas located in the subject areas as a single-family high-density area. There is a commercial property about a quarter mile east. That area would indicate 3-5 units per acre which they are less than.

Mr. Johnson said a reference from their recently adopted Master Plan and the missing middle housing which he thought a lot of communities are looking for, duplex units are at the low end of the density range. With respect to their Ordinance, he thought they were doing something that is an alternative to traditional subdivisions.

Mr. Johnson stated that as far as community benefits, they summarized them last time, and felt were providing housing options for the Township, a lot of open space, creating jobs and expanding the community tax basin, and responding to the need for housing in the area.

Mr. Johnson said they had a couple of special topics that he wanted to discuss at some point and felt that could be part of the questions and answers, that is the pathway discussion and the left-hand turn discussion that was referenced in the OHM review.

Planner Pietsch read through his review date stamped December 14, 2022.

Engineer Landis read through his review date stamped December 7, 2022.

Chairman Reynolds stated that the Fire Marshal provided a review of recommendations that the Fire Department access roads 20-26 ft. wide shall be posted with no parking fire lane on both sides. There was a Public Services review completed, along with an RCOC communication that he felt OHM touched base on.

Chairman Reynolds said that there seems that there is a long list from OHM. He asked Engineer Landis if these are things that are less impactful to plan changes or did, he think that would influence plan changes. Engineer Landis replied that there are a few that are going to impact plan changes. Certainly, the landscaping plan is going to need to be changed. Channel protection and stormwater could have some impacts on the plan. Those are the big things from a layout standpoint.

Chairman Reynolds stated he would bring that up as the first topic of discussion of comfort level on the long list of OHM Engineering comments on proceeding with any action or not.

Trustee Urbanowski said in regard to the OHM review, number one, that one could potentially upset the plan itself. Also, the passing lane, she would like that to be considered as part of this, she thought it was important, and thought that would also affect the plan. They would have to have a discussion with RCOC first. Engineer Landis said they wouldn't necessarily have to have a discussion they could include that on the plan. Obviously, RCOC would review and approve that as they move through engineering, it is something that is offsite it is not going to affect the onsite layout. They were just throwing that out there as a recommendation for them to include in their plans since this is a PUD. Trustee Urbanowski thought it belonged there.

Chairman Reynolds said he concurred. He said the clarification there would be if it is something they want, it is an engineer review, and that RCOC might not come to the same conclusion. It

has to be in conjunction with but if they are pushing that matter, obviously, that is different than RCOC requiring it. If it is something they want to see per their recommendation it is just the way they are framing that he tends to agree with the general conditions and the traffic and density they are adding to the area, and he was in support of that.

Chairman Reynolds added that it seems like there are some things that influence so he wanted to get a general temperature read. He felt there were some other discussion items to maybe give some feedback on but a comfort level of just a general sense of moving forward with the list versus seeing a revised plan. Trustee Urbanowski said it is a long list with some items that she thought should be done.

Vice-Chairman Gross said in general he thought this plan pretty much complies with their original approval in June of this year and the Townships Board's approval relative to the PUD concept. It does leave some outstanding issues though that as the engineer indicated could affect the overall design elements of the plan. If they could get some clarification on those before they move forward, he thought would help them a lot in terms of moving forward with the plan.

Chairman Reynolds said as much as they would love to see a project move forward, typically they are not administratively approving a list of 13 items especially ones that might impact the plan. He would suggest one way or the other that they still go through and talk about some of these items on the list because he thought they would further influence the discussion. Since they are already on the topic of the maneuvering lane, further support on or supporting that request from OHM's engineer review.

Secretary St. Henry stated that part of Clarkston Rd. absolutely needs some traffic mitigation measures. He thought that a passing lane, at the very least, is needed there. He thought they had mentioned a dedicated left turn lane that RCOC didn't think was necessary. Engineer Landis said that based on the traffic volume and the number of anticipated turns. Secretary St. Henry said they know that area is in play anyways as being sensitive and Clarkston Rd. is just a busy road. New developments are scrutinized carefully and not always favorably. He did agree that this addresses some of their Township Master Plan issues and enhancements such as a passing lane just to make it more palatable to the general population. He felt they should absolutely request that.

Commissioner Walker said he would agree with that and felt something has to be done. The traffic there is an issue on Clarkston Rd. It is always jammed up there, and it is not going to get any better, and the addition of this project will make it worse. They can hire a Traffic Consultant to say it is not going to make it worse but that is what they hire people to say, it will make it worse. He thought the least they need is a way for ingress and egress into the subdivision when it is built.

Chairman Reynolds asked their thoughts on the pathway right now. There is no pathway proposed except a connector to the opposite side of Clarkston. He understood the thought process of maintaining that buffer but thought that long term they are kind of punting the solution down the road with that. Maintaining existing trees and they are asking for developments to have a safety path. If there is a pay-in-lieu of, those trees could be ripped out in the future to install that.

Trustee Urbanowski said in general she thought it was the goal to connect the community as much as possible. Since this is a development where people will be living eventually it should be connected somehow.

Chairman Reynolds asked if the connector across was enough, or maybe a connector that goes across the front of Clarkston Rd. Trustee Urbanowski said to her this is still a problem because there is still a lot of traffic. They had this conversation with another property further down that was a business and she thought it was back and forth. She thought they needed to stick with the plan for the Township to be connected as much as possible. Seeing that this is a new build on this side she would like to see the safety path on the property.

Secretary St. Henry said the whole notion of connecting the community with safety paths he thought in this particular instance supersedes the concerns regarding the buffer and the setbacks. Long term he thought that taking care of the safety path is important and just do it.

Chairman Reynolds asked about the trees that would be removed in the right-of-way, do they count toward replacement trees, and whether they can be replanted in a right-of-way. If they remove those trees because essentially, they are arguing to preserve the trees. Planning & Zoning Director Girling said it would have to be the trees on site. The road right-of-way is not their property, unless, in some cases, the property line can go to the middle of the road, in which case, even though there is a road right-of-way easement it is still within their property. She asked if their property goes to the middle of the road. Chairman Reynolds said that the applicant believes it is to the center of the road with the right-of-way easement.

Commissioner Gingell said just going up and down Clarkston Rd. the safety path across the street is complete from Lapeer Rd. to Joslyn, there is none on the other side. It would just be a safety path just in front of this one community to nowhere. She said regarding the left turn lane it is going to push it into the one property more and then there is going to be a safety path and then they are basically at the condos so there is not going to be room for a buffer. Then they will be staring at the back of the condos.

Vice-Chairman Gross said he was not a fan of having a crosswalk on Clarkston Rd. in an uncontrolled location. The volumes and the speed are such that it would be a problem.

Chairman Reynolds said he tends to agree because there have been projects in the past, whether they have come in front of the Planning Commission, or projects that he has worked on personally. The only way to get it to connect is to get people to install the safety path, that is the hard part. He thought a lot of these parcels up and down Clarkston Rd. here, it is required, so they will eventually connect as things are improved. The north side is a little different story because it existed and there were some grant dollars to connect Michigan Bell and so he struggled with this of both sides, but they are only going to get there when they require it. His biggest deterrent is the crosswalk. If they were to have the Safety Path Committee weigh in that is the required process and at this point, they are a recommending body, they could provide the opportunity for it to be presented to the Safety Path Committee, and then ultimately the Board of Trustees would approve it, essentially approving it in lieu of installing a contribution to the Safety Path Fund. That is how that would work, where they can't necessarily make that decision here.

Chairman Reynolds thought that the majority was in favor of requiring the safety path. He asked if they wanted to propose the opportunity for them to go to the Safety Path Committee. Trustee Urbanowski replied that she said yes to that one. Vice-Chairman Gross said he thought it made sense. Planning & Zoning Director Girling said they still have to have a motion one way or the other. If they are going to construct it, then they don't have to go to the Safety Path Committee but if they are going to want to accept in lieu of it then there has to be a motion. Chairman Reynolds said it is going to be their motion to approve if a variance is granted in a way if just for clarification purposes. They would require it unless the Safety Path Committee would allow otherwise a contribution.

Chairman Reynolds said that another topic here is one of the public benefits is a contribution to the Tree Fund. He was not a big fan of the contribution to the Tree Fund. He thought if the trees are not able to be planted on the property, and that is his question with the applicant, would they entertain other contributions like a monetary contribution toward public amenities via parks and recreation? Fill them in on why they want to contribute to the Tree Fund versus planting trees. Mr. Johnson stated that they understood that if they couldn't get all of the trees on the property that was an appropriate protocol for dealing with the trees. Chairman Reynolds asked if there was an opportunity to plant those additional trees on the property or do they not fit. Mr. Johnson said in a discussion with their landscape consultant the answer is no; taking into account easements and other kinds of things that need to be conserved. Chairman Reynolds asked if the Planning Commission were to ask for a public benefit other than a contribution to the Tree Fund would they be open to that? Mr. Johnson replied sure.

Chairman Reynolds said there is a Tree Fund contribution being proposed they historically don't really do that. PUDs have had other public contribution benefits that have been proposed like the parks along Baldwin Rd. and things, and then, therefore, if there were to be an opportunity for a path, a trail, or trees, then it could be spent as such.

Commissioner Walker stated that he would rather they see them plant trees someplace else if they can't plant them on their own property. He doesn't mean planting seedlings, whatever they are taking out, he would like a good-faith effort of replacing that with something else even if it is somewhere else in the Township.

Chairman Reynolds said that was kind of his thought with the contribution towards outdoor green space amenities via Parks and Rec. Historically they haven't really exercised their Tree Fund. Obviously, Parks and Rec acquires property and improves public amenities and thought that was a little more fitting even if they earmark that towards the ask of green space. Commissioner Walker said he personally would like to see a tree for a tree rather than a tree for a dollar.

Trustee Urbanowski said that there were plans looked at at the Board of Trustees level the other day for that property on Pasadena Rd. and planting trees it would be nice to have a contribution towards that. Chairman Reynolds said it could be a monetary contribution towards green space and public amenities. Trustee Urbanowski said she was just trying to say that those things are actually being planned.

Chairman Reynolds recessed the meeting at 7:42 p.m. and reconvened the meeting at 7:47 p.m. due to technical difficulties.

Trustee Urbanowski said there are some plans for things in the Township that revolve around planting natural trees and greenery.

Chairman Reynolds said the opportunity that they could have, is an additional contribution to the Safety Path Fund depending on our support of trees or something else.

Vice-Chairman Gross asked how they determine the amount or the formula for the contribution. Chairman Reynolds replied that they haven't exercised the Tree Fund so he thought if they were to come up with one it would be something equal to the trees which is a deviation on the plan. A monetary contribution equal to the trees that would have been planted.

Chairman Reynolds said the fourth item on his list was if there were any thoughts or concerns over, this being zoned R-1 but inherently kind of a residential multi-family and they require a 100-ft. setback there. He asked if there was a concern about that. Vice-Chairman Gross said he thought improving the setback from 35 to 40-ft. is consistent with the R-1 district. These are not apartments, they are attached, single-family units. They are basically single-family type dwellings and didn't see a problem with the setback being a problem.

Chairman Reynolds said this is a PUD that has essentially chosen to run parallel to R-1 versus RM which is what they normally see but could be looked at either way.

Chairman Reynolds asked if there were any other topics of discussion items that they wanted to speak to.

Mr. Johnson said he would like to talk about the passing lane topic a little further. Subsequent to the package they submitted, they had some dialog with OHM, and he had a handout to give to the Planning Commissioners regarding that.

Mr. Johnson said historically going back to the May review letter they were deferred to the left-turn passing lane and a warrant analysis during Final PUD. What they did was communicate with the Road Commission and subsequently, they said that the left-hand turn analysis wasn't warranted given the small size of the project and the traffic locations to that. They got an email from them indicating that on July 26th. Fast forward to the final PUD submission they included copies of all that communication in their packet and then the review letter comes out and says that they are recommending a passing lane. Then they communicated with their traffic engineer Fleis & VandenBrink and the second page of the handout is a warrant for a left-hand turn passing lane. It is really not required given the size and distribution of the traffic. The third page is a similar analysis and thought the most important thing in the discussion just to bring it to their attention is on the last page there is a diagram that comes out of the Road Commissions specifications. The bottom image on that diagram would be what they are talking about at the west entrance the road Farley would go down across from their entrance. What the Traffic Engineer was telling them is that that is really not recommended for safety reasons because the flare can be interpreted as a right-hand turn lane going north and would cause confusion to people passing by or bypassing the passing lane geometrics. They communicated to them was a traffic safety concern in doing that. That would also apply to the east entrance where they have driveways across the road. There are some safety reasons to bring it to their attention, obviously, it is their decision.

Mr. Johnson said with respect to the OHM review letter comments, in general, they have no issues with any of these comments. They felt that they were more in part with final engineering submission not submission at this point and time. They have included some data on the soils that they had which is really a third-party exercise that they go through to do infiltration testing. Many of these are discussions with their engineer and thought that they could be handled in a final engineering package.

Mr. Johnson thought that the big decision was on the pathway, a decision in terms of how that relates to them going forward. If they have the opportunity to either discuss it with the Safety Pathway Committee or a chance to reconsider a different configuration of that pathway on the site, that is how they would request that they give them that opportunity.

Chairman Reynolds asked Engineer Landis if any of this data influence his thoughts. Engineer Landis replied not at this time, he is fully aware of a lot of this. Just to clarify, a lot of this information is related to a dedicated left-hand turn lane, which obviously is different than a passing lane. A left land turn lane would require that safety lane for someone turning left into

the site to get out of the travel lane and wait for traffic to clear to turn left, a passing lane is simply for the vehicles behind someone turning left to veer around and proceed on their traveled route. The warrants for a dedicated left-hand turn lane are not warranted but given that this was a PUD it was their recommendation that it would be something they could ask for as far as a passing lane. He added that he did have discussions with the Road Commission and Traffic Safety Engineer and based on those discussions he felt like they would be in support of that and wouldn't have any objections.

Chairman Reynolds asked for them to remind him of how they settled on the safety path discussion. Vice-Chairman Gross said to refer it to the Safety Path Committee for a determination as to yes or no.

Chairman Reynolds said it seems that they have discussed a lot of the topics this evening and there was an earlier discussion about a motion to postpone addressing the engineer comments that were at large for resubmission and rereview. There is obviously some feedback on the safety path as an open-ended item and that would be something that could be a condition in the motion as it would proceed beyond them.

Trustee Urbanowski said regarding the requirement that the Fire Department's access road 20-26 feet shall be posted with no parking fire lane signage on both sides.

Moved by Chairman Reynolds, seconded by Commissioner Walker, that the Planning Commission **postpone** action on PC-21-90, Ridgewood Final PUD, located at 625 W. Clarkston Rd., (Sidwell #09-15-226-007), the vacant parcel west of 625 W. Clarkston Rd. (Sidwell #09-15-226-006), and the vacant parcel east of 625 W. Clarkston Rd. (Sidwell #09-15-226-008) for plans date stamped received November 21, 2022, for the following reasons: to allow for time for the applicant to revise and resubmit plans to incorporate the OHM review comments 1-13 and to incorporate the Fire Marshal review to add comments for the adequate width and signage to be posted; general comments on the motion would also include discussions in lieu of a contribution to their Tree Fund there be a monetary contribution towards green plantings throughout the Township via Parks and Recreation.

Discussion on the motion:

> Trustee Urbanowski asked if they wanted to say something about the safety path. Chairman Reynolds said he was trying to provide a little feedback that they are not in support of the Tree Fund contribution but rather a monetary contribution that equals the deviation of 79 trees.
>
> Trustee Urbanowski said her question was about the safety path and going in front of the Safety Path Committee. Chairman Reynolds said he thought that would be following their recommendation to approve or deny, and that would be a condition of that motion. They are saying that they support the opportunity for the safety path to weigh in at a future time for a lack of safety path in front of the proposed development as a clarification of the motion.
>
> Planning & Zoning Director Girling stated that you are doing nothing on it because it is being postponed, when it comes back, they will redetermine whether they are sending a recommendation to the Safety Path Committee or not. Chairman Reynolds replied correct; is it able to proceed at this point with a postponement. Planning & Zoning Director Girling replied that she would think not. Chairman Reynolds said that is how he would understand it that is why he poised it that way as just feedback on the Tree Fund

and the Safety Path but actually picking up the Planner comments that don't pertain to those two items.

Planning & Zoning Director Girling asked if the path was reflected on the plan in spite of them asking to contribute in lieu of? The ordinance does say that even if they are asking to contribute in lieu of it they still show the path on the plan. She asked Engineer Landis if he recalled what was actually depicted on the plan. If they are coming back, it should at least be depicted even if they are going to ask to contribute in lieu of. Engineering Landis replied that right now it does not show the pathway along the entire frontage it is dashed in there.

Planning & Zoning Director Girling asked if there was a timeframe. Chairman Reynolds replied not to exceed six months.

Chairman Reynolds amended the motion, Commissioner Walker re-supported that that postponement is not to exceed 6 months.

Roll call vote was as follows: Gross, yes; St. Henry, yes; Urbanowski, yes; Walker, yes; Gingell, yes; Reynolds, yes. **Motion carried 6-0 (Brackon absent)**

8. UNFINISHED BUSINESS
None.

9. PUBLIC COMMENTS
None.

10. COMMUNICATIONS
None.

11. PLANNERS REPORTS
None.

12. COMMITTEE REPORTS
None.

13. PUBLIC HEARINGS
None.

14. CHAIRMAN'S COMMENTS
Chairman Reynolds said Merry Christmas and Happy New Year.

15. COMMISSIONERS' COMMENTS
Trustee Urbanowski said Happy Hanukkah, Merry Christmas, Happy New Year, and see you next year.

Secretary St. Henry said he is looking forward to 2023.

Commissioner Walker said God bless us, everyone.

16. ADJOURNMENT
Moved by Trustee Urbanowski, seconded by Commissioner Gingell, to adjourn the meeting at 8:05 p.m. **Motion carried.**

DRAFT

Respectfully submitted,

Debra Walton

PC/ZBA Recording Secretary
Charter Township of Orion

_____
Planning Commission Approval Date

DRAFT

Charter Township of Orion

2323 Joslyn Rd., Lake Orion MI 48360
www.oriontownship.org

Planning & Zoning Department
Phone: (248) 391-0304, ext. 5000

TO: The Charter Township of Orion Planning Commission

FROM: Tammy Girling, Planning & Zoning Director

DATE: January 13, 2023

RE: PC-2018-49, Hills of Woodbridge Final PUD Plan Extension

Attached, please find the petitioner's request for a Final PUD Plan extension and a page of the currently approved plan for your reference.

As requested, I am providing suggested motions for the abovementioned project. Please feel free to modify the language. The verbiage below could substantially change based upon the Planning Commissions' findings of facts for the project. Any additional findings of facts should be added to the motion below.

Final PUD Plan Extension (Ord. 78, Article XXX, Section 30.03,H,2)
Motion 1: I move that the Planning Commission **approves** the Final PUD Plan extension request for PC-2018-49, Hills of Woodbridge Final PUD plan for _____ (insert time frame). This **approval** is based on the following findings of facts: (*insert findings of facts*).

Or

I move that the Planning Commission **denies** the Final PUD Plan extension request for PC-2018-49, Hills of Woodbridge Final PUD plan. This **denial** is based on the following findings of facts: (*insert findings of facts).*

Courtney Keisman

Subject: Hills of Woodbridge

From: Dan Spatafora <dan@landteccompanies.com>
Sent: Monday, January 9, 2023 11:03 AM
To: Tammy Girling <tgirling@oriontownship.org>
Cc: Dominic D. Geric <dominic@landteccompanies.com>
Subject: Re: Hills of Woodbridge

Hi Tammy, and Happy New Year. I hope you enjoyed your holidays.

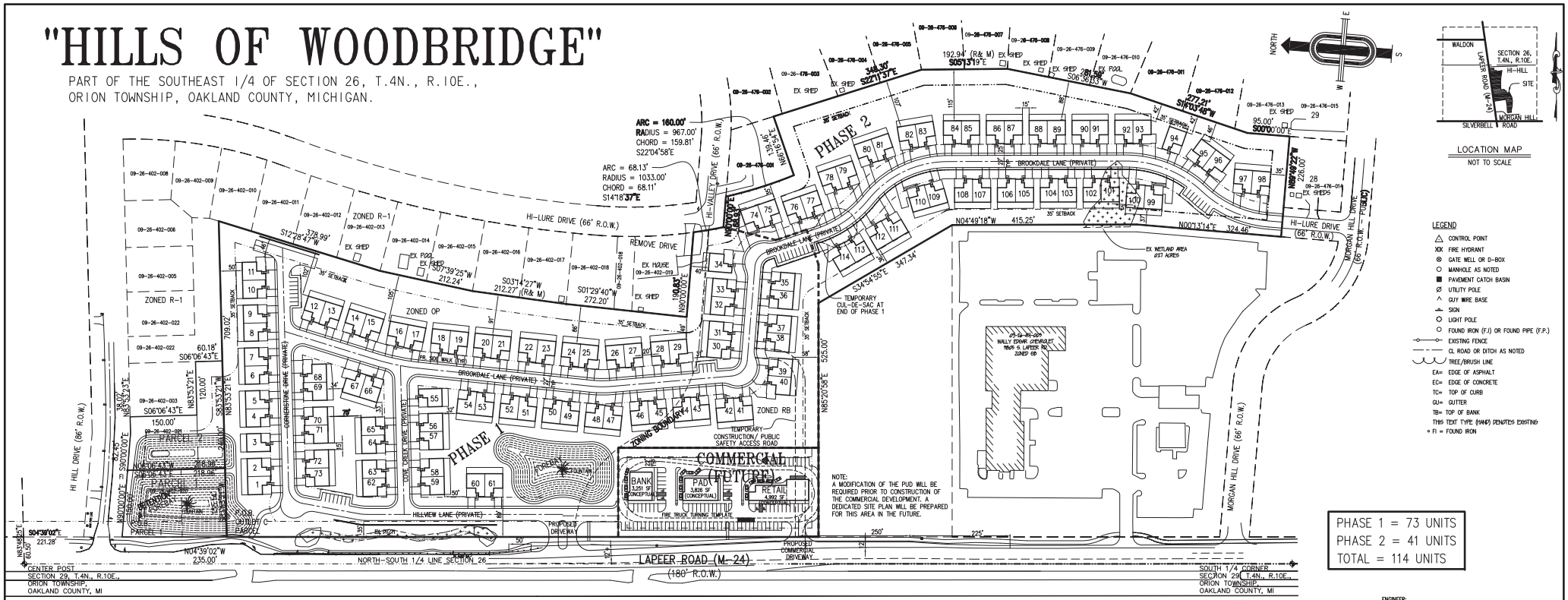
Yes, we would like an extension from the Planning Commission. Please advise as to the current expiration date.

Daniel S. Spatafora, J.D.
Director, Real Estate Development | **Landtec Companies**
Advisor | Counselor | REALTOR®
O 586-992-8800 | F 586-992-8505
Dan@landteccompanies.com
51410 Milano Drive, Suite 115 | Macomb, MI 48042

CONFIDENTIALITY NOTICE: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

"HILLS OF WOODBRIDGE"

PART OF THE SOUTHEAST 1/4 OF SECTION 26, T.4N., R.10E.,
ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN.



LOCATION MAP
NOT TO SCALE

LEGEND

- △ CONTROL POINT
- XOX FIRE HYDRANT
- ⊗ GATE WELL OR D-BOX
- ○ MANHOLE AS NOTED
- ■ PAVEMENT CATCH BASIN
- Ø UTILITY POLE
- ^ GUY WIRE BASE
- SIGN
- LIGHT POLE
- FOUND IRON (F.I) OR FOUND PIPE (F.P.)
- EXISTING FENCE
- CL ROAD OR DITCH AS NOTED
- TREE/BRUSH LINE
- EA= EDGE OF ASPHALT
- EC= EDGE OF CONCRETE
- TC= TOP OF CURB
- GU= GUTTER
- TB= TOP OF BANK
- THIS TEXT TYPE (ITALIC) DENOTES EXISTING
- ∘ FI = FOUND IRON

PHASE 1 = 73 UNITS
PHASE 2 = 41 UNITS
TOTAL = 114 UNITS

NOTE:
A MODIFICATION OF THE PUD WILL BE REQUIRED PRIOR TO CONSTRUCTION OF THE COMMERCIAL DEVELOPMENT. A DEDICATED SITE PLAN WILL BE PREPARED FOR THIS AREA IN THE FUTURE.

ZONED OP
09-26-300-010

ZONED OP
09-26-300-008

ZONED GB
09-26-300-090

ALTERNATE STREET NAMES
EASTBRIDGE DRIVE
WESTBRIDGE DRIVE
BRIDGE WAY DRIVE
FOREST BRIDGE DRIVE
SOUTHBRIDGE DRIVE
ARCH BRIDGE DRIVE
TRUSS BRIDGE DRIVE
ARCHWAY DRIVE
TIMBER TRUSS DRIVE
WOOD TRUSS DRIVE
STONE BRIDGE DRIVE
STONE ARCH DRIVE

LEGAL DESCRIPTION: PARCEL A
PART OF OUTLOT C, HI-HILL VILLAGE NO. 1, (LIBER 96, PAGES 26 THRU 28), SECTION 26, T.4N., R.10E., ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN. BEING MORE PARTICULARLY DESCRIBED AS BEGINNING AT THE NORTHWEST CORNER OF SAID OUTLOT C; THENCE N83°53'21"E 709.02'; THENCE S12°28'47"W 378.99'; THENCE S07°39'25"W 212.24'; THENCE S03°14'27"W 212.27'; THENCE S01°29'40"W 272.20'; THENCE N90°00'00"E 190.83'; THENCE THENCE 68.13' ALONG THE ARC OF A CURVE TO THE LEFT (RADIUS OF 1033.00', LONG CHORD BEARS S14°18'37"E 68.11'); THENCE N90°00'00"E 68.93'; THENCE 160.00' ALONG THE ARC OF A CURVE TO THE LEFT (RADIUS OF 967.00', LONG CHORD BEARS S22°04'58"E 159.81'); THENCE N66°16'54"E 139.46'; THENCE S22°11'37"E 348.30'; THENCE S05°13'19"E 192.94'; THENCE S06°36'53"W 281.59'; THENCE S14°03'46"W 277.21'; THENCE S00°00'00"E 95.00'; THENCE N89°49'22"W 226.00'; THENCE N00°13'14"E 324.46'; THENCE N04°49'18"W 415.25'; THENCE N34°54'55"W 347.34'; S85°20'58"W 525.00'; THENCE N04°39'02"W 1328.38' ALONG THE EASTERLY R.O.W. LINE OF LAPEER ROAD (M-24) TO THE POINT OF BEGINNING.
CONTAINING 1,178,141 S.F. --- 27.046 ACRES.

LEGAL DESCRIPTION: PARCEL 1 - BASED ON SURVEY
LOT 63, HI-HILL VILLAGE NO. 1, (LIBER 96, PAGES 26 THRU 28), AND PART OF LOT 264, HI-HILL VILLAGE NO. 4, (LIBER 121 OF PLATS PAGE 29), BEING MORE PARTICULARLY DESCRIBED AS BEGINNING AT THE NORTHWEST CORNER OF LOT 63; THENCE N90°00'00"E 150.00' ALONG THE SOUTHERLY R.O.W. LINE OF HI-HILL DRIVE (86' R.O.W.); THENCE S06°06'43"E 218.96'; THENCE S83°53'21"W 155.14'; THENCE N14°39'02"W 235.00' TO THE POINT OF BEGINNING.
CONTAINING 34,551 S.F. --- 0.793 ACRES.

LEGAL DESCRIPTION: PARCEL 2 - BASED ON SURVEY

LOT 259 AND PART OF LOT 264, HI-HILL VILLAGE NO. 4 (LIBER 121 OF PLATS PAGE 29), BEING MORE PARTICULARLY DESCRIBED AS BEGINNING AT THE NORTHWEST CORNER OF LOT 259; THENCE THE FOLLOWING TWO (2) COURSES ALONG THE SOUTHERLY R.O.W. LINE OF HI-HILL DRIVE (86' R.O.W.): N90°00'00"E 82.45' AND N83°53'23"E 38.02'; THENCE S06°06'43"E 150.00'; THENCE N83°53'21"E 120.00'; THENCE S06°06'43"E 60.18'; THENCE S83°53'21"W 240.00'; THENCE N06°06'43"W 218.96' TO THE POINT OF BEGINNING.
CONTAINING 32,804 S.F. --- 0.753 ACRES.

CLIENT REFERENCE: 3677 S. LAPEER ROAD, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, 48360.

ORDINANCE DEVIATION TABLE

ITEM	REQUIRED	PROVIDED	DEVIATION REQUIRED
FRONT	25'	25'	NONE
FRONT-PERIMETER	100'	88'	11' REDUCTION
REAR-PERIMETER	50' (75' IF PERIMETER ABUTS SINGLE FAMILY)	35'	40' REDUCTION
SIDE-PERIMETER	50' (75' IF PERIMETER ABUTS SINGLE FAMILY)	35'	40' REDUCTION
FRONT-FRONT	70'	25 + 25 + 27 = 77'	NONE
REAR-REAR	70'	75'	NONE
SIDE-SIDE	20'	15'	5' REDUCTION
SIDE-REAR	50'	31'	19' REDUCTION
LAPEER ROAD	35'	89'	NONE
BUILDING LENGTH	200'	81.25'	NONE
SIDE ENTRY/ RECESSED GARAGE	50% OF UNITS = 57	3 = 2.63% OF UNITS	54 UNIT REDUCTION
DENSITY	6 UNITS/ACRE (MAX)	114 / 25.742 = 4.43 UNITS/ACRE	NONE
SITE COVERAGE	25% MAX	259,167/1,245,492=20.8% (21.8% W/ RETAIL)	NONE
OPEN SPACE	15% RESIDENTIAL: 1,155,572 SF x 0.15 = 173,336 SF 10% COMMERCIAL: 89,924 SF x 0.10 = 8,992 SF	RESIDENTIAL: 266,721 SF COMMERCIAL: 17,931 SF TOTAL: 284,652 SF	NONE
PATIO/DECK AREA	150 SF PER UNIT MINIMUM	150 SF PER UNIT MINIMUM	NONE
PATIO SETBACK	MEET BUILDING SETBACK	EXTEND 14' INTO BUILDING SETBACK	14' REDUCTION
5' GREENBELT	5' GREEN BELT BETWEEN ROAD AND SIDEWALK	SIDEWALK AGAINST BACK OF CURB	5' REDUCTION

NOTE: SETBACKS PROVIDED ARE CONSISTENT WITH THE MULTI-FAMILY COMPONENT WITHIN THE PUD SECTION OF THE ORDINANCE (SECTION 30.03 SEC E.2.)

DRAWING INDEX

CIVIL PLANS	
1	GENERAL PLAN
2	SITE PLAN & CALCULATIONS
3	GRADING PLAN - NORTH
4	GRADING PLAN - CENTER
5	GRADING PLAN - SOUTH
6	UTILITY PLAN - NORTH
7	UTILITY PLAN - CENTER
8	UTILITY PLAN - SOUTH
9	TOPOGRAPHIC SURVEY
10	SOIL EROSION & SEDIMENTATION CONTROL PLAN
11	RETAINING WALL DETAILS
12	DRAINAGE AREA MAP

ENGINEER:
COMMUNITY E.S. INC.
C/O RICHARD S. HODSDON, P.E.
5805 24 MILE ROAD, STE. B
SHELBY TOWNSHIP, MI 48316
(586) 677-4081
RICH@COMMUNITYENG.COM

PREPARED FOR:
RICHARD RUZZO
LANDTEC COMPANIES
51410 MILANO DRIVE, SUITE 115
MACOMB, MI 48044
(586) 992-8800

© 2020 - COMMUNITY E.S., INC. ALL RIGHTS RESERVED. THESE PLANS AND DRAWINGS ARE OWNED BY AND THE SOLE PROPERTY OF COMMUNITY E.S., INC. ANY REPRODUCTION, COPYING, REUSE OR DISTRIBUTION OF THESE PLANS AND DRAWINGS IS STRICTLY PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF COMMUNITY E.S., INC.

REV. 09/30/21 PUD
REV. 08/09/21 PUD
REV. 06/18/21 PUD
REV. 05/08/21 PUD
REV. 03/29/21 REVISIONS PER FIRE DEPT.
REV. 12/16/20 PUD
REV. 10/27/20 REVISED BOUNDARY
REV. 01/23/20 REVISED BUILDING
REV. 08/20/19 PUD
REV. 06/13/19 PUD
REV. 01/10/19 PUD

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171

COMMUNITY
CIVIL ENGINEERING & SURVEYING

Civil Engineering and Surveying
5805 24 Mile Road, Suite B
Shelby Twp., Michigan 48316
Telephone (586) 677-4081
www.communityeng.com

HILLS OF WOODBRIDGE
PART OF THE SOUTHEAST 1/4 OF SECTION 26, T.4N., R.10E., ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN.

DATE NOV. 16, 2018	SCALE 1" = 100'
DRAWN BY RG	SHEET 1 OF 12
CHECKED BY RSH	DRAWING Z-18-108

GENERAL PLAN

Charter Township of Orion
Planning & Zoning Department
2323 Joslyn Rd., Lake Orion MI 48360
P: (248) 391-0304 ext. 5000; Fax (248) 391-1454

TO: The Charter Township of Orion Planning Commission

FROM: Tammy Girling, Planning & Zoning Director

DATE: January 13, 2023

RE: PC-22-39, Hudson Square PUD Concept and Eligibility Plan

As requested, I am providing a suggested motion for the matter mentioned above. Please feel free to modify the language. The verbiage below could change based upon the Planning Commissions' findings of facts. Any additional findings of facts should be added to the motion below. Please note that it was suggested to me that on matters that involve rezonings, PUD's, Special Land Uses, or variances, that I provide language indicating that the matter can be **approved, denied or postponed**.

Planned Unit Development (Ordinance #78, Section 30.03)

Motion 1: I move that the Planning Commission forwards a recommendation to the Township Board to **approve/deny** PC-22-39, Hudson Square Planned Unit Development Concept and Eligibility plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021) for plans date stamped received December 14, 2022. This recommendation to **approve/deny** is based on the following findings of facts:

That the applicant **has/has not** met the following eligibility criteria of Section 30.03(B) of the Township Zoning Ordinance and **has/has not** met the intent of a PUD as stated in 30.03A of the Township Zoning Ordinance:

A. Recognizable Benefit
- * How will a PUD approval result in a recognizable and substantial benefit to the ultimate users of the project and the community (insert findings of fact)
- * How would such benefit otherwise be unfeasible or unlikely to be achieved (Insert findings of facts),

B Density Impact
- * Will the proposed type and density of use result in a material increase in the use of public services, facilities and utilities, in relation to what would be permitted if the property were developed without using the PUD (Insert findings of facts),
- * Will the proposed PUD place an unreasonable burden upon the subject and/or surrounding land and/or property owners and occupants/or the natural features (Insert findings of facts),

C. Township Master Plan
- * Will the proposed development be consistent with the intent and spirit of the Master Plan and community (Insert finding of facts),

D. Economic Impact
- * Will the proposed PUD result in an unreasonable negative economic impact upon surrounding properties in relation to the economic impact that would occur from a more traditional development (Insert finding of facts),

E. Guaranteed Open Space

* Does the proposed PUD contain at least as much usable open space as would be required in the Ordinance for the most dominant use in the development (Insert findings of facts),

F. Unified Control

* Is the proposed PUD under single ownership or control such that there is a single person or entity having responsibility for completing the project with this Ordinance (insert findings of facts)

If Recommendation to Approve:

This recommendation is subject to the following conditions:

A. (Motion maker to list any unresolved issues related to the Township Planner's review letter).
B. (Motion maker to list any unresolved issues related to the Township Engineer's review letter).
C. (Motion maker to list any additional conditions).

Or

I move that the Planning Commission **postpone** action on PC-22-39, Hudson Square Planned Unit Development Concept and Eligibility plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021) for plans date stamped received December 14, 2022 for the following reasons (insert findings of facts).

DETROIT RIVERSIDE CAPITAL

RECEIVED

JAN 17 2023

Orion Township
Planning & Zoning

January 17th, 2023

Tammy Girling

Director - Planning & Zoning

2525 Joslyn Road, Lake Orion, MI 48360

RE: PC Meeting on November 17th, 2021

Dear Ms. Girling,

This letter is to share with you some findings from Julie Kroll, Traffic Services Manager with Fleis & Vandenbrink. During our planning commission meeting on December 7th, 2022, a question was raised in regard to how the proposed traffic volume of Hudson Square compared to the traffic volume created under the currently approved conditional rezoned use on the subject parcel.

The approved development plan under the conditional re-zone includes two uses: a 26,112 SF general office building and a 4,000 SF high turnover sit-down restaurant. The site plan also contains a 2.58-acre parcel that was reserved for future development. For the sake of an equal comparison, we assumed this parcel was developed with 6 total dwelling units, which is the amount our Density Plan shows is feasible for this parcel. The goal was to get to the total density allowed by the current zoning for the comparison.

To answer this question, we first compared the approved traffic volumes to the proposed volumes in **TABLE 1: "Mandated Volumes of Proposed Development."** For this comparison, we used the mandated ITE codes and average daily traffic volumes. The comparison found that the proposed development generates roughly 21% more average daily trips than the approved development. This is attributed almost exclusively to the AM Peak hours, where we see a 32% increase, compared to only a 2% increase during the PM peak period.

The deficiency in this comparison is that it does not practically depict traffic volumes of the proposed Hudson Square Development. For one, the proposed "High Turnover (sit-down) Restaurant" will be Sweet Amy's Eatery, which is not open during weekday mornings (which is what the AM peak hours represent). Therefore, there will be no AM peak traffic volume generated by Sweet Amy's. Secondly, the average daily volume mandated in **TABLE 1** for the "Coffee Shop with Drive-Through" is representative of, and largely determined by, the volume of a Starbucks Coffee location. The proposed coffee shop is a Biggby coffee, which produces roughly 50% less volume than Starbucks according to data received from their corporate office provided by existing franchisees.

The resulting effect on average daily traffic volume, as well as AM and PM peak volumes, is represented in **TABLE 2: "Practical Volumes of Proposed Development".** When you exclude the AM trips from the

"High Turnover (sit-down) Restaurant" and adjust to accurate, historical Biggby Coffee traffic volumes, the comparison shows that the proposed development generates 43% less total volume during the AM peak hour and 15% less total volume during the PM peak hour than the currently approved development plan.

TABLE 1: Mandated Volumes of Proposed Development

Scenario	Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
						In	Out	Total	In	Out	Total
Approved Dev. Plan	Single-Family Detached	210	6	DU	76	2	4	6	4	3	7
	General Office Building	710	26,112	SF	361	47	6	53	9	45	54
	High Turnover (Sit-down) Restaurant	932	4,008	4,000	430	21	17	38	22	14	36
				Total New Trips	**867**	**70**	**27**	**97**	**35**	**62**	**97**
Proposed Dev. Plan	Mini-Storage	151	3,026	SF	4	1	0	1	1	0	1
	Multi-Family Housing (Low-Rise)	220	24	DU	229	7	23	30	20	11	31
	High Turnover (Sit-down) Restaurant	932	4,008	SF	430	21	17	38	22	14	36
	Coffee Shop with Drive-Through (Starbucks)	937	1,720	SF	918	75	73	148	34	33	67
				Pass-By (50% AM, 55% PM)	*482*	*37*	*37*	*74*	*16*	*18*	*36*
				Total Trips	**1,581**	**104**	**113**	**217**	**77**	**58**	**135**
				Total Pass-By	*482*	*37*	*37*	*74*	*18*	*18*	*36*
				Total New Trips	**1,099**	**67**	**76**	**143**	**59**	**40**	**99**
				Difference	**232**	**-3**	**49**	**46**	**24**	**-22**	**2**
				% Difference	**21%**	**-4%**	**64%**	**32%**	**41%**	**-55%**	**2%**

TABLE 2: Practical Volumes of Proposed Development

Scenario	Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
						In	Out	Total	In	Out	Total
Approved Dev. Plan	Single-Family Detached	210	6	DU	76	2	4	6	4	3	7
	General Office Building	710	26,112	SF	361	47	6	53	9	45	54
	High Turnover (Sit-down) Restaurant	932	4,008	4,000	430	21	17	38	22	14	36
				Total New Trips	**867**	**70**	**27**	**97**	**35**	**62**	**97**
Proposed Dev. Plan	Mini-Storage	151	3,026	SF	4	1	0	1	1	0	1
	Multi-Family Housing (Low-Rise)	220	24	DU	229	7	23	30	20	11	31
	High Turnover (Sit-down) Restaurant (Sweet Amy's*)	932	4,008	SF	430	0	0	0	22	14	36
	Coffee Shop with Drive-Through (Biggby**)	937	1,720	SF	459	38	36	74	17	17	34
				Pass-By (50% AM, 55% PM)	*241*	*19*	*18*	*37*	*9*	*8*	*17*
				Total Trips	**1,122**	**46**	**59**	**105**	**60**	**42**	**102**
				Total Pass-By	*241*	*19*	*18*	*37*	*9*	*8*	*17*
				Total New Trips	**881**	**27**	**41**	**68**	**51**	**34**	**85**
				Difference	**14**	**-43**	**14**	**-29**	**16**	**-29**	**-13**
				% Difference	**2%**	**-159%**	**34%**	**-43%**	**31%**	**-85%**	**-15%**

*Sweet Amy's not open for breakfast

**Biggby 50% less trips generated than Starbucks

In summary, this study clearly identifies that the practical uses of the proposed Hudson Square PUD produce less traffic volume during AM (-43%) and PM (-15%) peak hours than the approved development plan. The practical volume of traffic proposed in the Hudson Square plan is less than what has already been approved to be added to the road network (peak hours).

It is our intent to continue to work with the MDOT to comply with any mitigation requirements they deem necessary. This study simply highlights the reality that the proposed volume of traffic, per the Hudson Square proposal, is not adding additional volumes beyond what the current zoning ordinance allows for.

All the best,

Michael Wayne

Partner at Detroit Riverside Capital

Mobile (248) 953-4891

Email Michael.Wayne@Detroitriversidecapital.com

3300 Auburn Rd. Auburn Hills, Mi 48326

RECEIVED

JAN 04 2023

Orion Township
Planning & Zoning

giffels webster

December 29, 2022

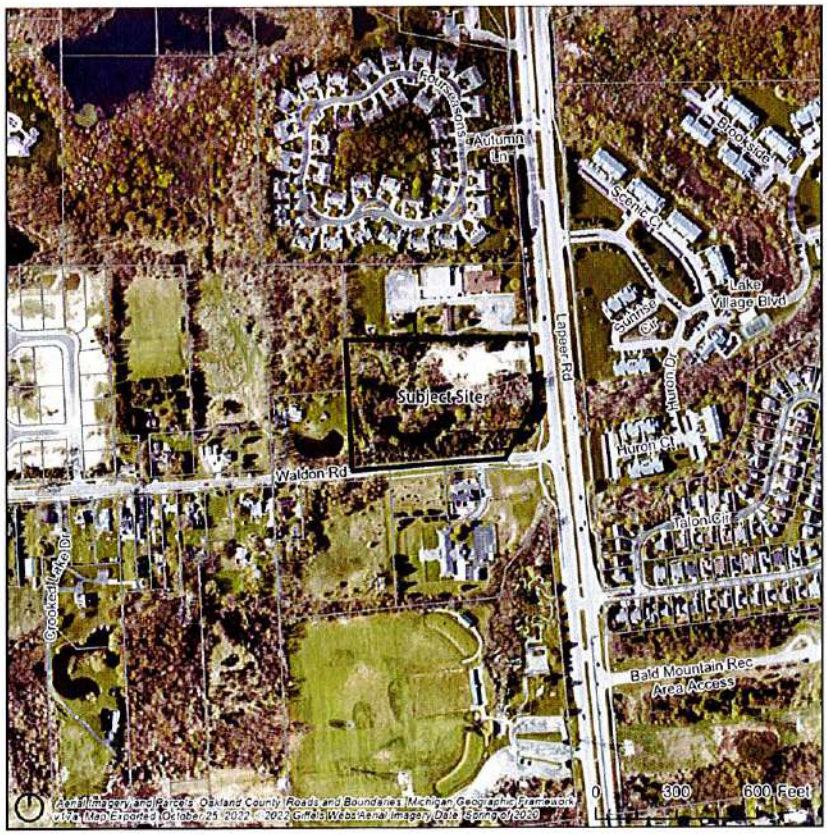
Orion Township Planning Commission
2525 Joslyn Road
Lake Orion, MI, 48360

Site Plan Review no. 2
Hudson Square PUD Concept

Case Number:	PC-2022-39	**Zoning:**	R-2 – Single-Family Residential GB – General Business, Conditional Rezoning / Special Circumstances
Address:	3030 S. Lapeer Road		
Parcel ID:	09-26-101-021		
Area:	7.07 acres		
Applicant:	Detroit Riverside Capital	**Reviewer:**	Eric Pietsch Rod Arroyo, AICP
Plan Date:	12/14/2022		

Dear Planning Commission Members:

We have reviewed the second submittal of the above application and PUD Concept Plan, and a response to each statement from the applicant is provided below.



PROJECT SUMMARY

The proposed Planned Unit Development (PUD) is located at the northwest corner of S. Lapeer and Waldon Roads. The 7.07-acre parcel consists of two underlying zoning districts, R-2 Single-family residential and GB General Business. Sole vehicular access to the commercial and residential development is provided along the east boundary via S. Lapeer Road. An existing wetland, largely within the southwest quadrant of the site, will serve as a protected natural feature, incorporating open space and a pedestrian pathway from Waldon Road into the residential area of the development. A drive-through restaurant and classic car club, with attached sit-down restaurant are planned for the eastern half of the site, within the underlying General Business zoning district. The 24 residential apartment units are proposed within the northwest quadrant of the development which consists of the R-2 zoning district.

SUMMARY OF ZONING ORDINANCE COMPLIANCE

The Orion Township Planning Commission postponed the conceptual PUD plan for the Hudson Square development on November 16, 2022. The following items are outlined in the Applicant List of Changes, dated December 13, 2022.

1. Fire truck turn-around area near the Northwest quadrant of the site revised to meet IFC requirements. Compliance has been confirmed by Orion Township Fire Marshal.
2. Stream relocation plan and storm detention features added to all plan sheets.
3. Site grading revised to meet Township requirements.
4. Sheet index updated on C-1.

   Planner comment: We defer to the review by the township engineer for comment on the above, first three items.

Additionally, DRC has provided the following comments in response to review letter topics:

5. DRC is open to the addition of a safety path link within the public right-of-way to the proposed public amenity, provided acceptable grades could be achieved. DRC will explore further during final PUD.

   Planner comment: At the November 16th meeting, the applicant stated the patio space at the southeast corner of the site will feature a public art piece. As stated in the first PUD review, the applicant should consider an additional safety path link within the public right-of-way to the proposed public amenity, which is currently only accessible via internal private sidewalk links.

6. The proposed density of the residential component of Hudson Square is 6 units per acre.

   Planner comment: The Future Density Plan calls for a high density residential classification of 3-5 dwelling units per acre. While a density of 6 units per acre exceeds this range, it is in keeping with the spirit of the Master Plan which encourages the clustering of units around natural features to maximize open space. The proposed, attached units also intend to address the demand for missing middle housing included in the Master Plan. The ultimate density shall be recommended by the Planning Commission and determined by the Township Board and shall be based upon the underlying zoning or a density as designated by the Master Plan.

7. Conceptual renderings of the proposed residential dwellings are included with submission 2. Further spec details of façade materials will be provided at Final PUD.

   Planner comment: The conceptual renderings provided are consistent with the renderings provided with the first review.

8. Hudson Square will comply with ordinance section 14.02, which states that any noise associated with an extended hour use shall not exceed 60 decibels when measured at the property line.

   Planner comment: Section 14.02.A.3. pertains to the proposed drive-thru restaurant, as it is a condition for drive-thru special use. This section states, *"any noise associated with an extended hour use shall not exceed 60 decibels when measured at the property line. The noise shall also not be intermittent in nature, high frequency, or that which causes vibration."*

9. Residential dwellings will dispose of trash through personal 96-gallon trash bins stored in the garage of each residence. Residents will be responsible to bring trash bins to the curb for weekly pickup.

   Planner comment: Section 14.03.I. allows for the Planning Commission, at their discretion, to *"waive the requirement for a covered trash receptacle as described herein, if, after considering the nature of the operation being proposed, the Planning Commission determines that the amount of trash generated can be adequately disposed of without use of an outside trash receptacle."*

10. With respect to the comment in Section 27.06.D.1.A, DRC asks GW to consider if the proposed structures "front" the internal road vs. front Lapeer Road.

    Planner comment: If it is the intent of the Applicant to maintain the entire site as one zoning lot, Lapeer Road can be considered the frontage for both residential and non-residential uses. If the Applicant chooses to place the residential use on a separate parcel, then the proposed dwelling units would be internal to the site, and they would require access from an internal roadway per the requirements of this section. Therefore, in this second scenario, the structures would not be considered to have Lapeer Road frontage. The Planning Commission should review this with the Applicant and may either accept the Lapeer frontage or may consider a waiver request to allow the internal roadway width, from Lapeer Road to the west termination, to be less than 60 feet with 30-foot paving section.

Staff will be available to discuss this review.

Respectfully,
Giffels Webster

Rodney L. Arroyo, AICP
Partner Emeritus

Eric Pietsch
Senior Planner

Zoning Map

Future Land Use Map

RECEIVED

NOV 1 1 2022

Orion Township
Planning & Zoning

giffels webster

November 10, 2022

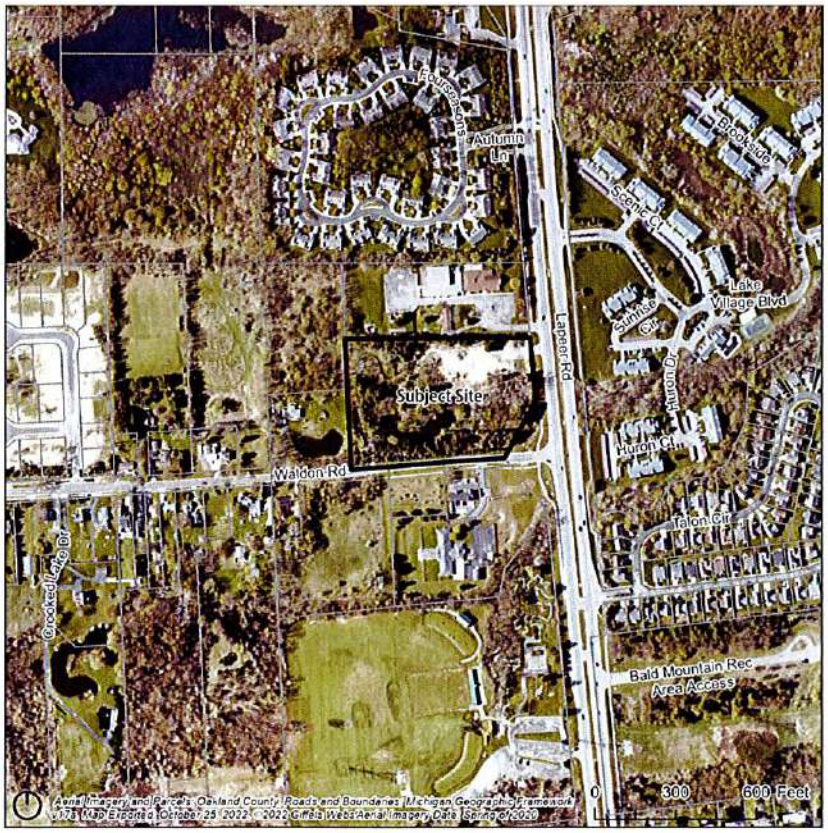
Orion Township Planning Commission
2525 Joslyn Road
Lake Orion, MI, 48360

Site Plan Review no. 1
Hudson Square PUD Concept

Case Number:	PC-2022-39	**Zoning**:	R-2 – Single-Family Residential GB – General Business, Conditional Rezoning / Special Circumstances
Address:	3030 S. Lapeer Road		
Parcel ID:	09-26-101-021		
Area:	7.07 acres		
Applicant:	Detroit Riverside Capital	**Reviewer**:	Eric Pietsch Rod Arroyo, AICP
Plan Date:	10/20/2022		

Dear Planning Commission Members:

We have reviewed the above application and PUD Concept Plan, and a summary of our findings is below. Items in **bold** require specific action by the Planning Commission. Items in *italics* can be addressed administratively.



PROJECT SUMMARY

The proposed Planned Unit Development (PUD) is located at the northwest corner of S. Lapeer and Waldon Roads. The 7.07-acre parcel consists of two underlying zoning districts, R-2 Single-family residential and GB General Business. Sole vehicular access to the commercial and residential development is provided along the east boundary via S. Lapeer Road. An existing wetland, largely within the southwest quadrant of the site, will serve as a protected natural feature, incorporating open space and a pedestrian pathway from Waldon Road into the residential area of the development. A drive-through restaurant and classic car club, with attached sit-down restaurant are planned for the eastern half of the site, within the underlying General Business zoning district. The 24 residential apartment units are proposed within the northwest quadrant of the development which consists of the R-2 zoning district.

SUMMARY OF REVIEW

1. **Intent.** The applicant is proposing a Mixed PUD with 24 multi-family dwelling units, a drive-thru only coffee shop, a sit-down restaurant, and a classic car club. Such a mix of uses may be permitted in a PUD subject to Section 30.03.C.3 of the zoning ordinance.
2. **Land Use.** The PUD concept provides for a more appropriate transition from commercial development along Lapeer Road to the higher density, multi-family residential and single family (existing) to the west. The density plan alternative would result in a more abrupt transition between single-family lots and the commercial uses. The new Master Plan reflects a desire for more attached dwelling units, including duplex, quadplex, and other missing middle housing units in appropriate locations. The proposed residential uses are attached multi-family quadplex units.
3. **Conditional Rezone.** In 2019, a conditional rezone allowed for the site for the southeast quadrant of the site to rezoned from R-2 to GB. The rezoning was conditioned upon the preclusion of a number of uses, one of which was drive-thru restaurants. The applicant intends to amend this restriction by way of the rezone to a PUD, and thus allow for the drive-thru restaurant to be considered as a special land use in the GB district.
4. **Off-street Parking.** The residential apartment units satisfy the parking requirements with 2-car, attached garages. An additional 9 on-street, visitor parking spaces are provided. The surface parking spaces provided in the GB zone satisfy the requirement of all proposed uses.
5. **Loading & Unloading.** The plans shall indicate the number of designated loading spaces, with full dimensions that demonstrate there is no interference or obstruction of the functionality and vehicular circulation of the proposed site layout.
6. **Preservation of natural features.** The central-west portion of the site contains wetland / natural features and is proposed to be preserved. A tree survey for the entire site has not yet occurred and is noted to occur at site plan review and Final PUD. The applicant should address any existing trees that are intended to be preserved and those intended for removal.
7. **Landscaping.** A landscape plan is required for a full review at the final plan review stage in order to demonstrate street & parking lot landscaping standards are met.
8. **Lighting.** A lighting plan is required at final plan approval for a full review of overall lighting standards.
9. **Building Height.** The height of the proposed buildings in the GB District (25 ft.) and R-2 District (30 ft.) complies with the ordinance standards.

10. **Improvements in traffic patterns.** The applicant should address how the project was designed to minimize the impact of traffic generated by the proposed development on surrounding uses, as outlined in 30.03.C.7. *We defer to the Township Engineer for further comment.*

11. **Pedestrian access.** The applicant emphasizes the desire to propose building and connecting the safety path network adjacent to the subject site. Internal pedestrian connections from all safety paths to the residential and commercial uses is shown. The applicant should consider an additional safety path link within the public right-of-way to the proposed public amenity, which is currently only accessible via internal private sidewalk links.

12. **Density plan submittal.** The applicant shall specifically state the proposed density of the development. Review and analysis indicate the residential density is approximately 6.52 dwelling units per acre which is higher than the Future Density Plan designation of 3-5 dwelling units per acre. The applicant has provided a parallel plan for comparison.

13. **Building materials.** Conceptual building elevations have been provided, but detailed building material documentation has not yet been submitted. The residential units will be of a modern farmhouse style and material.

14. **PUD Eligibility.** Planning Commission should review the PUD Eligibility Requirements following the waivers section below, and in the ordinance as part of this process. Public benefits proposed by the Applicant include preservation of wetland and wooded areas (28% of site preserved), safety path enhancements, aesthetic site elements, and a public art feature at the corner of Lapeer and Waldon Roads.

Waivers

1. A waiver to allow reduced setbacks of the drive-thru restaurant and its parking facilities to the north property line. Refer to plans and table below.
2. A waiver to allow the three multi-family residential buildings to encroach 5 ft. into the required 35-ft. setback along the north property line.
3. A waiver request to allow portions of the two eastern-most multi-family buildings to cross into the GB zoning district.
4. A waiver request to allow a reduction in width of the drive-thru maneuvering lanes to have adequate width that permit safe one-way traffic movement.
5. A waiver request to allow for one loading facility for the overall commercial development. A secondary loading area is substandard in length and would obstruct a dumpster enclosure.
6. A waiver to allow the internal roadway width, from Lapeer Rd. to the west termination, to be less than 60 feet with 30-foot paving section.

PUD Criteria

The Planning Commission should carefully review the PUD Criteria in Section 30.03. In general, the Planning Commission may recommend variations from PUD guidelines. By doing so, the intent is for the development to result in a corresponding benefit to the community.

The following are some highlighted areas:

Recognizable Benefit.

a. Preservation of natural features. A tree survey for the entire site has not yet occurred. Some wetland and natural areas are being preserved.
b. Preservation of cultural, architectural, or historic buildings. N/A
c. Improvements in traffic patterns. The PUD Intent section states that enhanced traffic circulation should be provided, and a less sprawling form of development should be encouraged. Limiting access to the development to a single point along Lapeer Road will preserve the existing natural features along the Waldon Road right-of-way. The applicant should consider a westward extension of the internal street to tie into a future street network. Refer to additional comment by the Township Engineer.
d. Improvements in public safety or welfare. Defer to Township engineer regarding traffic safety and public facilities. See letters from other departments for additional input.
e. High-quality architectural design. The applicant has indicated that attention has been given to enhanced, high quality design. Color renderings have not yet been provided, but elevations with listed materials are included in the plans.

See applicant submittal packet for additional information.

Density impact. The applicant has submitted a parallel subdivision plan. We note that it appears that the plan is not feasible under existing zoning, as access would be directly from a public street that connects to a private drive.

The applicant provided a density plan which compares the site with existing zoning. Maximizing the commercial square footages requires a significant coverage of surface parking. The parking lot is accessible from both Lapeer and Waldon Roads creating a second traffic conflict point. The R-2 district can accommodate 6 single-family homes with the density and natural features limitations, which is the same number of multi-family buildings proposed with the PUD. The applicant acknowledges the increased demand in public services but believes the overall impact is appropriate and in line with the township Master Plan.

Note: The ultimate density shall be recommended by the Planning Commission and determined by the Twp. Board and shall be based upon the underlying zoning or a density as designated by the Master Plan.

Township Master Plan. The Future Land Use map in the new Master Plan is generally consistent with the proposal. The Future Land Use category is High Density Residential, which designates 3-5 dwelling units per acre and encourages the clustering of units around natural features to encourage open space. The portion of the site that fronts S. Lapeer Road is categorized Special Circumstance from when the parcel was rezoned to GB.

Economic impact. This section states that the Planning Commission should determine that in relation to the existing zoning, the proposed development shall not result in a material negative economic impact upon surrounding properties.

Guaranteed open space. Section 30.03.B.5. states that 15% of the site shall be guaranteed open space including usable active and passive upland spaces and trails. Park-like amenities may be provided, and open space shall be equally available to all residents of the development with maintenance and ownership documentation shall be submitted. The plan reflects compliance with the percentages.

Unified control. This is a coordinated and interconnected development under the control of the applicant as outlined in the packet.

OTHER KEY PUD ISSUES.

Compatibility with adjacent uses.

Consideration shall be given to:

a. The bulk, placement, and materials of construction of proposed structures.
b. The location and screening of vehicular circulation and parking areas in relation to surrounding development.
c. The location and screening of outdoor storage, outdoor activity or work areas, and mechanical equipment in relation to surrounding development.
d. The hours of operation of the proposed uses.
e. The provision of landscaping and other site amenities.

Transition areas. The applicant is proposing open space and tree preservation as a transition area abutting single-family residential districts to the west and north of the site. Planning Commission should review these transitions with the applicant. The Zoning Ordinance requires that if the grade change adjacent to a single-family residential area is to be varied by more than three feet, the site plan shall include cross sections illustrating existing and proposed grades in relation to existing and proposed building heights.

Architectural and site element design. Residential facades should not be dominated by garages. Where attached garages are proposed, at least 50% of the garages should be side-entry or recessed, where the front of the garage is at least five feet behind the front line of the living portion of the principal dwelling. The intent of encouraging recessed or side entry garages is to enhance the aesthetic appearance of the development and minimize the visual impact resulting from the close clustering of units allowed under these regulations. Some additional detail will be needed to review. The proposed site design features side entry garages, which is consistent with this requirement.

Direction	Zoning	Use
North	R-2 – Single-Family Residential	Divine Grace Church & school
South	OP – Office & Professional	Orion Animal Care Center & Vacant
East	RM-1 – Multi-Family Residential	Indian Lake Village Apartments
West	R-2 – Single-family Residential	Single-family Residential & Vacant

Zoning Map

Future Land Use Map

Zoning Ordinance Compliance Tables

1. **Underlying District Standards.** General Business (GB)

TABLE OF LAND USE AND ZONING		
PIN: 09-26-101-021		
PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)		
UNDERLYING ZONE: GENERAL BUSINESS (GB)		
PROPOSED USE		
RESTAURANT WITH DRIVE-THRU SIT DOWN RESTAURANT CLASSIC CAR CLUB		
ZONING REQUIREMENT	**REQUIRED**	**PROPOSED**
MINIMUM LOT AREA	12,000 SF (0.275 AC)	163,195 SF (3.75 AC)
MAXIMUM LOT COVERAGE	30%	5.4% (8,754 SF)
MAXIMUM BUILDING HEIGHT	25 FT	< 25 FT
MINIMUM FRONT YARD SETBACK	30 FT	56.0 FT
MINIMUM SIDE YARD SETBACK	20 FT	N / A
MINIMUM REAR YARD SETBACK	30 FT	52.8 FT
MINIMUM BUILDING CLEAR SPACE	20 FT	PROVIDED
MINIMUM R.O.W. GREENBELT BUFFER	20 FT	52.7 FT
MINIMUM SINGLE-FAMILY GREENBELT BUFFER	30 FT	30.0 FT
MINIMUM OPEN SPACE	10%	PROVIDED
DRIVE-THRU / SINGLE FAMILY SETBACK	100 FT	52.8 FT (M)

(M) MODIFICATION

	GB
Front Yard Setback	30 ft.
Rear Yard Setback	30 ft.
Side Yard Setback	20 ft. on each side
Minimum Lot Area	12,000 sq. ft.
Maximum Lot Coverage	30%
Maximum Heights of All Structures	25 ft.
Minimum Clear Space Around Structures	20 ft.

General Business (GB) Standards (Article XIV)			
Section		**Requirement**	**Comment**
14.01 Permitted Uses		All uses within the General Business District shall be restricted to those listed as either permitted principal uses and/or special uses in the underlying zoning district. Single-tenant space shall not exceed 55,000 square feet of GFA.	Restaurant (no drive-thru): Permitted by Right **Restaurant (drive-thru): Special Use** Car Club (automobile): Permitted by Right
14.02 Conditions for Drive-Thru Special Use	A.	1. Setback. All buildings, drive-thru canopies, or speaker boxes shall be set back no less than 100 ft. from the lot line of a single-fam. or multi-fam. zoned and/or used parcel. Associated parking lots, maneuvering lanes, drive-thru lanes (if applicable) shall be set back no less than 50 ft. from the lot line of single-fam. or multi-fam. zoned and/or used parcels.	**Setbacks from North PL** **Building: 52.8'** **Drive-thru lane: 30'** **Menu board: 77'** **A PC Waiver is required for these standards.**
		2. Buffering. All parcel perimeters which abut a single-fam. zoned and/or used parcel shall have no less than a 6 ft. continuous buffer. The buffer may consist of a solid fence or wall, a double staggered row of evergreens, and/or a combination of each.	*The final plans shall show compliance of this requirement within the 30' setback from the north PL abutting an R-2 zone.*
		3. Noise. Any noise associated with an extended hour use shall not exceed 60 decibels when measured at the property line. The noise shall also not be intermittent in nature, high frequency, or that which causes vibration.	*The plans shall demonstrate compliance.*
		4. Lighting. Any operation or activity which produces glare shall not cause illumination in excess of 0.3 foot-candles when measured along the lot line of a single-fam. zoned and/or used parcel. Btw. dusk and dawn, the light levels shall be further reduced to 0.0 foot-candles when measured at the same property lines.	*The final plans shall include a photometric plan that demonstrates compliance of all lighting standards.*
	I.	Drive thru facilities as permitted in this Sect. shall be subject to the landscaping and screening wall requirements of Sec. 27.05	See General Provisions section below.
14.03 Required Conditions	Minimum Parcel Size		
	B.	The minimum lot area shall be 12,000 square feet.	163,195 sq. ft. of the parcel is zoned GB.
	Off-Street Parking		
	C.	1.B. One (1) parking space per 100 sq. ft. of GFA for restaurants.	Drive-thru restaurant: 17 sp. req., 17 sp. provided Sit-down restaurant: 40 sp. req., 40 sp. provided
		1.D. Parking requirements for all other uses in the GB district shall be based upon 1 parking space per 200 sq. ft. of GFA.	Classic Car Club: 15 sp. req., 15 sp. provided
		3. No parking area or driveway shall be closer than 30 ft. to the adj. property lines when the parcel abuts residential zoned or used property. When the parcel abuts commercial/office or	This standard is met.

		industrial zoned property, no parking area or driveway shall be closer than 20 ft. to the adj. property lines.	
		2. Driveways & parking areas shall be curbed & consist of hard surfaced concrete, blacktop, or equiv. as approved. by the PC.	This standard is met.
		3. All off-street parking shall conform to the standards set forth in Sect. 27.04 of this Ordinance.	See General Provisions section below.
		4. The required setback for parking may be reduced in width or waived by the PC when the parcel abuts commercial/office, or industrial zoned property, & when existing off-street parking, drives, and/or structures are located within the setback area.	This standard is not applicable.
	Landscaping		
	D.	1. A landscape plan shall be submitted to the PC for approval. The landscape plan shall specify plant materials & landscape treatment, based on the requirements of Sect. 27.05 of this Ord. for such items. This landscape plan shall be part of, or accompany, the site plan.	*A landscape plan is required to further demonstrate these design standards, as well as street & parking lot landscaping standards.* *To be reviewed at final.*
		2. A landscaped greenbelt at least 20 ft. in width shall be provided along the entire perimeter of a GB District, except where ingress or egress drives are located when the parcel abuts commercial/office or industrially zoned property. However, when the parcel abuts residentially used or zoned property, the landscape greenbelt shall be at least 30 ft. in width except where ingress or egress drives are located.	This standard is met.
		3. The off-street parking areas & access driveways shall be screened from view from any adjoining residential property. Such screening shall consist of earth berms, permanent walls, or evergreen landscaping subject to approval of the PC.	*The landscape plan, once provided, shall demonstrate compliance.*
		4. All landscaping & screening shall be maintained in an attractive, litter-free, safe & healthy condition. Maintenance of all landscaping shall be of sufficient frequency to prevent overgrowth & deterioration from the original condition.	*The landscape plan, once provided, shall comply.*
		5. The landscaped greenbelt required along with the perimeter of the parcel may be reduced in width or waived by the PC when the parcel abuts commercial/office or industrially zoned property. The PC may, at their discretion, modify or waive certain landscaping requirements in accordance with the considerations outlined in Sect. 27.05.	Not applicable. The subject parcel does not abut commercial, office, or industrial zoned property.
		6. Where comm. uses abut res. uses, the PC may req. a greenbelt buffer, berm, or obscuring wall or combination of these methods of screening in accord. with Sect. 27.05 (A)(5).	*Staggered evergreen screening is proposed as a buffer btw. the eastern commercial facilities & the western res. facilities.*
	Sign Regulation		
	E.	All signs shall comply with the standards set forth in Orion Twp. Sign Ordinance No. 153.	*Signage will be reviewed at final submittal.*

	Lighting Regulations		
	F.	1. A lighting plan shall be submitted with all site plans as set forth in Sect. 27.11 of this Ord. All other Zoning Ord. regulations shall apply unless otherwise noted in this Ord.	*A photometric plan is required for review of ordinance standards at final.*
		2. Exterior site lighting shall be fully shielded and directed downward to prevent off-site glare.	
		3. Site illumination on properties adj. to res. properties shall not exceed 0.3 foot-candle along property lines, or 1.0 foot-candle along non-residential property lines. Parking lot lighting shall be governed by Sect. 27.11.	
	Public Road Access		
	G.	Any use developed or proposed within this district shall have direct access to a dedicated public road having an existing or proposed right-of-way of at least 120 ft.	The proposed commercial development has direct access to S. Lapeer Rd., a public right-of-way of 180 ft. wide.
	Utilities		
	H.	All utilities servicing the bldgs. or structures shall be buried underground.	*The plans shall comply.*
	Covered Trash Areas		
	I.	1. Covered trash receptacles, surrounded on 3 sides by masonry brick-type walls 1 ft. higher than the receptacle shall be provided in the rear yard of the bldg. or principal use struct.	*The commercial conceptual PUD plans appear to comply. The final plans shall provide greater detail of the covered trash areas.* *The plans shall indicate how the multi-family portion will dispose of solid waste.*
		2. The fourth side of the trash receptacle enclosure shall be equipped with an opaque lockable gate that is the same height as the brick-type wall.	
		3. The PC may, at their discretion, waive the req. for a covered trash receptacle as described herein, if, after considering the nature of the operation being proposed, the PC determines that the amount of trash generated can be adequately disposed of without use of an outside trash receptacle.	
	Loading & Unloading		
	J.	1. Loading and unloading areas shall be located in the rear or side yard of a non-residential district.	These standards appear to be met.
		2. Loading and unloading areas shall not be located where they will interfere with parking or obstruct ingress and egress.	
		3. All loading and unloading areas shall be in conformance with the requirements set forth in Sect. 27.04.	*Refer to the General Provisions sect.*
	Performance Guarantee Requirement		
	K.	The PC shall require a performance guarantee to be deposited with the Twp. Clerk in accordance with the provisions set forth in Sect. 30.09, to ensure that necessary and required improvements proposed on the site plan will be completed.	*Applicant to confirm.*
	Safety Paths		
	L.	Construction of safety paths for pedestrian use & use by non-motorized vehicles shall be required in conjunction with the	*See General Provisions section below.*

		development of all parcels in this zoning district. The safety paths shall conform to the specs. outlined in Section 27.06 & Ord. No. 97.	
	Tree Preservation Regulations		
	M.	The tree permit requirements apply to developments in this District, according to the terms of Sect. 27.12.	*See General Provisions section below.*
	Wetlands Setbacks		
	N.	The wetland setback requirements apply to all developments in this District, according to the terms of Section 27.17.	*See General Provisions section below.*
	Noise		
	H.	Regulations regarding the abatement & control of excessive noise are found w/i the Chrtr. Twp. of Orion Noise Ord. No. 135.	*The applicant shall comply.*

2. **Underlying District Standards.** R-2 Single-Family Residential

	R-1	R-2	R-3
Minimum Lot Area	14,000 sq. ft.	10,800 sq. ft.*	8,400 sq. ft.*
Minimum Width of Lot	100 ft.	80 ft.	70 ft.
Minimum Lot Setbacks (in feet) Front Yard** Each Side Yard*** Rear Yard	 40 ft. 10 ft. 35 ft.	 35 ft. 10 ft. 35 ft.	 30 ft. 10 ft. 35 ft.
Minimum Floor Area/Unit	1,320 sq. ft.	1,080 sq. ft.	960 sq. ft.
Maximum Lot Coverage	25%		
Total Maximum Floor Area of All Accessory Buildings	See Section 27.02, A, 8		
Height of Structures	30 ft.	30 ft.	30 ft.

*In those instances where public sewers are not provided, a minimum lot area of 12,500 sq. ft. shall be provided.
** Where the front setbacks of two (2) or more principal structures in any block (in the case of platted properties) or within three hundred (300) feet (in the case of unplatted properties) in existence at the time of passage of this Ordinance, within the district zoned and on the same side of the street, are less than the minimum front setbacks required herein, then any building subsequently erected within said block (or three hundred (300) feet) shall not be less and not be greater than the average depth of the front setbacks of the existing structures.
*** Where a garage door or opening faces a side lot line, said side lot setback shall be thirty (30) feet.

TABLE OF LAND USE AND ZONING		
PIN: 09-26-101-021		
PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)		
UNDERLYING ZONE: SINGLE-FAMILY (R-2)		
PROPOSED USE		
MULTIPLE-FAMILY RESIDENTIAL		
ZONING REQUIREMENT	REQUIRED	PROPOSED
MINIMUM LOT SIZE	10,800 SF	N / A
MINIMUM LOT WIDTH	80 FT	N / A
MAXIMUM LOT COVERAGE	25%	N / A
MAXIMUM BUILDING HEIGHT	30 FT	< 30 FT
MINIMUM FRONT YARD SETBACK	25 FT	248.0 FT
MINIMUM SIDE YARD SETBACK	35 FT	65.8 FT
MINIMUM REAR YARD SETBACK	35 FT	30.3 FT (M)
MINIMUM BUILDING CLEAR SPACE	20 FT	30.0 FT
MINIMUM FLOOR AREA / UNIT	1,080 SF	N / A
MINIMUM OPEN SPACE	15%	PROVIDED

(M) MODIFICATION

3. **General Provisions.** The standards in the table below are a summary of the applicable Zoning Ordinance standards in Article XXVI; please refer to the individual sections referenced herein for the full Zoning Ordinance text.

General Provisions (Article 27)			
Condition	**Requirement**		**Comment**
27.03 Yard & Bulk Requirements	Projections Into Required Yards		
	C.	1) In all yards. Awnings and canopies; steps 4 ft. or less above grade which are necessary for access to a permitted bldg. or for access to a zoning lot from a street or alley; chimneys projecting 24 in. or less into the yard; approved free-standing signs; arbors and trellises; flagpoles; window unit air conditioners projecting not more than 18 in. into the req. yard; & fences or walls, subject to applicable ht. restrictions.	***The 3 multi-fam. apartment bldgs. closest to the north prop. line encroach into the req. setback by 5'. See section "F" below.*** ***PC Waiver / Modification required.***
		2) In front yards. Open, paved terraces not over 3 ft. above the avg. grade of the adjoining ground & not projecting farther than 10 ft. beyond the bldg., but not including roofed-over terraces or porches; 1-story bay windows & other architectural features projecting 3 ft. or less into the yards; & overhanging eaves & gutters proj. 3 ft. or less into the yard.	This standard appears to be met.
		3a) In rear yards. Balconies; fallout shelters; breezeways; open porches; one-story bay windows, & other architectural features projecting 3 ft. or less into the yard; & overhanging eaves or gutters projecting 3 ft. or less into the yard.	This standard does not apply. The north prop. line is the side yard from Lapeer Rd. frontage.
		3b) In rear yards. Decks may be permitted to project into a required rear yard when the following conditions are met...	Decks are not proposed with this development.
		4) In side yards. 1-story bay windows and other architectural features projecting into the required yard by not more than 2 in. for each 1 ft. width of side yard; and overhanging eaves and gutters projecting 18 in. or less into the yard.	This standard does not appear to apply.
	Location of Required Open Space.		
	E.	All yards & other open spaces allocated to a bldg. or group of bldgs. shall be located on the same zoning lot as such bldg. or group of bldgs.	***The 2 eastern-most multi-fam. bldgs. cross into the GB zoning dist.***
	Variances to Yard Regulations.		
	F.	The ZBA or PUD process may modify yard regulations by granting a variance for individual cases where literal enforcement of the provisions of the Ord. would not be reasonably possible or would result in unnecessary hardship. Examples where such variances from yard regulations would be appropriate include:	***See section "C" above. The encroachment into the req. yard necessitates a PUD PC Waiver from 35 ft. R-2 Dist. side yard min.***
		1) A planned development in a multiple-family district;	

		2) Cases where the applicability of the regulations on lots existing & of record at the time this Ord. became effective cannot be determined.	
		3) Lots that are peculiar in shape, topography, or site configuration.	
	Corner Clearance.		
	G.	No fence, wall, structure, or planting shall be erected, established, or maintained on any corner lot which will obstruct the view of drivers in vehicles approaching the intersection. Fences, walls, structures, or plantings located in the triangular area described below shall not be permitted to exceed a height of 30 in. above the lowest point of the intersecting road. The unobstructed triangular area referred to above may consist of either:	These standards appear to be met.
		1) The area formed at the corner intersection of 2 public ROW lines, the 2 sides of the triangular area being 30 ft. in length measured along abutting public rights-of-way lines, and the 3rd side being a line connecting these 2 sides, or	
		2) The area formed at the corner intersection of a public right-of-way and a driveway, 2 sides of a triangular area being 10 ft. in length measured along the ROW & driveway lines and the 3rd side being a line connecting these 2 sides.	
27.04 Parking and Loading	Off-Street Parking		
	A.	1a) Scope of Requirements.	
		i.) For all bldgs. & structures erected & all uses of land established after the effective date of this Ord., off-street parking shall be provided as required by the regulations of the districts in which such bldgs. or uses are located.	*The provided off-street parking shall comply with the parking standards required by the ord.*
		ii) If the intensity of use of any bldg., structure, or premises is increased through the addition of dwelling units, GFA, seating capacity, or other units of measurement specified herein for req. parking, additional off-street parking shall be provided for such increase in intensity of use.	The site consists of no existing bldgs. proposing additions.
		iii) Whenever the existing use of a bldg. or structure is changed to a new use, parking facilities shall be provided as req. by this Ord. for the new use, regardless of any variance which might have been in effect prior to the change of use.	
		1c) Additional Off-Street Parking. Nothing in this Ord. shall be deemed to prevent voluntary establishment of off-street parking facilities to serve any existing use or land or bldgs., provided that all regulations herein governing the location, design, & operation of such facilities are adhered to.	*The off-street parking spaces in excess of the ord. requirements must comply with all parking design standards.*
		1f) Electric Vehicle Charging Stations.	*Due to the foreseeable increase in electric vehicle demand, the PC may consider a*
		i) Permitted Locations. When accessory to a principal permitted use, electric vehicle charging stations are permitted in all zoning districts.	

		2a) Electric vehicle charging stations located within parking lots or garages may be included in the calculation of minimum required off-street parking spaces.	*percentage of EV parking spaces as a condition of PUD and site plan approval.*
		2b) Public electric vehicle charging stations are reserved for parking and charging electric vehicles only. Electric vehicles may be parked in any space designated for public parking subject to the restrictions that would apply to any other vehicle that would park in that space.	
		2c) Electric vehicle charging stations shall be sized the same as a standard parking space as required in the Off-Street Parking Chart herein.	
		2. General Requirements	
		a) Location. Off-street parking for other than residential uses shall be either on the same lot, or within 300 ft. of the bldg. or use it is intended to serve, if said spaces & uses are located in the same zoning district or zoned Parking District measured from the nearest point of the bldg. or use & the nearest point of the off-street parking lot.	This standard is met.
		Unless otherwise specified in the regulations for each dist., a min. setback of 20 ft. shall be maintained btw. any off-street parking area & adj. property lines. Enclosed bldgs. & carports containing off-street parking shall be subject to applicable yard requirements for the dist. in which they are located.	This standard is met.
		b) Residential Parking. Off-street parking spaces in single-family res. districts shall consist of a parking strip, driveway, garage, or combination thereof & shall be located on the premises they are intended to serve.	This standard is not applicable for this development.
		d) Access. Except on lots accommodating single-fam. dwellings, each off-street parking space shall open directly onto an aisle or driveway of sufficient width & design as to provide safe & efficient means of vehicular access. All off-street parking facilities shall be designed with appropriate means of vehicular access to a street or alley in a manner which will least interfere with traffic movement. Backing directly onto a street shall be prohibited. Ingress and egress to an off-street parking area lying in the area zoned for other than res. use shall not be across land zoned for res. use.	This standard appears to be met.
27.04 Parking & Loading	A.	e) Collective Use of Off-Street Parking. Off-street parking space for separate buildings or uses may be provided collectively. If parking facilities for separate buildings or uses are provided collectively, the total number of spaces so provided shall not be less than the number which would be required if the spaces were provided separately. The ZBA may reduce the total number of spaces provided collectively by up to 25% if such reduction is specifically approval as part of the required site plan approval process. Such approval shall be granted only on a showing that the parking demands of the 2 uses do not overlap.	This standard is met. 8 of the 17 req. parking spaces for the drive-thru. restaurant are provided in the surface lot south of the access drive. The number of collective spaces satisfies the ord. requirements.

		h) Parking Space for Physically Handicap	*Pertaining to h.3 & h.4, the 73-space surface parking facility, collectively servicing 3 separate establishments, shall improve pedestrian & ADA accessibility & connection btw. all bldgs.* ***Details can be addressed at the final plan review phase***
		1) Number. Each parking lot that services a bldg. entrance, except single or two-family residential or temporary structures, shall have a number of level parking spaces as set forth in the following table, and identified by above grade signs as reserved for physically handicapped persons.	
		2) Size. Accessible Parking Spaces for cars shall be a minimum of 13 ft. wide (8' wide parking space plus a 5' wide marked access aisle). Van-Accessible Parking Spaces shall be a minimum of 16 ft. wide (8' wide parking space plus an 8' wide marked access aisle).	
		3) Location. Parking spaces for the physically handicapped shall be located as close as possible to elevators, ramps, walkways, and entrances. Parking spaces shall be located so that the physically handicapped persons are not compelled to wheel or walk behind parking cars to reach entrances, ramps, walkways, or elevators.	
		4) Curbs. Where a curb exists btw. a parking lot surface & a sidewalk surface, an inclined curb approach or a curb cut with a gradient of not more than 1 ft. in 12 ft. & a width of not less than 4 ft. shall be provided for wheelchair access.	
		5) (See, also, State of Michigan Barrier-Free Rules.) The State rules, if they are more restrictive, shall apply in place of the Charter Twp. of Orion Ordinance provisions.	
		6) Number of Required Off-Street Spaces. Off-street parking spaces shall be provided in the quantities req. by the regulations for the districts in which the bldgs. or uses are located. For the purposes of computing the number of parking spaces required, the definition of "Structure Area" as set forth in Article II shall govern.	
		3. Layout and Construction	These standards appear to be met. *Detailed final site plans shall incl. all dimensional components of the pr. parking facilities.*
		a) Dimensions. Plans for the layout of off-street parking facilities shall be in accord with the requirements set forth in the Off-Street Parking Chart contained herein.	
		b) Maneuvering Lanes. Maneuvering lanes shall have adequate width to permit safe one-way traffic movement, with the exception of the 90 pattern, which shall provide for safe 2-way traffic movement. Each entrance and exit to & from a parking lot shall be at least 25 ft. from the nearest point of any property zoned for res. use.	**The one-way drive aisle adj. to the dumpster encl. of the drive-thru rest. appears to consist of an insufficient width. Applicant to confirm compliance during final review.**
		c) Surfacing and Drainage. Unless otherwise specified in the regulations for each dist., all off-street parking areas, access lanes, & driveways required under this section shall be surfaced with concrete, asphalt, or an equivalent hard,	These standards appear to comply.

		dustless surface as approved by the PC. Off-street parking areas, except those serving single or 2-family res. & railroad freight yards, shall also be curbed. Off-street parking areas, access lanes, & driveways shall be graded & drained so as to not drain onto adjacent property or toward bldgs. The grading, surfacing, & drainage plans shall be in conformance with the specifications of the Twp. Surfacing of all parking areas, access lanes, & driveways must be completed within 1 year of the date the permit is issued.	*Grading & drainage review is completed by the Township Engineer.*
27.04 Parking & Loading	A.	d) Lighting. Any lighting used to illuminate off-street parking areas shall be directed on the parking area only and away from nearby res. properties & public streets. In no case shall lighting exceed 3 foot-candles measured at the lot line.	*A lighting plan that meets all applicable standards shall be provided.*
		e) Screening and Landscaping. Except for those serving single and 2-family dwellings, all off-street parking areas shall be screened from view from any adjoining residential property. Such screening shall consist of earth berms, permanent walls, or evergreen landscaping, subject to approval of the PC & in accordance with the provisions set forth in Sect. 27.05. In cases where a wall extends to any alley which serves as a means of ingress & egress to a parking area, the wall may be ended within 10 ft. from the nearest edge of the alley so as to provide a wider access route to the parking area.	*A landscape plan is required at final to demonstrate compliance of all detailed landscaping standards.*
		f) Wheel Stops. Except for those serving single & 2-family dwellings, all parking lots shall be provided w/ wheel stops or bumper guards so located that no part of parked vehicles will ext. beyond the prop. line or into req. landscaped areas.	*The final plans shall comply with these standards.*
		h) Signs. Accessory signs shall be permitted in parking areas in accordance with the provisions set forth in the Orion Twp. Sign Ord. No. 153.	
	Off-Street Loading and Unloading		
	B.	1. Scope and Application	*Details of loading & unloading areas shall be represented on the final site plan(s) for each facility.*
		a) For all bldgs. & structures erected & all uses of land established after the effective date of this Ord., off-street loading and unloading space shall be provided as required by the provisions set forth in this sec. and by the regulations of the districts in which such bldgs. or uses are located.	
		2. General Requirements	*Circulation to be reviewed by Township engineer.*
		a) Location. Permitted and req. loading berths shall be located as provided in the regulations for each zoning district. Except as provided under Central Loading below, all req. loading berths shall be located on the same zoning lot as the use served. No permitted or req. loading berth shall be located within 30 ft. of the nearest intersect. of any 2 streets. Loading and unloading facilities shall not be so located as to interfere with ingress or egress or off-street parking.	
27.04		b) Size. Unless otherwise specified, any required off-street loading berth shall be at least 10 ft. in width by at least 50 ft.	

Parking & Loading		in length, exclusive of aisle and maneuvering space, and shall have a vertical clearance of at least 14 ft.	
		c) Access. Each required off-street loading berth shall be designed with appropriate means of vehicular access to a street or alley in a manner which will least interfere with traffic movement. A determination that this standard has been met shall be made by the PC during site plan review.	
		d) Surfacing. All off-street loading berths & loading dock approaches shall be surfaced with a permanent, durable surface, such as concrete, asphalt, or an equivalent material as approved by the PC. The grading, drainage, & surfacing plans for the loading area shall be in conformance with the specifications of the Twp. Engineer.	
		3. Specific Requirements	These standards do not apply to the multi-fam. units in the underlying R-2 zoning district.
		a) Residence Districts. Off-street loading facilities accessory to uses allowed in districts zoned for res. use shall be provided in accordance w/ the following min. requirements:	
		a1) For the uses listed hereunder, 1 loading berth shall be provided for bldgs. containing 10,000 to 100,000 sq. ft. of GFA, plus 1 additional loading berth for each additional 100,000 sq. ft. of GFA or fraction thereof: "All other non-residential uses in a residentially zoned dist.".	
		b) Business Districts (OP, RB, GB, SP-1, SP-2, REC-1, REC-2)	*Subject to further review at final plan stage.*
		b) i) Establishments containing less than 10,000 sq. ft. of GFA shall be provided with adequate [loading] facilities, accessible by motor vehicle off any adj. alley, service drive, or designated delivery area on the same zoning lot.	
	Restriction of Open Parking and/or Storage in All Districts Except Where Permitted; Regulation in Single-Family Residential Districts.		
	C.	1) These regulations are intended to control the open parking & storage of trailers, boats, & similar recreational vehicles so as to maintain the orderly appearance of the Twp.'s single-fam. neighborhoods.	The plans do not indicate the standards of this section apply to the proposed developments.
27.05 Landscaping, Fences, & Walls	Landscaping		
	A.	3. Landscaping Design Standards	
		Landscape Plan Submittal Requirements to be reviewed a final plan stage.	
27.06 Streets, Roads, and Other Means of Access	Access Across Residential District Land		
	B.	No land which is located in a residential district shall be used for a driveway, walkway, or access purposes to any land which is located in a non-residential district, unless such access shall be by a public street.	**If approved, this standard would not be applicable under the PUD rezone.**

27.06 Streets, Roads, and Other Means of Access	Acceleration/Deceleration/Passing Lanes		
	C.	1) Driveways providing ingress and egress to all 2-lane, paved major thoroughfares or collector streets shall be provided with paved acceleration and deceleration & passing lanes.	*These standards are subject to review & approval by the Township Engineer.*
		2) Driveways providing ingress and egress to roads of 4 or more lanes in width shall be provided with paved tapers for traffic entering the site.	
		3) Driveways providing ingress and egress to any gravel major thoroughfare or collector street shall be provided with tapers for traffic entering the site.	
		4) Required lanes or tapers shall be indicated schematically on the site plan and shall be constructed in accordance with the current standards for such facilities as est. by the RCOC.	
		5) Where it can be shown that such lanes or tapers already exist, the requirement may be waived or modified by the PC when site plan review is required by said body or by the Board of Appeals in all other instances.	
	Internal Roadways		
	D.	1) Width. Unless otherwise specified in Ordinance No. 60, Land Division and Private Roads, an internal or on-site roadway shall be at least 18 ft. in width.	This standard is met.
		a) For any zoning district other than single-fam. res. that has 3 or more structures proposed to front on an internal road, the ROW shall be 60 ft., with an improved surface of 30 ft.	**The internal roadway width, from Lapeer Rd. to the west termination, does not meet these standards. See eng. rev. A PUD Waiver is req.**
		b) For any zoning district other than single-fam. res. that has a single structure served by a driveway, the right-of-way shall be a minimum of 30 ft. with an improved surface of 18 ft.	
		2) Surfacing and Drainage. Unless otherwise specified, all internal or on-site roadways shall be surfaced with concrete, asphalt or an equivalent hard, dustless surface as approved by the PC. Roadways shall be graded & drained so as to not drain onto adjacent property or toward bldgs. The grading, surface, & drainage plans shall be in conformance with the specifications of the Twp. & approved by the Twp. Engineer.	*This standard appears to be met.*
	Service Roads		
	E.	If the PC determines that proposed or anticipated development will result in an excessive number of entrance or exit drives onto a major thoroughfare, thereby creating potentially hazardous traffic conditions and diminishing the carrying capacity of the thoroughfare, the Commission may require construction of service roads on abutting parcels to allow traffic circulation from 1 parcel to another without re-entering the public thoroughfare. Such service roads shall conform to the following standards:	
		1) Location and Dimensions. The front edge of the service road shall be located no closer than the future right-of-way line of the thoroughfare & shall be at least 24 ft. in width.	**May require PUD waiver. See engineer review.**
		2) Easement. Use of the service road shall be secured through an easement permitting the use of the service road for traffic circulation from 1 parcel to another. Said easement	*The applicant shall provide all required,*

27.06 Streets, Roads, and Other Means of Access		shall be in written form acceptable to the Commission and adopted by the Twp. Board prior to issuance of a building permit. No permanent structures other than the service road shall be permitted within the easement. Said easement shall be recorded with the Oakland County Register of Deeds.	*recorded documentation pertaining to the cross-access easement(s) if applicable.*
		3) Surfacing and Drainage. Service roads shall be surfaced with concrete, asphalt or an equivalent hard, dustless surface as approved by the PC. Roadways shall be graded & drained so as not to drain toward bldgs. The grading, surfacing, & drainage plans shall be in conformance with the specifications of the Twp. & approved by the Twp. Engineer.	This standard appears to be met.
		4) Maintenance. Each property owner shall be responsible for maint. of the easement & service road so that it remains usable as a means of circulating from 1 parcel to another.	
	Safety Pathways		
	F.	1) Location and Width. Req. pathways shall be 8 ft. in width & shall be located in the road ROW, with a setback of 1 ft. from the property line. The PC may modify this req. in consideration for the location of utilities, existing landscaping, or other site improvements.	*The plans (site & landscape) should indicate the path along Waldon Rd. is in the future ROW. The 1 ft. setback from the property lines should be shown throughout.*
		2) Design Standards. Required pathways shall be constructed of asphalt or concrete in accordance with adopted engineering standards for the Twp.	
		3) Alignment with Adj. Pathways. Req. pathways shall be aligned horizontally & vertically with existing pathways or sidewalks on adj. properties. The PC may waive this req. if existing adjacent pathways or sidewalks are not constructed in conformance with the standards set forth herein.	
		4) Signage. The PC may require installation of signage for the purposes of safety where it is necessary to separate vehicular traffic from ped. and bicycle traffic, or where it is necessary to alert vehicular traffic of the presence of the pathways.	
		5) Maintenance. The owner of the property which fronts on the required pathway shall be responsible for maintenance of the pathway, including patching cracked or deteriorated pavement and removal of glass and other debris.	
		6) Permits. It shall be the responsibility of the owner or developer to secure any required permits from the RCOC or MDOT to allow pathway construction in the road ROW.	
27.11 Lighting Regs.	Lighting Plan Submittal Requirements to be reviewed a final plan stage.		

Staff will be available to discuss this review at the next Planning Commission meeting.

Respectfully,
Giffels Webster

Rodney L. Arroyo, AICP
Partner Emeritus

Eric Pietsch
Senior Planner

RECEIVED

DEC 2 2 2022

Orion Township
Planning & Zoning

OHM Advancing Communities

December 21, 2022

Scott Reynolds, Planning Commission Chairperson
CHARTER TOWNSHIP OF ORION
2323 Joslyn Road
Lake Orion, MI 48360

RE: Hudson Square PUD, PC-22-39
Concept PUD Review #2

Received: December 14, 2022, by Orion Township

Dear Mr. Reynolds:

We have completed our review of the Hudson Square Concept PUD plan set. The plans, dated November 16, 2022, were prepared by Stonefield Engineering & Design, and were reviewed with respect to the Township's Zoning Ordinance, No. 78, Stormwater Management and Soil Erosion & Sedimentation Control Ordinance, No. 139, and the Township's Engineering Standards.

EXISTING SITE CONDITIONS:

The site is located on the west side of M-24 on the north side of Waldon Rd., within the northwest 1/4 of Section 26 of the Charter Township of Orion. The site has two different zonings. The eastern half is Conditionally zoned General Business (GB) and the western half is Single-Family Residential (R-2). The site is bound by parcels to the north and west zoned Single-Family Residential (R-2), to the south by parcels zoned Office and Professional (OP-1). The parcels east of the site across M-24 are zoned Multi-Family Residential (RM-1).

The site is a single parcel with split zoning. The General Business zoned parcel is 3.41 acres and the Single-Family Residential parcel is 3.66 acres, totaling 7.07 acres combined. The site was previously used as a flower shop and landscape supplier. The Existing Conditions Plan shows that the parking lot, garage, green houses, storefront, and house that were used by the previous business owner have now been removed. The majority of these buildings were demolished recently. The site is heavily wooded and contains a water course featuring a man-made pond in line with an existing stream and wetlands. The applicant is proposing to construct six (6), two-story, four-unit apartment buildings, two (2) restaurants (one drive-thru), and a Classic Car Club attached to the restaurant that does not include a drive-thru. It should be noted that the Classic Car Club and restaurant were previously approved under a separate submittal but has not yet been constructed.

The proposed development appears to protect the pond on site, enclosing the wetland stream, and relocating it to ensure that the existing drainage pattern is maintained as part of the development.

DENSITY PLAN:

A Density Plan was included and shows larger versions of the proposed Car Club and restaurant along with six (6) Single-Family units west of the Car Club and restaurant. Additionally, the Density Plan includes significantly more parking than the proposed Concept Plan. Impacts to the pond are proposed but do not appear necessary to facilitate building and parking lot construction. The stream appears to be enclosed and relocated with bioswales

OHM Advisors
1827 NORTH SQUIRREL ROAD
AUBURN HILLS, MICHIGAN 48326
T 248.751.3100
F 248.364.3001
OHM-Advisors.com

proposed within the green space east of the proposed restaurant and Car Club building. Underground detention is shown underneath the parking lot with a potential mechanical separator attached. It should also be noted that enclosing the stream and wetland that connect the pond to the ultimate outlet for the site may require mitigation and replacement of those wetland areas by both EGLE and Orion Township. While the site layout may be reconfigured to avoid additional wetland and pond impacts, we find that the Density Plan sufficiently accounts for the spatial requirements of the site.

WATER MAIN & SANITARY SEWER:

There is existing 16-inch water main along the west side of M-24 that also extends westward down the center of Waldon Rd. Existing water main was included in the plans, however proposed water main was not included in the submittal. Preliminary water main layout shall be included in the Final PUD plans. Preliminary Basis of Design, pipe size, and material type will be required at Final PUD. A 12-foot-wide easement will be required, centered along all proposed water main onsite.

If a single water service is proposed for each of the residential buildings, meter rooms with Knox boxes accessible by the Township shall be provided. The meter room requirements and Knox box access needs to be coordinated with the Township DPW.

There is existing 10-inch sanitary sewer along the west side of M-24 and along the north side of Waldon Rd. Existing sanitary sewer appears to have accurately been represented in the plans, however proposed sanitary sewer was not included in the submittal. Preliminary sanitary sewer layout shall be included in the Final PUD plans. Preliminary Basis of Design, pipe size, and material type will be required at Final PUD. A 20-foot-wide easement will be required, centered along all proposed water main onsite.

Preliminary franchise utility locations and easements shall be included at Final PUD. The franchise utility easement shall not overlap proposed water main and sanitary sewer easements except at perpendicular crossings and other infeasible locations.

Per Township sanitary sewer and water main modeling systems, sufficient sanitary capacity and water main flow is available to serve the proposed development.

STORMWATER MANAGEMENT:

The existing site drains inward toward the existing pond and stream prior to discharging into a 60-inch storm sewer that conveys drainage across M-24 and ultimately drains to Lower Trout Lake. The onsite drainage features handle significant amount of upstream flow from wetland areas that is routed through the pond, stream, and culvert. The stream is weir controlled and ends with a small pooling location at the 60-inch pipe inlet.

The proposed stormwater management plan appears to include a series of catch basins that connect to a 'potential' water quality unit and underground detention area prior to discharging into the 60-inch pipe that crosses M-24. MDOT approval for modifications to the storm sewer crossing M-24 will be required. NRCS Soil Maps indicate that onsite soils are suitable for infiltration and drainage (loamy sands). The applicant has also included potential bioswale areas to account for possible Channel Protection volume, though they are not shown connecting to the rest of the proposed stormwater collection system. Should Channel Protection be feasible for the site, the potential bioswale will have to be attached to the system and outlet at the same location the site drainage discharges to in its existing condition. We recommend planning for this condition and having the storm network running through the bioswale for the Final PUD submittal. Protecting the existing stream could be considered a BMP if Channel Protection is not viable based on future infiltration tests. Overall, the proposed system appears to follow the existing drainage pattern for the stormwater runoff onsite.

Preliminary detention volume and composite site C-value calculations shall be provided at Final PUD per Township Standards for the improvements to the site. A drainage area map for the upstream conveyance and flow calculations provided to support the design of the relocated stream will be required at engineering.

TRAFFIC & CIRCULATION:

Sidewalk adjacent parking spaces needs to be 7-feet wide to account for vehicle overhang. Please widen the sidewalk along the east side of the parcel and any other spaces that need to meet this condition. An ADA compliant crossing will be required at the approach. Please show ramps/landings at Final PUD. Detailed corner grades will be required at Engineering to assess compliance.

A sidewalk directly adjacent to the back of curb (carriage walk) is proposed in the Concept Plan. It is recommended that the carriage walk be relocated to be a minimum of 5 feet off the back of curb within the General Business portion of the site.

The applicant appears to be tying into the existing asphalt on the west side of the site via internal site sidewalk. The removal for the asphalt approach is shown on the Existing Conditions Plan but does not appear to indicate connection to the proposed public pathway. Please alter the limits of removal or the Site Plan to show the existing asphalt connecting to the public pathway with the approach onto Waldon Rd. removed.

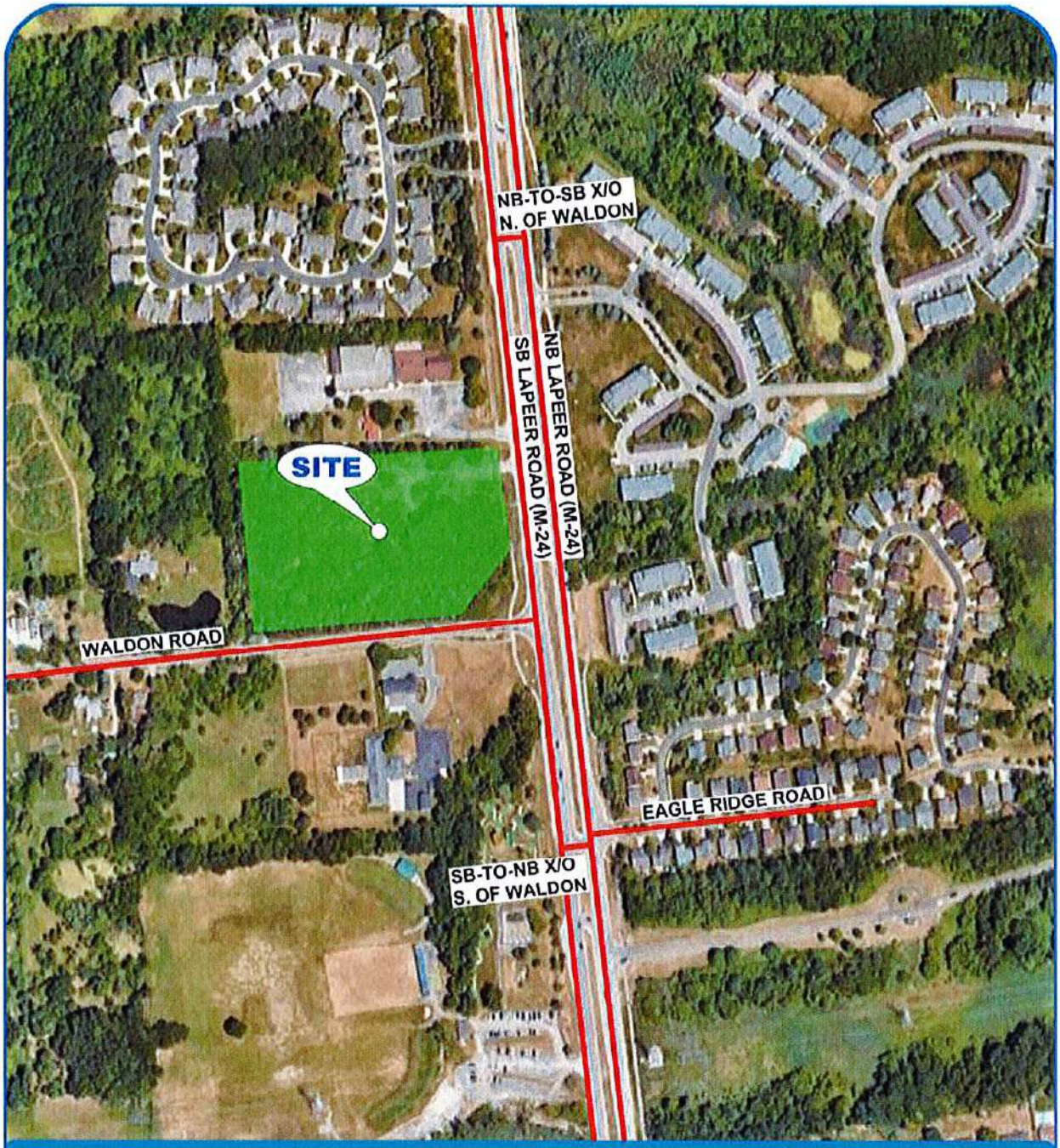
The multi-family portion of the development is more than 150 feet in length and requires an approved turnaround for fire safety access. A vehicle turn analysis was provided for the Orion Township Platform Truck and the site appears to facilitate turning motions. Please refer to the Fire Department for additional comment on fire truck access.

A Traffic Impact Study (TIS) was provided for review. Per the TIS, traffic signals are warranted at the three (3) intersections (see below map from the study):

- SB Lapeer Road (M-24) & NB-to-SB Crossover, North of Waldon Road
- SB Lapeer Road (M-24) & Waldon Road
- NB Lapeer Road (M-24) & SB-to-NB Crossover, South of Waldon Road

However, the study states that queues are not significant for the SB Lapeer Road (M-24) & NB-to-SB Crossover, North of Waldon Road and therefore a signal should not be installed at this intersection. While the queues do not present a significant issue, level of service and delay are of concern. In the AM peak, the delay at the intersection is 58.7 seconds during existing conditions and nearly doubles to 102.8 seconds during the future conditions. Furthermore, crash and progression signal warrants should be performed for this intersection. Recommendation for the placement of a signal at this intersection should be further considered.

The provided Synchro models include the signalized intersection of the crossover north of Greenshield Road. The inclusion of this upstream signal-controlled intersection allows for consideration of vehicle progression and queuing. Traffic volumes should be provided at this location to validate signal progression and queuing results from the model.



F&V

FIGURE 1

SITE LOCATION MAP

HUDSON SQUARE TIS - ORION TOWNSHIP, MI

LEGEND

SITE — SITE LOCATION

NORTH
SCALE: NOT TO SCALE

Under the existing conditions the NB Lapeer Road (M-24) & SB-to-NB crossover south of Waldon Road has vehicle queuing issues especially in the PM peak hour. Per the study, long vehicle queues for the southbound to northbound U-turn movement at the crossover were occasionally observed to exceed the available storage area and block the southbound through traffic. These long vehicle queues are the result of vehicles struggling to find adequate gaps within the NB Lapeer Road (M-24) through traffic. Additionally, when the available SB-to-NB crossover storage area becomes blocked, vehicles along eastbound Waldon Road attempting to travel north on Lapeer Road (M-24) were observed to not progress through the intersection of SB Lapeer Road (M-24) & Waldon Road, even when adequate gaps were present within the southbound traffic flow.

Under the Future Conditions without mitigation, the PM peak hour indicates long vehicle queues for the southbound to northbound U-turn movement at this same crossover. The study indicates these vehicle queues often exceed the available storage area, resulting in southbound traffic backing into and blocking the other study intersections along SB Lapeer Road (M-24). As a result, when the available SB-to-NB crossover storage area becomes blocked, increased delays and longer vehicle queues are experienced for all traffic on the eastbound Waldon Road approach and on the eastbound site driveway approach.

While the existing conditions note queuing issues with the SB-to-NB crossover south of Waldon Road, the proposed development will further worsen the condition without mitigation.

It should be noted that M-24 is under the jurisdiction of MDOT and Waldon Road under the jurisdiction of RCOC. Those agencies will have the ultimate authority to permit installation of the suggested signals. While the TIS recommends traffic signals be installed at the M-24/Waldon intersection and at the SB to NB crossover south of Waldon Rd, it is our understanding the applicant does not intend to include this mitigation as part of the PUD. Since MDOT has yet to complete their review of the TIS, it is unknown if MDOT will require and/or permit the recommended signals. Hence, the applicant will need to coordinate with MDOT on the required mitigation following their review.

PAVING & GRADING:

Existing grades were provided via 2-foot contours and spot grades along pavement areas and natural water features. The high-point onsite is at approximately 990 along the northern border of the site, with the low-point being at approximately 968 where the existing stream outlets. Proposed grades were provided via mostly 2-foot contours with some 1-foot contours included along with spot grades at top-of-curb and bottom-of-curb. Finish floor grades for each building were also included. Contours appear to reflect a maximum slope of 1:4 within the site which is acceptable per Township Standards.

Pavement slopes appear to be acceptable for Concept PUD review and will be reviewed in greater detail at Engineering. In general, pavement slopes are to remain between 1 and 4% in parking areas and 1 and 6% in drive aisles. Ramp and landing corner grades will be required at Engineering to assess ADA compliance. Pavement sections for the sidewalk, public pathway, MDOT approach, drive aisles, and dumpster pads will be required at Final PUD.

NATURAL FEATURES:

WOODLANDS

There is a large quantity of existing trees onsite. The highest concentration appears to be in the southeast corner of the site. A tree survey identifying landmark trees and tabulating the necessary tree removals and replacement trees will be required at Final PUD.

WETLANDS

There are wetlands located in the southern half of the site. There is currently sheet piling and a weir on the east side of the wetlands which allows controlled drainage to flow down an existing stream prior to entering a small pond that has a secondary weir which allows water into the 60-inch storm sewer that conveys the water east across M-24. The applicant is proposing to remove the stream, small pond, and both weirs from the site, in favor of a

new drainage course using a proposed swale-drain along the south side of the site. Other wetland impacts include proposed storm sewer, water main, paving and retaining walls within the 25-foot wetland buffer. It should be noted that the Classic Car Club site originally included some of the impacts to these wetlands and was approved for wetland impact activities. The EGLE Wetland Impact Permit was included with the application and is valid until May 12, 2025. An additional or amended permit from EGLE and Orion Township will be required for the stream removal and other impacts to the wetland including the 25-foot buffer. The permit application to Orion Township will be required at Final PUD.

LANDSCAPING:

A Landscape Plan was not included in the plans and will be required at Final PUD. The applicant shall provide sufficient separation between public utilities (water main and sanitary sewer), and trees.

CONCLUSION:

In our opinion, the Concept PUD is in substantial compliance with the Township's ordinances and engineering standards. We ask that any approval include the following:

1. Resolution of traffic impacts to M-24 in coordination with MDOT and Orion Township prior to Final PUD approval.
2. Provide traffic volumes for the crossover north of Greenshield Road to validate signal progression and queuing results from the model.

Please feel free to contact us with any questions at (248) 751-3108 or joseph.lehman@ohm-advisors.com.

Sincerely,
OHM Advisors

Joe Lehman, PE
Project Engineer

Mark A. Landis, PE
Project Manager

cc: Chris Barnett, Township Supervisor
David Goodloe, Building Official
Bill Basigkow, Director of Public Services
Tammy Girling, Director of Planning and Zoning
Lynn Harrison, Planning and Zoning Coordinator
Jeff Williams, Township Fire Marshal
Rod Arroyo, Township Planning Consultant
John Canine, Applicant
Michael Wayne, Detroit Riverside Capital
File

P:\0101_0125\SITE_OrionTwp\2022\0121221200 Hudson Square PUD\MUNI\Concept PUD\3rd Review\2022.12.19_Hudson Square_ConceptPUD.docx

OHM Advancing Communities

December 1, 2022

RECEIVED

DEC 2 2022

Orion Township
Planning & Zoning

Scott Reynolds, Planning Commission Chairperson
CHARTER TOWNSHIP OF ORION
2323 Joslyn Road
Lake Orion, MI 48360

RE: Hudson Square PUD, PC-22-39
Concept PUD Review #2 – TIS rev1

Received: November 10, 2022, by Orion Township

Dear Mr. Reynolds:

We have completed our review of the Hudson Square Concept PUD Traffic Impact Study. The study, dated November 9, 2022, was prepared by Fleis & Vandenbrink, and was reviewed with respect to the Township's Zoning Ordinance, No. 78 and the Township's Engineering Standards.

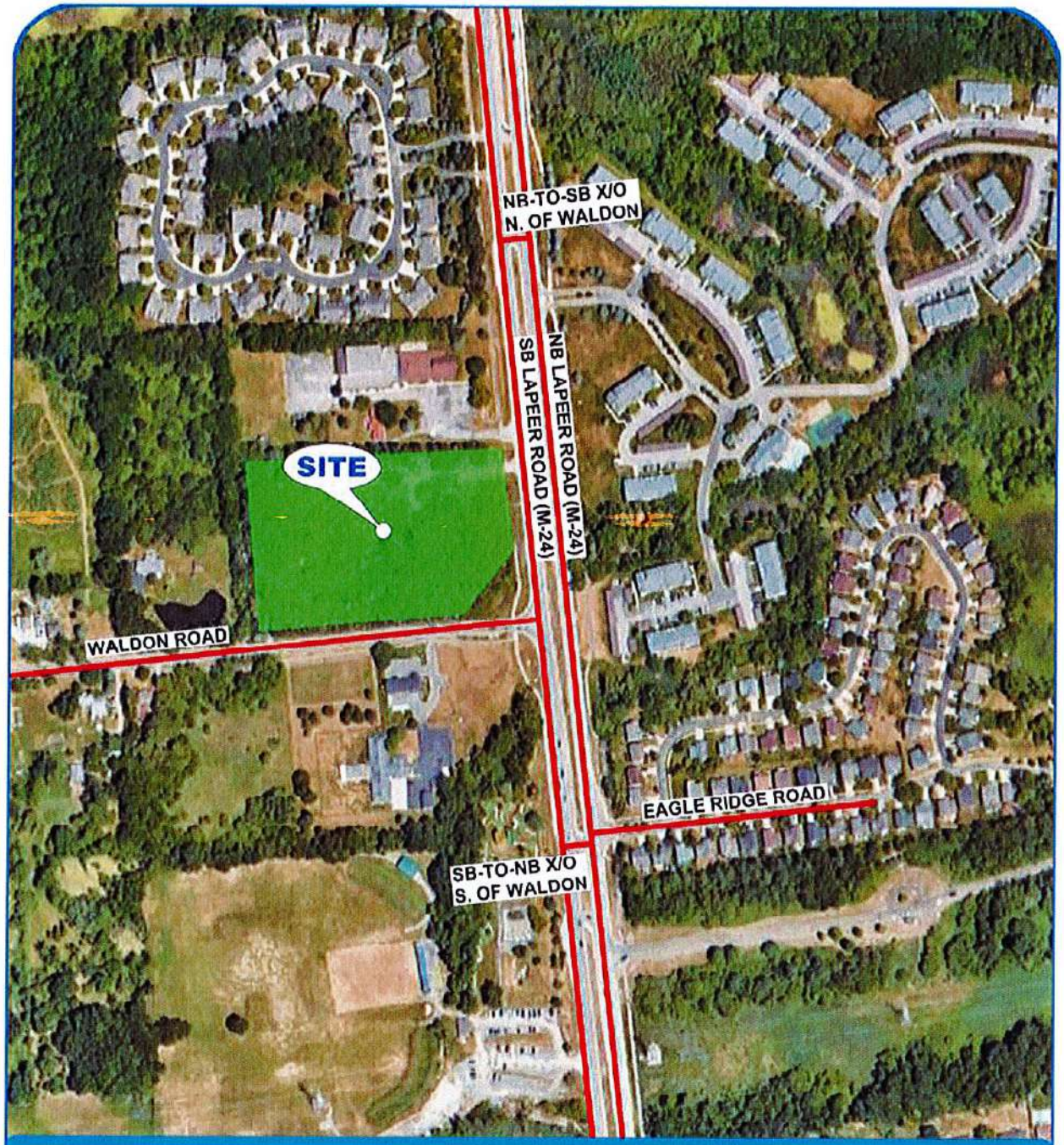
TRAFFIC & CIRCULATION:

Per the TIS, traffic signals are warranted at the three (3) intersections (see below map from the study):

- SB Lapeer Road (M-24) & NB-to-SB Crossover, North of Waldon Road
- SB Lapeer Road (M-24) & Waldon Road
- NB Lapeer Road (M-24) & SB-to-NB Crossover, South of Waldon Road

However, the study states that queues are not significant for the SB Lapeer Road (M-24) & NB-to-SB Crossover, North of Waldon Road and therefore a signal should not be installed at this intersection. While the queues do not present a significant issue, level of service and delay are of concern. In the AM peak, the delay at the intersection is 58.7 seconds during existing conditions and nearly doubles to 102.8 seconds during the future conditions. Furthermore, crash and progression signal warrants should be performed for this intersection. Recommendation for the placement of a signal at this intersection should be further considered.

The provided Synchro models include the signalized intersection of the crossover north of Greenshield Road. The inclusion of this upstream signal-controlled intersection allows for consideration of vehicle progression and queuing. Traffic volumes should be provided at this location to validate signal progression and queuing results from the model.



F&V

FIGURE 1

SITE LOCATION MAP

HUDSON SQUARE TIS - ORION TOWNSHIP, MI

LEGEND

SITE — SITE LOCATION

NORTH
SCALE: NOT TO SCALE

Under the existing conditions the NB Lapeer Road (M-24) & SB-to-NB crossover south of Waldon Road has vehicle queuing issues especially in the PM peak hour. Per the study, long vehicle queues for the southbound to northbound U-turn movement at the crossover were occasionally observed to exceed the available storage area and block the southbound through traffic. These long vehicle queues are the result of vehicles struggling to find adequate gaps within the NB Lapeer Road (M-24) through traffic. Additionally, when the available SB-to-NB crossover storage area becomes blocked, vehicles along eastbound Waldon Road attempting to travel north on Lapeer Road (M-24) were observed to not progress through the intersection of SB Lapeer Road (M-24) & Waldon Road, even when adequate gaps were present within the southbound traffic flow.

Under the Future Conditions without mitigation, the PM peak hour indicates long vehicle queues for the southbound to northbound U-turn movement at this same crossover. The study indicates these vehicle queues often exceed the available storage area, resulting in southbound traffic backing into and blocking the other study intersections along SB Lapeer Road (M-24). As a result, when the available SB-to-NB crossover storage area becomes blocked, increased delays and longer vehicle queues are experienced for all traffic on the eastbound Waldon Road approach and on the eastbound site driveway approach.

While the existing conditions note queuing issues with the SB-to-NB crossover south of Waldon Road, the proposed development will further worsen the condition without mitigation.

It should be noted that M-24 is under the jurisdiction of MDOT and Waldon Road under the jurisdiction of RCOC. Those agencies will have the ultimate authority to permit installation of the suggested signals. While the TIS recommends traffic signals be installed at the M-24/Waldon intersection and at the SB to NB crossover south of Waldon Rd, it is our understanding the applicant does not intend to include this mitigation as part of the PUD. Since MDOT has yet to complete their review of the TIS, it is unknown if MDOT will require and/or permit the recommended signals. Hence, the applicant will need to coordinate with MDOT on the required mitigation following their review.

CONCLUSION:

In our opinion, the Traffic Impact Study is in substantial compliance with the Township's ordinances and engineering standards. We ask that any approval include the following:

1. Further consideration should be given to recommending a traffic signal at the SB Lapeer Road (M-24) & NB-to-SB crossover, North of Waldon Road intersection.
2. Provide traffic volumes for the crossover north of Greenshield Road to validate signal progression and queuing results from the model.
3. The TIS recommends traffic signals be installed at the M-24/Waldon Road intersection and at the SB to NB crossover on M-24 south of Waldon Road. The applicant will need to coordinate with MDOT on the required mitigation.

Please feel free to contact us with any questions at (248) 751-3108 or joseph.lehman@ohm-advisors.com.

Sincerely,
OHM Advisors

Joe Lehman, PE
Project Engineer

Mark A. Landis, PE
Project Manager

cc: Chris Barnett, Township Supervisor
David Goodloe, Building Official
Bill Basigkow, Director of Public Services
Tammy Girling, Director of Planning and Zoning
Lynn Harrison, Planning and Zoning Coordinator
Jeff Williams, Township Fire Marshal
John Canine, Applicant
Michael Wayne, Detroit Riverside Capital
File

P:\0101_0125\SITE_OrionTwp\2022\0121221200 Hudson Square PUD\MUNI\Concept PUD\2nd Review - TIS only\2022.12.01_Hudson Square_ConceptPUD - TIS rev1.docx

Charter Township of Orion

3365 Gregory Rd., Lake Orion MI 48359
www.oriontownship.org

Fire Department
Phone: (248) 391-0304, ext. 2000
Fax: (248) 309-6993

RECEIVED

DEC 21 2022

Orion Township
Planning & Zoning

To: Planning Commission/Planning & Zoning Director
From: Jeff Williams, Fire Marshal
Re: PC-22-39, Hudson Square, 2nd Submittal
Date: 12/21/2022

The Orion Township Fire Department has completed its review of Application PC-22-39 for the limited purpose of compliance with Charter Township of Orion Ordinance's, Michigan Building Code, and all applicable Fire Codes.

Based upon the application and documentation provided, the Fire Department has the following recommendation:

X Approved
Approved with Requirements (See below)
Not approved

Requirements: NONE

This approval is limited to the application and materials reviewed which at this time do not raise a specific concern with regard to location and/or impact on health and safety. However, the approval is conditioned upon the applicant providing sufficient additional information at time of building permit application that includes data or documents, confirming full compliance with all applicable building codes, fire codes and Township Ordinances.

If there are any questions, the Fire Department may be reached at 248-391-0304 ext. 2004.
Sincerely,

Jeffrey Williams

Jeff Williams, Fire Marshal
Orion Township Fire Department

WRC

WATER RESOURCES COMMISSIONER

Jim Nash

October 21, 2022

Lynn Harrison
Orion Township
Planning & Zoning
2323 Joslyn Road
Lake Orion, MI 48360

Reference: **Hudson Square – CAMS #202200828**
Part of the NW ¼ of Section 26, Orion Township

Dear Ms. Harrison,

This office has received one set of plans for the Hudson Square Project to be developed in the Northwest ¼ of Section 26, Orion Township.

Our stormwater system review indicates that the proposed project has no direct involvement with any legally established County Drain under the jurisdiction of this office. Therefore, a storm drainage permit will not be required from this office.

The water system is operated and maintained by Orion Township and plans must be submitted to Orion Township for review.

The sanitary sewer is within the Clinton-Oakland Sewage Disposal System. Any proposed sewers of 8" or larger may require a permit through this office.

Please note that all applicable permits and approvals from federal, state or local authorities, public utilities and private property owners must be obtained.

Any related earth disruption must conform to applicable requirements of Part 91, Soil Erosion and Sedimentation Control of the Natural Resource and Environmental Protection Act, Act 451 of the Public Acts of 1994. An application should be made to Orion Township for the required soil erosion permit.

If there are any questions regarding this matter, please contact Dan Butkus at 248-897-2744.

Sincerely,

Brian Bennett, P.E.
Civil Engineer III

One Public Works Drive • Building 95 West • Waterford, MI 48328-1907
Phone: 248.858.0958 • Fax: 248.858.1066 • www.oakgov.com/drain

ISO REGISTERED 9000 14000

A site walk was conducted on November2, 2022. The site has been reviewed at least 2 other times within the last 3 years. The site is located at the northwest corner of Lapeer Road and Waldon Road. The previous building has been demolished and the property is vacant. It is heavily wooded with a pond and stream along the southern property. There is dense foliage along the Waldon Road property line.
The property abuts a church to the north. To the south is a veterinary office building and dog kennel.
Previous requests included a 2 story car club and restaurant and a multistory apartment complex.

Respectfully submitted,

Donald Gross, Planning Commissioner

Donald Gross, Planning Commissioner
Charter Township of Orion
2525 Joslyn Rd., Lake Orion MI 48360
dgross@oriontownship.org
http://www.oriontownship.org

RECEIVED
NOV 02 2022
Orion Township
Planning & Zoning

254 Four Seasons Drive
Lake Orion, MI 48360

October 31, 2022

Planning Commission
Orion Township Hall
2323 Joslyn Road
Lake Orion, MI 48360

RECEIVED
NOV 01 2022
Orion Township
Planning & Zoning

To: Lake Orion Township

re: PC-22-39, Hudson Square Planned Unit Development
3030 S. Lapeer Road, (Sidwell #09-26-101-021)

I oppose the rezone of this property from single family residential and conditional general business to planned unit development w/mixed use . . . drive up coffee shop and sit down restaurant w/attached car club and 6 building multi-family residential.

My reason for my objection is the additional vehicle traffic that will be brought on by the drive thru coffee shop and restaurant on this intersection. The traffic is always backed up on Waldon Road turning right on Lapeer - this is just not acceptable as there is no light or ?? to help the traffic flow. I can just see the line up of vehicles for coffee which will interfere with the Church, condo complex, Animal Hospital, and those turning right on to Waldon Road, along with the walkers and bike riders. The traffic speed is 55 mph+ - having this congestion at this site is many accidents waiting to happen. I've seen the back up of traffic from the Starbucks in town. Do we really another situation like that in this area?

Please reject this proposal, please!

Sincerely,

Cheryl Querro

Cheryl Querro

RECEIVED

NOV 07 2022

Orion Township
Planning & Zoning

Objection to rezoning of 3030 S. Lapeer Rd, Sidwell #09-26-101-021.
PC-22-39, Hudson Square Planned Unit Development

I would like to voice my objection to the rezoning of property at 3030 S. Lapeer Rd PC-22-39.

A free standing drive-thru coffee shop, a car club with sit down restaurant and multi family homes, wow that's a lot going on ..it is too much for this corner of Lapeer and Waldon in my opinion.

I feel as if the developer is pushing the envelope to see where the line will be in regards to how much they can pack into this area ...this is just "scope creep" pain and simple.

I urge the Planning commission to reject this request for rezoning and to find a development that "fits" the area in regards to the master plan and the surrounding community.

Thank you for your time and consideration,

Michael Caldwell
336 Four Seasons Dr
Lake Orion, MI 48360

October 31, 2022

Mr. Scott Reynolds
Orion Township Planning Commission
2323 Joslyn Rd.
Lake Orion, MI., 48360

RECEIVED
NOV 07 2022
Orion Township
Planning & Zoning

Dear Mr. Reynolds,

I am writing this letter in response to the recently proposed development at 3030 S. Lapeer Rd. Like many in our community, my Husband and I moved to this area after many years working in a congested urban environment. We chose this community because of the amenities it offered, but most importantly the slower pace and peaceful lifestyle that this community afforded. In addition to our fellow retirees, we have encountered many young families who chose to raise their children away from the chaos of urban life. We felt we had it all, a slower simpler lifestyle, reasonable traffic, the absence of noise and all the negative aspects of densely populated areas. Through the years development, both commercial and residential have fundamentally changed the landscape of this once laid-back community. Navigating the roads at certain times of the day is virtually impossible. Simple trips must now be timed to avoid endless gridlock. Traffic noise and pollution are drowning out a once peaceful existence. Crime, although still relatively low, is sure to follow unchecked expansion. This can only further drain limited resources, the cost of which will far outstrip the limited tax revenue generated by this reckless development. The true cost will be borne by hardworking residents and retirees with limited resources. It won't be long before the taxpayers are asked to approve tax mileages to widen roads and install infrastructure to support a system not originally intended for its current use. None of this is in keeping with the nature of the community or the desires of those who moved here to escape that toxic lifestyle. My Husband and I made great sacrifices during our working years to be able to live in a place where we could enjoy the peace and quite of our golden years. We are not however possessed with infinite resources that allow us to pick up and go elsewhere. In our vulnerable years we are at the mercy of those tasked with maintaining the dignity of this community and the essence of a lifestyle we worked very hard to obtain. How many coffee shops, restaurants, car clubs, strip malls, and gas stations do we really need? Respectfully, we must ask you and your colleagues to reject this further development, lest the damage already done become unreversible.

Sincerely
Beverly Walton

RECEIVED

NOV 15 2022

Orion Township
Planning & Zoning

From: Linda Martin-Seng <lindamartinseng77@gmail.com>
Sent: Tuesday, November 15, 2022 6:57 AM
To: Tammy Girling <tgirling@oriontownship.org>; Lynn Harrison <lharrison@oriontownship.org>
Cc: info@sweetamyseatinghouse.com
Subject: New restaurant/coffee shop approval!

Good morning,

I am writing to express my excitement for a new Sweet Amy's restaurant in Orion Township! Although we are from Clarkston, we frequented the previous facility often (at least once a week) because it was good, clean food with options for people with food sensitivities and allergies. We eat very clean-generally organic, and definitely never fast food! Sweet Amy's has always provided a great source of excellent options for food.

Last year when I had a difficult diagnosis and was fasting once a month for 3 days during my treatments, Sweet Amy's was our go to place to break my fast and enjoy healthy food. The people there were always so kind and the atmosphere was very enjoyable.

I have taken countless friends to that establishment from many different communities. We ended up shopping in Lake Orion and visiting other places in the area.We even celebrated Mother's Day two years ago with 15 people at the previous Sweet Amy's and the entire family loved it and went back several times afterward from all over the metro Detroit area.
We are hoping you will approve these new plans as this looks to be a perfect spot and opportunity for a very beneficial restaurant in the area.

My go to coffee is Biggby as opposed to any other big brand. So I hope that will also be approved as there are few Biggby's in the northern area of the Detroit Metro region.

Thank you for your consideration. This place means so much to so many. I truly hope you will approve this wonderful project and support this fantastic family business!

Linda and Michael Seng
6625 Shelley Drive
Clarkston, MI 48348
(248) 910-1198

RECEIVED
NOV 15 2022
Orion Township
Planning & Zoning

943 Watersmeet Drive Oxford, MI 48371 248.515.7364

November 15, 2022

Dear Tammy Girling,

Attached are Sweet Amy's Eating House recent Facebook posts regarding the potential new Sweet Amy's development, and a portion is reflective of the community feedback of the overall Hudson Square parcel. I am attaching below the number of likes, loves, comments, etc. that we received. If we purely evaluate the comments received, the ratio of negative is 4% and positive is 96%. This feedback represents an overwhelming broad support for this project.

I am requesting that you include these statistics as positive support in the Hudson Square file.

Feel free to contact me with any questions you may have.

Kind regards,

Amy Harris

Amy Harris, Proprietor
Sweet Amy's Eating House (legal name- Honest to Goodness Breakfast & Smoothies, LLC)

Facebook Post General Feedback

- 494 overall post likes
- 151 overall post loves
- 8 overall post "wow" face (shock)
- 1 overall post sad face
- 2 overall care face (emoji w/ heart)
- 249 positive comments
- 11 negative comments
- 191 positive likes to comments
- 17 positive loves to comments
- 3 positive care to comments
- 8 negative likes to comments
- 27 shares
- 6 individuals provided negative comments (included in 11 negative comments above)

RECEIVED

NOV 15 2022

Orion Township
Planning & Zoning

From: Rilee Harris <rilharris@gmail.com>
Sent: Tuesday, November 15, 2022 11:37 AM
To: Tammy Girling <tgirling@oriontownship.org>
Cc: Lynn Harrison <lharrison@oriontownship.org>; Amy Work (HTG Breakfast) (info@htgbreakfast.com) <info@htgbreakfast.com>
Subject: Letter of Support: Sweet Amy's Eating House

Dear Orion Township offices and residents,

I am writing in support of the proposed development that will make possible the opening of Sweet Amy's Eating House and a Biggby Coffee location in Lake Orion. The addition of these two businesses will provide a dining solution and jobs for a variety of individuals. Biggby fills a need for the hurried school goer, business professional, and commuters. Whereas Sweet Amy's Eating House provides a unique scratch kitchen alternative, that expands dining options for those with dietary restrictions.

As some of you may know, Amy and Scott Harris are my parents. Since beginning their venture in 2016, I have watched them pour their time, money, and energy into making their vision to provide a healthy and distinct eating option in Lake Orion a reality. I worked as a server and was a frequent dine-in guest over the six year span Sweet Amy's was open previously. During this time, I heard firsthand the positive feedback and gratitude for having their restaurant available in Lake Orion.

Every business owner is presented with challenges, I can attest Amy and Scott experienced their fair share too. For example, the very first day the restaurant was open for business our head chef injured himself and couldn't work that day. Instead of shutting down on opening day, the kitchen crew adapted their approach and Scott, my dad, rolled up his sleeves and assisted the team to the best of his ability. Additionally, they weathered the uncertainty of the COVID-19 pandemic. Adapting their service models and menus to combat the ever changing staff availability and supply chain issues. Overall, if grit could be defined by people, I would immediately point you in the direction of Amy and Scott.

The community would be remiss to lose out on the opportunity to have another business supported by Amy and Scott in the area. Please feel welcome to contact me with any questions. I can be reached at rilharris@gmail.com or (248) 842-2389.

Thank you,

--
Rilee Harris
(248) 842-2389

RECEIVED
NOV 15 2022
Orion Township
Planning & Zoning

From: Giselle Graham <giselledgraham@gmail.com>
Sent: Tuesday, November 15, 2022 2:31 PM
To: Tammy Girling <tgirling@oriontownship.org>
Cc: Lynn Harrison <lharrison@oriontownship.org>; Amy Harris <info@sweetamyseatinghouse.com>
Subject: New Sweet Amy's Restaurant Development

To whom it may concern,
I am sending you this email in support of the new development on Lapeer & Waldon Rd for the new Sweet Amy's Restaurant, in hopes this establishment will return to Lake Orion, Mi.
Our family is a big fan of what Sweet Amy's provided to our community. Great food & healthy food for those with food allergies, like my husband & more. Giving us options like cage free eggs & gluten free options on their menu. There is no other place to eat like this in Lake Orion or cities close to us. Sweet Amy's became a staple for our family to eat out and we truly miss it.
The new restaurant will accommodate more patrons and clean up the corner of Lapeer & Waldon Rd. Making this area very desirable to all who drive by and plan to support this establishment. We can't wait to eat at Sweet Amy's again.
Yours truly,
Giselle Graham
354 Craigend Ct.
Lake Orion, Mi. 48362

RECEIVED

NOV 15 2022

Orion Township
Planning & Zoning

From: Haas, Carlee <chaas@fbinsmi.com>
Sent: Tuesday, November 15, 2022 3:04 PM
To: Tammy Girling <tgirling@oriontownship.org>; jharrison@oriontownship.org
Cc: info@sweetamyseatinghouse.com
Subject: Development at Waldon

Hi there,

My Name is Carlee Haas
I am unable to attend the township meeting/public hearing tomorrow at the Orion township offices, but wanted to send a letter in backing/supporting the development going in at Waldon Rd.
Amy & Scott Harris employed me from 2019- 2022 until the closing of their restaurant. As someone who eats specific diets, it is harder to get these accommodations around our area… the Harris's have made eating easy and delicious with their unique style of natural offerings at their restaurant.
I believe that their style of food is just what we need in our area and would love to see the development happen

Thanks so much & have a great day! 😊

Sincerely,

Carlee Haas
Marketing & Promotions Manager | Farm Bureau Insurance
14 S Washington St, | Oxford, MI 48371
E-mail: chaas@fbinsmi.com
Office: 248-929-5896 (Call or text) | Fax: 248-800-8866

"Follow" us on facebook: facebook.com/InsuranceMomMI

"Protecting the people of Michigan from the risks of everyday life"

Confidentiality Note: This email and any attachments are confidential and may be protected by legal privilege. If you are not the intended recipient, be aware that disclosing, copying, distributing, or use of this email or any attachments is prohibited. If you have received this email in error, please notify me by returning it to me and delete this copy from your system. Thank you for your cooperation.

RECEIVED

NOV 16 2022

Orion Township
Planning & Zoning

From: Jessica Merchberger <jmerch217@yahoo.com>
Date: November 15, 2022 at 10:08:29 PM EST
To: Tammy Girling <tgirling@oriontownship.org>
Cc: Lynn Harrison <lharrison@oriontownship.org>, info@sweetamyseatinghouse.com
Subject: Support for SWEET AMY'S EATING HOUSE

To Whom it may concern,
I am sending this email in support of Sweet Amy's Eating House. Their new development at Waldon and M24 is going to add value to Orion Township and it's surrounding areas. Their restaurant was so unique and really added a safe place for so many to dine to our area. We need this restaurant back to meet the needs of our residents who have allergies and dietary needs. Amy and her family have done so many wonderful things for our community and I have no doubt by adding their new Restaurant they will continue on the Sweet Amy's Legacy.

Thank you for your time.
Respectfully,
Jessica Williams
5592 Lakeview Blvd.
Goodrich MI 48438

Debra Walton

From: Tom Pentis <tom.pentis@atlascopco.com>
Sent: Tuesday, November 29, 2022 12:58 PM
To: Debra Walton
Cc: Pastor Mark Voss; AJSReinhold@gmail.com
Subject: PC-22-39, Sidwell #09-26-101-021

RECEIVED
NOV 29 2022
Orion Township
Planning & Zoning

Hello Deb,

Please provide the following information to the Planning Commission.

I am writing regarding the development proposed for the corner of Waldon and Lapeer roads on the North side of Waldon (Hudson Square development,
PC-22-39, Hudson Square Planned Unit Development (PUD) Concept Plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021)). I reviewed the video from the November 16 meeting and wanted to clarify some information that was presented. I am a member at the church on the North side of the proposed development.

During discussion of the setbacks (starting at around 2hrs 7min in the video) between Scott Reynolds and the developer representative, comments were made regarding the actual use of the property. The developer was indicating that the church property is not residential (as zoned), but more institutional. This is a mis-representation as there is a home on the South side of the church property that is occupied as a residence. This home is directly adjacent to the area between the proposed drive thru and first residential building as can be seen in the aerial view presented during the meeting. As noted in the meeting, the setback should be 100 ft. to a residential property and 50 ft. to a business. I understand that property line screening, tree survey, etc. had not been completed at the time of the meeting. I would ask that consideration be made to more permanently screen the new development from the existing residence to minimize noise (cars, speaker at the drive thru) and garbage intrusion from the restaurant/drive thru including items such as a wall, fencing, plantings, etc.

I am not opposed to the development, but would ask that these property line details be considered for the development regardless of the setback but especially if a deviation to the regular setback is granted. Please contact me with any comments or to discuss further.

Thank you,

Tom Pentis
2423 Brabant St.
Lake Orion
586-634-6201

Orion Township Board of Trustees

Please also forward to the Orion Township Planning Commission

RECEIVED
NOV 17 2022
Orion Township
Planning & Zoning

Re: Proposed Hudson Square PUD – Bigby Coffee Drive-Through facility

I would like to expand on a comment I made at the meeting November 16th regarding air quality and vehicle exhaust. We are still a long way from fully electric transportation and gasoline exhaust will continue to be a problem for quite a few years. As someone with respiratory compromise I smell and feel exhaust at lower levels than most, but it is not healthy for any of us.

My condo is situated on the north side of the church and so not very far from the proposed drive through where cars will be idling in line. I am already impacted by the rush hour exhaust levels on Lapeer Road, particularly in the mornings and worse in cold and overcast weather. Keeping my windows closed makes little difference because my HVAC system pulls it in via the fresh air intake which is near the ground where those heavier particles accumulate.

I request that an evergreen buffer be required between the proposed coffee shop and the church property to screen, absorb, and convert some of the exhaust gasses and offset their impact on the nearby residents.

I note there is a setback reduction waiver to the north property line included in the plan for the drive-through facility. The setback should actually be increased to allow room for an evergreen buffer.

The many blue spruces on our property are sick, severely thinning and dying. I notice the difference in the Lapeer Road noise and exhaust now that we are losing their protection compared to a few years ago when those trees were still healthy. The healthy trees did make a big difference.

I hope you give this request serious consideration and implement an evergreen requirement along the northern length of the drive-through driveway.

Respectfully,

Susan Johnston

348 Four Seasons Dr.

989-274-0221

DETROIT
RIVERSIDE
CAPITAL

OCTOBER 19, 2022

HUDSON SQUARE

APPLICATION FOR PLANNED UNIT DEVELOPMENT (1ST SUBMISSION)

DETROIT RIVERSIDE CAPITAL
ATTN: MICHAEL WAYNE
3300 Auburn Rd. Suite 300 Auburn Hills, Mi 48326

General Information

Applicant Name: John & Nanci, LLC.

Applicant Contact: Dr. John Canine – (248) 396-4793; jdcanine@comcast.net

Plan Preparer: Detroit Riverside Capital

Plan Preparer Contact: Michael Wayne – (248) 953-4891; Michael@DetroitRiversideCapital.com

Project Name: Hudson Square

Subject Parcel ID(s): 09-26-101-021

Subject Parcel Address: 3030 S. Lapeer Rd. Orion Township, MI 48359

Common Description of Parcel: The subject parcel is at the corner of Lapeer Rd. and Waldon Rd. in Orion Township, MI. The parcel totals 7.07 acres. The current parcel is partially wooded and contains an existing wetland near the southwest quadrant of the site.

Legal Description of Parcel: Attached to application package as *Exhibit A*, titled Legal Description

Comprehensive Statement of Intent

Hudson Square is a mixed-use development featuring 24 residential units for lease, 5,700 SF of retail, and a 3,000 SF classic car club facility. The residential component will feature both 2- and 3-bedroom dwelling units. These will range in size from 1,200 SF to 1,600 SF and will each be serviced by an attached two car garage. The two-bedroom units will each feature a 190 SF outdoor patio and the three-bedroom units will feature a 400 SF outdoor patio. The residential component will be spread across 6 separate two-story buildings, each containing four dwelling units. Each two-story building is approximately 7,400 SF in total.

The retail space is divided between two independent users. Approximately 1,700 SF will be occupied by Biggby Coffee in a freestanding drive-through building in the Northeast quadrant of the site. The remaining 4,000 SF will be a sit-down, upscale restaurant occupied by Sweet Amy's Eating House, a former Orion Township staple restaurant that will relocate and revamp their offerings in this new facility.

The 3,000 SF classic car facility will be attached to the restaurant space to form one 7,000 SF building. This is done deliberately to allow the classic cars to be a showpiece for restaurant-goers. The spaces will be separated from one another, except for the visual connection created by certain windows within the demising wall that separates the two spaces.

Hudson Square is a phenomenal addition to the current landscape of Orion Township, delivering much needed residential for-lease housing options to existing and future Orion Township residents. These residential dwellings will attract and service the existing Orion Township demographic of "empty nesters" looking to relieve themselves of maintenance responsibilities, or young families looking for a transitional residential option before investing in their dream home. These dwellings will also attract

new residents to the Township, who may not be able to find accommodation within the existing residential landscape of Orion Township to fill this need.

The commercial component of the project will also address a tremendous need for both quick-service retail by way of Biggby Coffee, as well as a sit-down, upscale dining establishment like Sweet Amy's Eating House. This fills a vast unmet need in the township and does so in an area of the township that is particularly lacking existing dining options.

Market Concept

Detroit Riverside Capital's analysis of the existing multi-family market in Orion Township and the surrounding area indicates that there is significant demand for additional multi-family dwellings. The following is a list of existing multi-family properties within the surrounding area and their respective current occupancy:

1. Heron Springs Townhomes & Apartments - 99%
2. Indian Lake Village Apartments (immediately adjacent to proposed development) - 100%
3. Abbey Ridge Apartments - 100%
4. Parkways of Auburn Hills - 100%
5. Redwood Lake Orion Apartment Homes - 100%

These occupancy rates indicate that the existing supply of apartments within Orion Township and the surrounding area has been fully absorbed and additional supply of multi-family dwellings are needed to sustain community growth.

Additionally, the population within a 5-mile-radius of the proposed site is expected to grow by more than 2,300 by 2025, or 2.5%. For Orion Township to capture their share of this growing population, with the existing supply fully occupied, additional dwellings must be built to support the growing demand.

With respect to the proposed Biggby Coffee, the existing supply of comparable offerings to Biggby Coffee are sparce. There is one existing coffee shop almost 2 miles north on Lapeer Rd., however it currently does not offer a drive through. There are no comparable coffee shop locations south on Lapeer Rd. of the proposed Biggby location.

With respect to the proposed Sweet Amy's Eating House, the existing supply of comparable offerings is practically non-existent. There are a few existing sit-down, upscale dining establishments in the Township, however, none are equivalent to the market offering of Sweet Amy's. Sweet Amy's will bring a unique dining option through their natural-based menu, which provides strict accommodations for common dietary restrictions. This type of offering is currently unavailable anywhere in the Township.

With respect to the proposed Orion Classic Car Club, this is truly a one-of-a-kind destination. This 3,000 SF facility will be a place for car enthusiasts to gather and socialize over a shared love of the automobile. This space will function as a unique showpiece feature for Sweet Amy's clientele.

The inherent lack of supply of existing comparable offerings directly highlights the demand for the proposed commercial elements of Hudson Square. With a growing population and other residential

development in the area, it is critical to provide additional commercial dining options to satisfy the needs of existing and future Orion Township community members.

Superiority of PUD Plan

The Proposed PUD plan is superior to a plan that complies with the existing zoning. The Density plan included in the PUD application reflects a site plan that is compliant with existing zoning. The PUD plan is superior because it is less intense than the density plan. The density plan provides for over 20,000 SF of commercial space, while the PUD plan only proposes 8,700 SF. The density plan also co-mingles heavy commercial with high density single-family residential on the same parcel. The single-family homes access from the back parking lot of the commercial. This is not desirable for single family homeowners. The PUD plan provides a gentle transition from the commercial uses on the East half of the subject parcel to the multi-family use on the West half of the subject parcel to the adjacent parcel zoned single-family. This transition is more desirable than heavy commercial transitioning directly to single-family residential. The proposed PUD also only requires access from Lapeer Rd., while the Density plan has access to both Lapeer Rd. and Waldon Rd. This creates additional, undesired traffic congestion on Waldron Rd., while the PUD plan avoids this.

PUD Eligibility Criteria – Zoning Ordinance Section 30.03 (B)

1. **Recognizable Benefit** - *How will a PUD approval result in a recognizable and substantial benefit to the ultimate users of the project and the community?*

   Lapeer & Waldon has been specifically designed with the preservation of natural features in mind. The site currently features a beautiful wetland feature roughly half an acre in size in the Southwest quadrant of the site. This feature will be preserved in full and accented through the proposed PUD site plan. The site also features beautiful, well-aged trees near the North property line. These will all be preserved within the 30-foot landscape buffer along the North property line. The remainder of the site features other existing natural features. Once a tree survey is prepared during the Final PUD phase, we will be able to provide additional details about how tree/natural feature preservation was prioritized in site design. Under the current proposed PUD site plan, roughly 28% of the existing site has been preserved in its natural condition.

   Hudson Square will be a direct improvement to the aesthetic qualities of the existing site and surrounding area. The existing site is currently unusable and inaccessible to the community. Hudson Square will turn the existing, underutilized site into a beautiful mixed-use development, introducing needed housing and commercial elements to the community. Per the ordinance, Hudson Square will provide safety path connection to the surrounding area of the Township. Currently, the existing safety path runs roughly 2,500 feet to the north of the subject parcel, but it does not currently connect to Waldon Rd. or the existing 500 feet of safety path that exists to the south of Waldon Rd. along Lapeer Rd. Hudson Square will provide for the connection of these two existing paths to create a total of 3,600 feet of connection from North to South along Lapeer Rd.

Hudson Square also provides the connection to a tremendous, 3.3-mile section of safety path that exists to the West of the subject parcel along Waldon Rd. This existing safety path runs all the way from the intersection of Waldon & Lapeer Roads to Waldon and Baldwin Roads. This path is currently not accessible from the existing 2,500 feet of safety path to the north of the subject parcel. As a result of the proposed PUD plan, the safety path from the north end of Home Depot will connect all the way to Baldwin Rd., a section of safety path totaling 3.85 miles.

Hudson Square will feature gorgeous high-end architectural design throughout the development. The residential dwellings will feature a modern farmhouse style exterior façade, complete with traditional and board and batten siding, stone accents, and architectural details. The 400 SF outdoor patios will be accessible from the second floor, three-bedroom dwellings, providing a tremendously unique architectural feature not available in any existing residential dwellings within the Township (See elevations of residential dwellings within PUD plan for reference). This architectural detail will give interest to the site lines of the residential components from neighboring properties. The residential dwellings will blend with the existing surrounding area in mass, scale, height, and aesthetic.

The interior of the units would be equally high-end, complete with stainless steel appliances, quartz countertops, soft-close cabinetry, name-brand plumbing and lighting fixtures, and smart-home elements such as electronic access system and smart thermostats.

The commercial elements of Hudson Square are designed with high-quality architecture to mirror that of the residential component. The elevations, including anticipated façade materials, of the restaurant and car club building are included in the PUD plan for reference. The buildings provide for a unique visual connection between the two uses, as well as a largely glass façade on the West and south portions of the restaurant façade to highlight the beautiful adjacent wetland and other natural features surrounding the building.

A final recognized community benefit of Hudson Square is the public art feature proposed near the Southeast corner of the site that is visible at the intersection of Waldon and Lapeer Roads. This art feature will be built with a grade-level 10-foot in diameter concrete pad and a 3-foot in diameter pedestal centered within the grade-level pad to display the art feature. The area will include seating and lighting to accent the art feature. The art feature will be developed in collaboration with the Detroit Institute of Art and will be subject to final approval by the Township.

---

2. **Density Impact** - *Will the proposed type and density of use result in a material increase in the use of public services, facilities, and utilities, in relation to what would be permitted if the property were developed without using the PUD?*

The subject parcel is currently split between two zoning categories, general business (GB) on the Eastern portion of the site and high-density single family residential (R2) on

the West portion of the site. Per the provided density plan in the PUD application, the R-2 portion of the site could accept roughly 6 single family houses in accordance with the R-2 zoning ordinance. Assuming an average of 3 occupants per single family dwelling and 6 single family dwellings, that would indicate 18 total occupants. By comparison, assuming an average of 2 occupants per multi-family dwelling unit and 24 multi-family dwellings, would indicate 48 total occupants. So, while the number of dwelling units of the proposed is 4x greater than what the density plan supports, the number of occupants living in the proposed units are only 2.6x greater, or 30 people greater in total.

As a result, the development as proposed will increase the use of public services, facilities, and utilities compared to what is provided by the existing zoning. However, the impact on public services will be negligible when viewed in relation to the township overall. The additional 30 people in the proposed residential dwellings will provide zero material impact to public services like roads, facilities, police, fire, and EMS.

DRC commissioned a traffic study with Feliz & Vanderbrink to highlight the negligible impact Hudson Square has on existing traffic congestion. This study will be available for submission and review on 10/31/22.

From the perspective of water and sewer utilities, there is sufficient existing capacity in Orion Township to service the proposed development. The addition of the 18 dwelling units (30 people) does not cause an adverse, or even material effect to the water and sewer capacity in the township.

---

3. **Township Master Plan** - *Will the proposed development be consistent with the intent and spirit of the Master Plan and community?*

The current zoning for this parcel is split between Single-Family Residential (R2) to the West and General Business (GB) to the East. The future land use map also shows a split between single-family residential (R2) and Special Circumstance indicating the conditional rezoning to General Business (GB). Therefore, the intent and spirit of the proposed development is to provide a development with both residential and commercial elements that aligns with the future land use of each parcel. Lapeer & Waldon will provide additional residential housing for the Township on the West parcel and a commercial development comprised of retail and a classic car club facility on the East parcel.

The future land use designation of the updated masterplan calls for multi-family low density residential in areas along Lapeer Rd. to function as a buffer for the more rural residential neighborhoods to the East/West of the corridor. This description is a direct representation of Hudson Square, as it does exactly that to the existing residential neighborhoods to the West.

In addition, Hudson Square was designed specifically to comply with the goals and objectives presented in the 2022 Orion Township Master Plan. Examples of compatibility include the following:

1. High-Quality & Diverse Housing Options Zoning Action 1a: *Develop zoning standards for "missing middle" housing, including but not limited to duplex, triplex, quadplex and cottage court bungalow dwellings in multiple family districts.*

   Lapeer & Waldon will provide a Missing Middle housing type that provides a high-quality, marketable option between the scales of single-family homes and mid-rise flats for walkable urban living. It is designed to meet the specific needs of shifting demographics and a new market demand, which are key components for diverse housing, which aligns with the Township's Master Plan.

2. Economic Development Objective 1: *Achieve a balanced variety of neighborhood-, community-, and regionally oriented facilities that will meet the shopping and service needs of the community and nearby metropolitan area populations without unnecessary duplication.*

   The subject parcel is located along the Lapeer Road corridor where the Townships Master Plan designates commercial and mixed-use developments should be located. Direct access to a major thoroughfare is key to the viability of this use. The master plans future land use references Neighborhood Commercial zoning should be located in close proximity to residential neighborhoods which will help meet the day-to-day shopping needs of nearby Township residents. The subject parcel is compatible with the adjacent parcel uses given that the future land use map calls out for General Commercial to the south, Neighborhood Commercial to the north and Residential to the East and West.

3. Section IV. Environmental Resources Goal A: *To Preserve the Natural Resources of Orion Township*

   Hudson Square was created with nature preservation at the forefront of the site design. The half-acre of existing wetland will be surrounded by an additional 1.2 acres of preserved natural/open space. It was imperative to our design that we did not eliminate, restrict or reduce the size of this wonderful natural feature. Hudson Square, as proposed, does not do so.

In addition to Hudson Square being compliant with the intent and spirit of the master plan, it is also perfectly blends and is compliant with the existing land uses of adjacent parcels. To the north is an existing church, or institutional use. Church-goers will benefit from the adjacent Biggby coffee and Sweet Amy's Eatery for before and after services. To the south is an existing veterinary clinic and a commercial/office use. Customers and employees alike can benefit from both the commercial and residential elements of Hudson Square. To the East, across Lapeer Rd. is a multi-family residential community. This is an identical use with the proposed residential component of Hudson Square.

Finally, to the West is an existing single-family home and a vacant parcel zoned high density single-family residential. The residential component of Hudson Square is of single-family residential height, scale, mass, and character. Therefore, it complies with the adjacent single-family use.

---

4. **Economic Impact** - *Will the proposed PUD have a material negative economic impact upon surrounding properties?*

The proposed PUD places no negative economic impact on the surrounding land or other property owners. Hudson Square acts as a gentle transition between the high-trafficked Lapeer Rd. corridor and the single-family residential land to the West on Waldon Rd.

The residential units in the proposed development are two-story with a height of 30 feet. From the perspective of these two elements of the existing zoning ordinance, the proposed residential is compliant. Therefore, the proposed residential dwellings will be of similar height, mass, and character to the residential dwellings of the surrounding parcels. Furthermore, the proposed residential dwellings are configured in six separate structures, the same number of structures that are permitted in the Density plan based on underlying single-family zoning. From the exterior, the proposed residential dwellings appear more like six large single-family dwellings than they do a single 24-unit multi-family structure.

The commercial component of the proposed development is compliant with the general business zoning district of Orion Township. While the subject parcel is conditionally rezoned to general business for a specific use, the conditional zoning could be amended to allow for the proposed development within the general business zoning category. Given that the proposed commercial uses are in the same general character as the conditionally rezoned use, the proposed commercial component provides zero adverse economic impact to surrounding land or property owners. On the contrary, the proposed provides an economic benefit to the surrounding property owners and the community by providing for two new commercial users to serve the community.

---

5. **Guaranteed Open Space** - *Does the proposed PUD contain at least as much usable open space as would be required in the Ordinance for the existing zoning?*

The proposed development contains both a residential use and a non-residential use. On the residential portion of the proposed PUD plan, the proposed development provides for roughly 35% open space compared to the minimum threshold of 15% required open space for residential uses. This open space will be preserved in its natural habitat. In areas where development requires removal of existing landscape, those areas will be compensated through added landscaping in other places throughout Hudson Square.

On the commercial portion of the proposed PUD plan, the proposed development provides for roughly 15% open space compared to the minimum threshold of 10% required open space for non-residential uses.

---

6. **Unified Control** - *Is the proposed PUD under single ownership or control such that there is a single person or entity having responsibility for completing the project with this Ordinance?*

   The subject parcel is currently owned by the applicant, Dr. John Canine (John and Nanci, LLC.), therefore demonstrating unified control of the subject parcel.

Charter Township of Orion
Planning & Zoning Department
2323 Joslyn Rd., Lake Orion MI 48360
P: (248) 391-0304 ext. 5000

Case #

Meeting Date: _

Charter Township of Orion Planning Commission
Planned Unit Development (PUD) Application

Project Name: Hudson Square

Applicant

Name: Dr. John Canine

Address: 3604 Clarkston Rd. City: Clarkston State: MI Zip: 483248

Phone: 248-595-9969 Cell: 248-396-4793 Fax:

Email: jdcanine@comcast.net

***Property Owner(s)**

Name: Same as above

Address: City: State: Zip:

Phone: Cell: Fax:

Email:

* If the name on the deed does not match the name of the property owner on this application, documentation showing the individual is the same as the company name must be provided.

Plan Preparer Firm/Person

Name: Detroit Riverside Capital

Address: 3300 Auburn Rd. Suite 300 City: Auburn Hills State: MI Zip: 48326

Phone: Cell: 248-953-4891 Fax:

Email: Michael@DetroitRiversideCapital.com

Project Contact Person

Name: Same as plan preparer

Address: City: State: Zip:

Phone: Cell: Fax:

Email:

Property Description

Sidwell Number(s): 09-26-101-021

Location or Address of Property: 3030 S. Lapeer Rd.

Side of Street: West Nearest Intersection: Lapeer & Waldon

Acreage: 7.07 Current Use of Property: Vacant

Frontage (in feet): 441' Depth (in feet): 708'

Subject Property Zoning: R2/GB Adjacent Zoning: N. Institutional S. OP E. RM-1 W. R-2

Is the complete legal description printed on the site plan? ☐ Yes ☐ No (if no please attach to the application)

Included in application as Exhibit A

Intent/Eligibility/Design Standards

Comprehensive Statement of Intent: Give a detailed description of the proposed development (refer to Ord. 78, Section 30.03(A)). Please indicate the number and size of the buildings or units be proposed (attach a separate sheet).

Narrative Description of Project: Provide info of the market concept of the project, and explaining the manner in which the criteria set forth for eligibility (Ord. 78, Section 30.03(B)) and design (Ord. 78, Section 30.03(C)-(E)) have been met (attach a separate sheet detailing each criteria).

Per Ord. 78, 30.03(C)(6), all Zoning Ordinance requirements for the underlying zoning district shall remain in full force unless waived or modified by the Planning Commission and Township Board. Below is a list of requirements, please list the current zoning requirement and what is being proposed. Please also detail how the specific design criteria listed is being met.

	Per Zoning Ordinance	Proposed
Lot size and width		
Lot coverage		
Min floor area		
Front, side, and rear setbacks		
Height	See sheet C-2 of PUD plan	
Parking and loading		
Fencing		
Landscaping		
Setback for side entry garage		
Other		

Does the project have adequate:

Perimeter setback and berming? Yes

Thoroughfare design? Yes

Drainage design? Preliminary

Utility design? Preliminary

Underground utilities? Preliminary

Pedestrian circulation system from vehicular thoroughfares and ways? Yes

Achievement of an integrated development with respect to signage, lighting, landscaping, and building materials? Yes

Noise reduction and visual screening mechanisms (particularly where nonresidential uses adjoin off-site residentially zonedproperty)? Yes

Outside Agencies

Per Ord. 78, Section 30.01(C), a copy of this application and two (2) copies of the site plan must be submitted to each of thefollowing agencies. Please provide the Township with a copy of each transmittal as proof of delivery.

AT&T
54 Mill St.
Pontiac, MI 48342

Consumers Power Company
530 W. Willow St.
Lansing, MI 48906

DTE Energy Co.
ATTENTION: NW Planning & Design
1970 Orchard Lake Rd.
Sylvan Lake, MI 48320

Michigan Department of Transportation (if applicable)
800 Vanguard Dr.
Pontiac, MI 48341

Oakland County Water Resources Commission
(To be submitted by the Township)

Oakland County Health Department
Building 34 East
1200 N. Telegraph Rd.
Pontiac, MI 48341

Road Commission of Oakland County (if applicable)
ssintkowski@rcoc.org
(Electronic submittal only)

Required Signage

Per Ord. 78, Section 30.04(H), a sign indicating the requested rezone shall be installed on the parcels(s) no less than 15 days prior to the scheduled public Hearing. Please check one:

☐ I will install the sign(s) as required (see below for specifications).

● I would like to lease signage from the Township (including installation).
(please complete attached Sign Request Form).

The sign shall have the following wording (see Ord. 78, Section 30.04(H) for additional requirements):

ZONING CHANGE PROPOSED	- (min 8" high letters)
For more information call:	- (min 3" high letters)
Charter Township of Orion	- (min 4" high letters)
Planning and Zoning Department	- (min 4" high letters)
248-391-0304 ext. 5002	- (min 4" high letters)

*Please note, the Township does offer the ability to rent the required signage (see attached form). Please contact the Planning and Zoning Department with any questions.

I/We, the undersigned, do hereby submit this application for Rezoning, pursuant to the provisions of the Charter Township of Orion Zoning Ordinance No. 78, Sections 30.03 and 30.01 and any other applicable ordinance requirements. In support of this request, the above facts are provided. I hereby certify that the information provided is accurate and the application that has beenprovided is complete.

Signature of Applicant:
(must be original ink signature) _____ Date: 10/19/22

Print Name: Dr. John Canine

I, the property owner, hereby give permission to the applicant listed above to act as my agent in submitting applications, correspondence and to represent me at all meetings. I also grant permission to the Planning Commission members to visit the property, without prior notification, as is deemed necessary.

Signature of Owner*:
(mustbe original ink signature) _____ Date: 10/19/22

Print Name: Dr. John Canine

*If the deed of ownership does not show an individual, ie a corporation, partnership, etc,, documentation must be provided showing theindividual signing this application has signing rights for the entity.

Exhibit A

Legal Description

First American Title™	ALTA Commitment for Title Insurance ISSUED BY **First American Title Insurance Company**
Schedule C	

Commitment No.: A-6930

The land is described as follows:

Parcel 1:
Part of the Northwest 1/4 of Section 26, Town 4 North, Range 10 East, Orion Township, Oakland County, Michigan, described as follows: Beginning at a point on the West line of Lapeer Road (M-24) distant South 88 degrees 31 minutes 30 seconds West 119.70 feet, South 6 degrees 30 minutes 36 seconds East 214.15 feet and South 6 degrees 43 minutes 26 seconds East 204.25 feet from the North 1/4 corner of said Section 26; thence Southerly along the said West line of Lapeer Road, South 6 degrees 43 minutes 26 seconds East 300.00 feet to the center line of Waldon Road; thence Westerly along the center line of Waldon Road, South 84 degrees 41 minutes 30 seconds West 1007.28 feet; thence North 4 degrees 00 minutes 30 seconds West 300.00 feet; thence North 84 degrees 41 minutes 30 seconds East 993.05 feet to the point of beginning EXCEPT the West 300 feet of said parcel.

Parcel 2:
Part of the Northwest 1/4 of Section 26, Town 4 North, Range 10 East, Orion Township, Oakland County, Michigan described as follows: Beginning at a point distant South 88 degrees 31 minutes 30 seconds West 119.70 feet and South 06 degrees 30 minutes 36 seconds East 214.15 feet and South 06 degrees 43 minutes 26 seconds East 64.25 feet from the North 1/4 corner, thence South 06 degrees 43 minutes 26 seconds East 140.00 feet; thence South 84 degrees 41 minutes 30 seconds West 693.05 feet, thence North 04 degrees 00 minutes 30 seconds West 185.92 feet; thence North 88 degrees 31 minutes 30 seconds East 686.92 feet to the point of beginning.

Parcel ID: 09-26-101-021

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by First American Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; and Schedule B, Part II-Exceptions.

Copyright 2006-2016 American Land Title Association. All rights reserved.
The use of this Form (or any derivative thereof) is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.

AMERICAN LAND TITLE ASSOCIATION

Exhibit B

EGLE Permit

EGLE

NOTICE OF AUTHORIZATION

Permit Number: WRP022393 v. 1 **Issued Date: May 12, 2020**
Site Name: 63-3030 South Lapeer Road-Orion Township **Expiration Date: May 12, 2025**

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; specifically:

☒ Part 301, Inland Lakes and Streams.

☒ Part 303, Wetlands Protection.

Authorized activity:

Impact 0.06 acres of wetland and 230 feet of open stream and 34 feet of enclosed stream with a total of 239 cubic yards of clean fill and riprap in wetland , and excavation of 9 cubic yards of fill in wetland, for the purposes of constructing a parking lot and a portion of a commercial building. Install 20 linear feet of 2-inch diameter watermain, 20 linear feet of 4-inch diameter watermain, 160 linear feet of 8-inch diameter watermain, 20 linear feet of 8-inch sanitary sewer line, and 34-linear feet of 18-inch diameter storm sewer line as depicted in the attached approved plans.

Relocate 230 linear feet of existing stream to 425 linear feet of new stream, which includes a 275 linear foot-long two-stage channel and a 150 linear foot-long portion enclosed in a 42-inch corrugated metal pipe. Restore 0.05 acres within the two-stage channel with a shrub and wetland mix seed mix as specified in the approved attached plans. Plant remaining riprap within the two-stage channel with live stakes as indicated in the approved attached plans. Remove an unregulated water control structure connecting the existing stream to an upstream in-line pond and construct a new water outflow to the relocated stream as described in the attached approved plans.

Construct a stormwater detention pond and install a stormwater overflow connection from the stormwater detention pond to the existing in-line pond as described in the approved attached plans.
All work shall be in accordance with the attached approved plans and the specific terms and conditions of the permit.

To be conducted at property located in: Oakland County, Waterbody: Unnamed stream, unnamed wetland
Section 26, Town 04N, Range 10E, Orion Township

Permittee:

John Canine
936 Baldwin Road
Clarkston, MI 48348

Robert Primeau
Warren District Office
Water Resources Division
586-256-7274

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.
Please refer to the above permit number with any questions or concerns.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION
PERMIT

Issued To:

John Canine
936 Baldwin Road
Clarkston, MI 48348

Permit No:	**WRP022393 v.1**
Submission No.:	**HNV-VAKH-QM75C**
Site Name:	**63-3030 South Lapeer Road-Orion Township**
Issued:	**May 12, 2020**
Revised:	
Expires:	**May 12, 2025**

This permit is being issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

☒ **Part 301, Inland Lakes and Streams**

☒ **Part 303, Wetlands Protection**

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

Impact 0.06 acres of wetland and 230 feet of open stream and 34 feet of enclosed stream with a total of 239 cubic yards of clean fill and riprap in wetland , and excavation of 9 cubic yards of fill in wetland, for the purposes of constructing a parking lot and a portion of a commercial building. Install 20 linear feet of 2-inch diameter watermain, 20 linear feet of 4-inch diameter watermain, 160 linear feet of 8-inch diameter watermain, 20 linear feet of 8-inch sanitary sewer line, and 34-linear feet of 18-inch diameter storm sewer line as depicted in the attached approved plans.

Relocate 230 linear feet of existing stream to 425 linear feet of new stream, which includes a 275 linear foot-long two-stage channel and a 150 linear foot-long portion enclosed in a 42-inch corrugated metal pipe. Restore 0.05 acres within the two-stage channel with a shrub and wetland mix seed mix as specified in the approved attached plans. Plant remaining riprap within the two-stage channel with live stakes as indicated in the approved attached plans. Remove an unregulated water control structure connecting the existing stream to an upstream in-line pond and construct a new water outflow to the relocated stream as described in the attached approved plans.

Construct a stormwater detention pond and install a stormwater overflow connection from the stormwater detention pond to the existing in-line pond as described in the approved attached plans.

All work shall be in accordance with the attached approved plans and the specific terms and conditions of the permit.

Waterbody Affected: Unnamed stream, unnamed wetland
Property Location: Oakland County, Orion Township, Town/Range/Section 04N10E26, Property Tax No. 09-26-101-009, 09-26-101-015

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify EGLE within one week after the completion of the activity authorized by this permit by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of EGLE.
K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
M. In issuing this permit, EGLE has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, EGLE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, EGLE may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from EGLE. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by EGLE prior to being implemented.
Q. This permit may be transferred to another person upon written approval of EGLE. The permittee must submit a written request to EGLE to transfer the permit to the new owner. The new owner must also submit a written request to EGLE to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all the above information may be provided to EGLE. EGLE will review the request and, if approved, will provide written notification to the new owner.

R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.
Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. Authority granted by this permit does not waive permit or program requirements under Part 91 of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit www.mi.gov/eglestormwater and select "Soil Erosion and Sedimentation Control Program" under "Related Links."

2. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.

3. No fill, excess soil, or other material shall be placed in any wetland, floodplain, or surface water area not specifically authorized by this permit, its plans, and specifications.

4. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.

5. The permit placard shall be kept posted at the work site in a prominent location at all times for the duration of the project or until permit expiration.

6. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by EGLE, will be for a five-year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

7. The proposed channel relocation shall be constructed in the dry. Upstream and downstream plugs shall remain in place until the new channel is capable of handling flows without causing erosion.

8. The project is limited to area of permittee's ownership and riparian interest. All spoils, including organic and inorganic soils, vegetation, and debris, shall be placed above the ordinary high water mark, leveled, and stabilized with sod and/or seed and mulch in such a manner as not to erode into any waterbody or wetland.

9. All upland excavation shall be completed prior to connection with an existing lake or stream. The water in the authorized channel or canal shall be open to the public.

10. Prior to the initiation of any permitted construction activities, a sedimentation barrier shall be constructed immediately down gradient of the construction site. Sedimentation barriers shall be specifically designed to handle the sediment type, load, water depth, and flow conditions of each construction site throughout the anticipated time of construction and unstable site conditions. The sedimentation barrier shall be maintained in good working order throughout the duration of the project. Upon project completion, the accumulated materials shall be removed and disposed of at an upland (non-wetland, non-floodplain) site and stabilized with seed and mulch. The sedimentation barrier shall then be removed in its entirety and the area restored to its original configuration and cover.

11. All raw areas in uplands resulting from the permitted construction activity shall be effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters or wetlands. Temporary stabilization measures shall be installed before or upon commencement of the permitted activity, and shall be maintained until permanent measures are in place. Permanent measures shall be in place within five (5) days of achieving final grade.

12. All dredge spoils not used for berm construction shall be placed on the adjacent uplands.

13. If the project, or any portion of the project, is stopped and lies incomplete for any length of time other than that encountered in a normal work week, every precaution shall be taken to protect the incomplete work from erosion, including the placement of temporary gravel bag riprap, temporary seed and mulch, or other acceptable temporary protection.

14. The unenclosed portion of the channel relocation described in the approved attached plans as the two-stage channel shall be restored with the approved attached specified seed mix and live stake and planting plan as a condition of this permit.

15. Installation of riprap shall be limited to the areas specified in the approved attached plans, specifically in the two-stage channel, the stormwater outfall structure, and the outfall area linking the in-line pond to the two-stage channel.

16. All work shall be in accordance with the approved attached plans and the specific terms and conditions of this permit.

17. The restoration of the two-stage channel shall be completed with the correct wetland seed mix and planting plan as described in the approved and attached plans before the removal of temporary erosion control devices. The permittee shall submit photographs of the two-stage channel once such activities have been completed and upload them to the site's permit details documents section of MiWaters within 30 days of complete of the project, or to primeaur@michigan.gov. Staff will use such pictures for monitoring compliance with your permit. Failure to submit these photos is an event of noncompliance.

Issued By: Robert Primeau

Robert Primeau
Warren District Office
Water Resources Division
586-256-7274

cc: Orion Township Clerk
Orion Township - MEA
Oakland County Water Resources Commission
Oakland County
Matt Carmer, Land Planning Solutions, LLC

SITE DEVELOPMENT PLAN

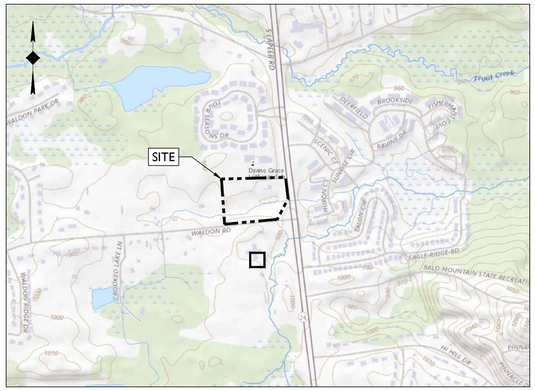
FOR

HUDSON SQUARE
3030 SOUTH LAPEER ROAD
PROPOSED MULTI-USE PLANNED UNIT DEVELOPMENT

PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN

APPLICANT

DETROIT RIVERSIDE CAPITAL
3300 AUBURN ROAD
AUBURN HILLS, MI 48326
313-964-5552
MICHAEL.WAYNE@DETROITRIVERSIDECAPITAL.COM

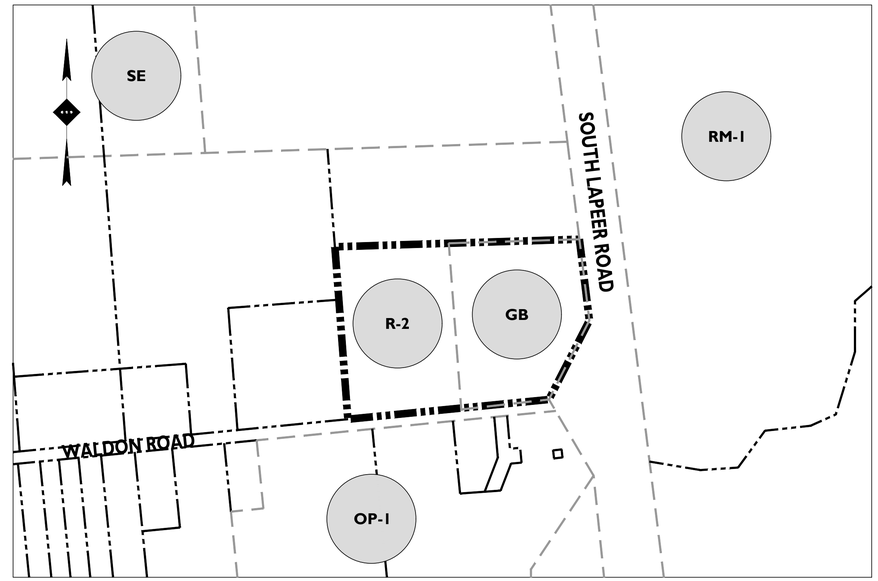


SOURCE: USGS MAPS, DATE RETRIEVED 10/11/2022

LOCATION MAP
SCALE: 1" = 800'±

SOURCE: NEARMAP DATE RETRIEVED, 10/11/2022

AERIAL MAP
SCALE: 1" = 200'±



SOURCE: OAKLAND COUNTY PROPERTY GATEWAY & ORION TOWNSHIP ZONING MAP, DATE RETRIEVED 10/11/2022

ZONING MAP
SCALE: 1" = 200'±

RECEIVED
December 14, 2022
Orion Township
Planning & Zoning

PLANS PREPARED BY:

STONEFIELD engineering & design

Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

811
Know what's **below**
Call before you dig.

PLAN REFERENCE MATERIALS:

1. THIS PLAN SET REFERENCES THE FOLLOWING DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
   - SURVEY PROVIDED BY KEIFT ENGINEERING, INC.
   - ARCHITECTURAL PLANS PROVIDED BY DEISNGHAUS ARCHITECTURE
   - AERIAL MAP FROM NEARMAPS ONLINE MAPPING SYSTEM, DATE RETRIEVED 10/11/2022
   - LOCATION MAP FROM USGS ONLINE MAPPING SYSTEM, DATE RETRIEVED 10/11/2022
2. ALL REFERENCE MATERIAL LISTED ABOVE SHALL BE CONSIDERED A PART OF THIS PLAN SET AND ALL INFORMATION CONTAINED WITHIN THESE MATERIALS SHALL BE UTILIZED IN CONJUNCTION WITH THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A COPY OF EACH REFERENCE AND REVIEW IT THOROUGHLY PRIOR TO THE START OF CONSTRUCTION.

SHEET INDEX

DRAWING TITLE	SHEET #
COVER SHEET	C-1
SITE PLAN	C-2
AERIAL OVERLAY PLAN	C-3
DENSITY PLAN	C-4
GRADING PLAN	C-5

ADDITIONAL SHEETS

DRAWING TITLE	SHEET #
EXISTING CONDITIONS PLAN	2 OF 21

ISSUE	DATE	BY	DESCRIPTION
2	11/16/2022	KTH	REVISION FOR PUD APPROVAL
1	10/18/2022	KTH	FOR PUD APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLAN
HUDSON SQUARE
3030 S. LAPEER ROAD
PROPOSED MULTI-USE
PLANNED UNIT DEVELOPMENT
PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
ORION TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN · JONATHAN REID COOKSEY · ENGINEER
J. REID COOKSEY, P.E.
MICHIGAN LICENSE NUMBER: 6201058948
LICENSED PROFESSIONAL ENGINEER

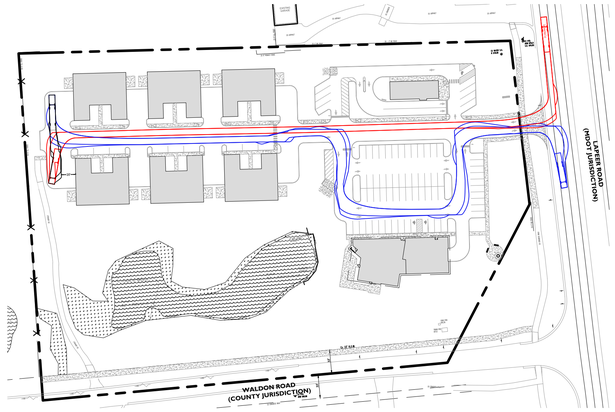
STONEFIELD engineering & design

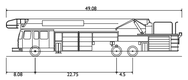
SCALE: AS SHOWN | PROJECT ID: DET-210193.01

TITLE: COVER SHEET

DRAWING: C-1

V:\DET\0201\DET-210193\01 JOHN AND NANCY, LLC - 3041 CLARKSTON ROAD, CLARKSTON, MI\ADDP\ADDP\DP-01-COVER.DWG





Orion Township Platform Truck

Overall Length	49.08ft
Overall Width	8.333ft
Track Width	8.333ft
Wall to Wall Turning Radius	43.000ft

VEHICLE TURN ANALYSIS - FIRE TRUCK

LEGEND

- INGRESS ROUTE
- EGRESS ROUTE
- VEHICLE IN REVERSE

100' 0' 100' 200'

GRAPHIC SCALE IN FEET
1" = 100'

TABLE OF LAND USE AND ZONING

PIN: 09-26-101-021

PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)

UNDERLYING ZONE: GENERAL BUSINESS (GB)

PROPOSED USE		
RESTAURANT WITH DRIVE-THRU		
SIT DOWN RESTAURANT		
CLASSIC CAR CLUB		
ZONING REQUIREMENT	**REQUIRED**	**PROPOSED**
MINIMUM LOT AREA	12,000 SF (0.275 AC)	163,195 SF (3.75 AC)
MAXIMUM LOT COVERAGE	30%	5.4% (8,754 SF)
MAXIMUM BUILDING HEIGHT	25 FT	< 25 FT
MINIMUM FRONT YARD SETBACK	30 FT	56.0 FT
MINIMUM SIDE YARD SETBACK	20 FT	N / A
MINIMUM REAR YARD SETBACK	30 FT	52.8 FT
MINIMUM BUILDING CLEAR SPACE	20 FT	PROVIDED
MINIMUM R.O.W. GREENBELT BUFFER	20 FT	52.7 FT
MINIMUM SINGLE-FAMILY GREENBELT BUFFER	30 FT	30.0 FT
MINIMUM OPEN SPACE	10%	PROVIDED
DRIVE-THRU / SINGLE FAMILY SETBACK	100 FT	52.8 FT (M)

(M) MODIFICATION

TABLE OF LAND USE AND ZONING

PIN: 09-26-101-021

PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)

UNDERLYING ZONE: SINGLE-FAMILY (R-2)

PROPOSED USE		
MULTIPLE-FAMILY RESIDENTIAL		
ZONING REQUIREMENT	**REQUIRED**	**PROPOSED**
MINIMUM LOT SIZE	10,800 SF	N / A
MINIMUM LOT WIDTH	80 FT	N / A
MAXIMUM LOT COVERAGE	25%	N / A
MAXIMUM BUILDING HEIGHT	30 FT	< 30 FT
MINIMUM FRONT YARD SETBACK	25 FT	248.0 FT
MINIMUM SIDE YARD SETBACK	35 FT	65.8 FT
MINIMUM REAR YARD SETBACK	35 FT	30.3 FT (M)
MINIMUM BUILDING CLEAR SPACE	20 FT	30.0 FT
MINIMUM FLOOR AREA / UNIT	1,080 SF	N / A
MINIMUM OPEN SPACE	15%	PROVIDED

(M) MODIFICATION

TABLE OF LAND USE AND ZONING

PIN: 09-26-101-021

PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)

STORAGE

ZONING REQUIREMENT	**REQUIRED**	**PROPOSED**
MINIMUM LOT AREA	435,600 SF (10 AC)	307,766 SF (7.07 AC) (M)
MAXIMUM LOT COVERAGE	30% (92,330 SF)	17.4% (53,460 SF)

(M) MODIFICATION

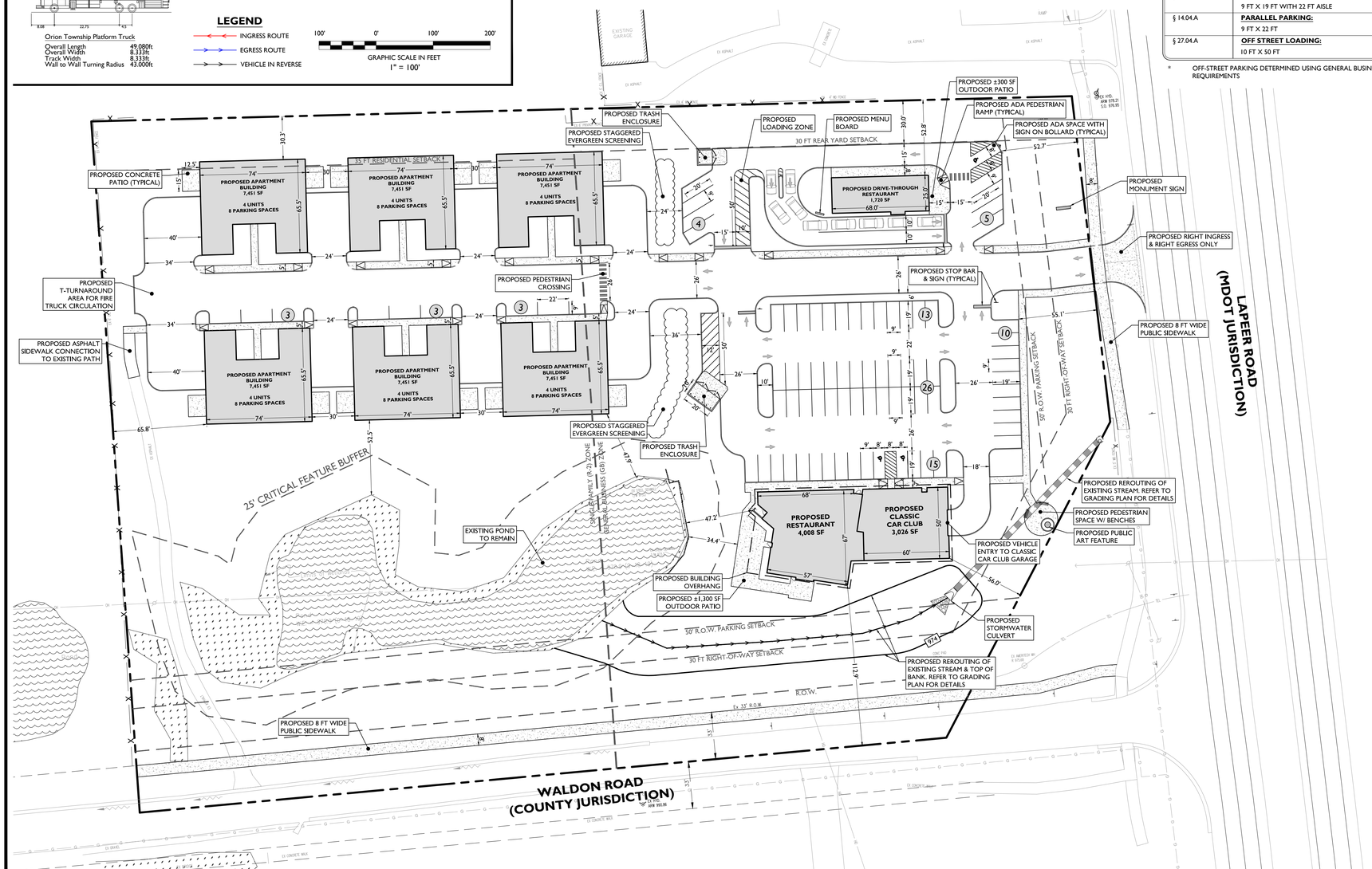
OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 14.03.C	**DRIVE-THROUGH RESTAURANT:** 1 SPACE PER 100 SF OF GFA * (1,720 SF)(1 SPACE/100 SF) = 17 SPACES **RESTAURANT (SIT DOWN):** 1 SPACE PER 100 SF * (4,008 SF)(1 SPACE / 100 SF) = 40 SPACES **CLASSIC CAR CLUB:** 1 SPACE PER 200 SF OF GFA * (3,026 SF)(1 SPACE / 200 SF) = 15 SPACES TOTAL: 17 + 40 + 15 SPACES = **72 SPACES**	73 SPACES
	MULTI-FAMILY APARTMENT: 2 SPACES PER UNIT (24 UNITS)(2 SPACES/UNIT) = 48 SPACES	48 SPACES
	APARTMENT GUEST PARKING: 1 SPACE PER 3 UNITS (24 UNITS)(1 SPACE / 3 UNITS) = 8 SPACES	9 SPACES
§ 27.04.A	**90° PARKING:** 9 FT X 19 FT WITH 22 FT AISLE	9 FT X 19 FT WITH 22 FT AISLE
§ 14.04.A	**PARALLEL PARKING:** 9 FT X 22 FT	9 FT X 22 FT
§ 27.04.A	**OFF STREET LOADING:** 10 FT X 50 FT	10 FT X 50 FT

* OFF-STREET PARKING DETERMINED USING GENERAL BUSINESS DISTRICT REQUIREMENTS

SYMBOL / DESCRIPTION

- PROPERTY LINE
- SETBACK LINE
- PROPOSED CURB & GUTTER
- PROPOSED FLUSH CURB
- PROPOSED SIGNS / BOLLARDS
- PROPOSED BUILDING
- PROPOSED CONCRETE PAVEMENT
- PROPOSED WALL
- PROPOSED BUILDING DOORS
- PROPOSED EVERGREEN LANDSCAPING SCREEN
- REROUTED STREAM CENTERLINE



GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

40' 0' 40' 80'

GRAPHIC SCALE IN FEET
1" = 40'

ISSUE	DATE	BY	DESCRIPTION
2	11/16/2022	KTH	REVISION FOR PUD APPROVAL
1	10/18/2022	KTH	FOR PUD APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design

Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLAN

HUDSON SQUARE

3030 S. LAPEER ROAD

PROPOSED MULTI-USE PLANNED UNIT DEVELOPMENT

PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
OAKLAND TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN · JOHNATHAN ED COOKSEY · ENGINEER · LICENSE NO. 0701069428 · LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' | PROJECT ID: DET-210193.01

TITLE: SITE PLAN

DRAWING: **C-2**

V:\DET\2021\DET-210193\ JOHN AND NANCY, LLC - 3030 CLARKSTON ROAD, CLARKSTON, MI\CADD\PLOT\DP-02.DWG-STEENYIG

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	PROPOSED CURB & GUTTER
	PROPOSED FLUSH CURB
	PROPOSED SIGNS / BOLLARDS
	PROPOSED BUILDING
	PROPOSED CONCRETE PAVEMENT
	PROPOSED WALL
	PROPOSED BUILDING DOORS
	PROPOSED EVERGREEN LANDSCAPING SCREEN
	REROUTED STREAM CENTERLINE

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

40' 0' 40' 80'

GRAPHIC SCALE IN FEET
1" = 40'

ISSUE	DATE	BY	DESCRIPTION
2	11/16/2022	KTH	REVISION FOR PUD APPROVAL
1	10/18/2022	KTH	FOR PUD APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLAN

HUDSON SQUARE

3030 S. LAPEER ROAD

PROPOSED MULTI-USE PLANNED UNIT DEVELOPMENT

PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
OAKLAND TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN · JONATHAN REID COOKSEY · ENGINEER · 65819
J. REID COOKSEY, P.E.
MICHIGAN LICENSE NUMBER 65819
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' PROJECT ID: DET-210193.01

TITLE:

AERIAL OVERLAY PLAN

DRAWING:

C-3

V:\DET\2021\DET-210193\01 JOHN AND NANCY, LLC - 3049 CLARKSTON ROAD, CLARKSTON, MI\CADD\PD\TDP\TDP-02-03-04\PTE.DWG

TABLE OF LAND USE AND ZONING

PIN: 09-26-101-021

PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)

UNDERLYING ZONE: GENERAL BUSINESS (GB)

PROPOSED USE		
RESTAURANT WITH DRIVE-THRU SIT DOWN RESTAURANT CLASSIC CAR CLUB		
ZONING REQUIREMENT	**REQUIRED**	**PROPOSED**
MINIMUM LOT AREA	12,000 SF (0.275 AC)	144,570 SF (3.32 AC)
MAXIMUM LOT COVERAGE	30% (43,371 SF)	14.5% (20,985 SF)
MAXIMUM BUILDING HEIGHT	25 FT	25 FT
MINIMUM FRONT YARD SETBACK	30 FT	47.3 FT
MINIMUM SIDE YARD SETBACK	20 FT	N/A
MINIMUM REAR YARD SETBACK	30 FT	43.3 FT
MINIMUM BUILDING CLEAR SPACE	20 FT	50.0 FT
MINIMUM R.O.W. GREENBELT BUFFER	30 FT	30.0 FT
MINIMUM OPEN SPACE	10%	PROVIDED

TABLE OF LAND USE AND ZONING

PIN: 09-26-101-021

PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)

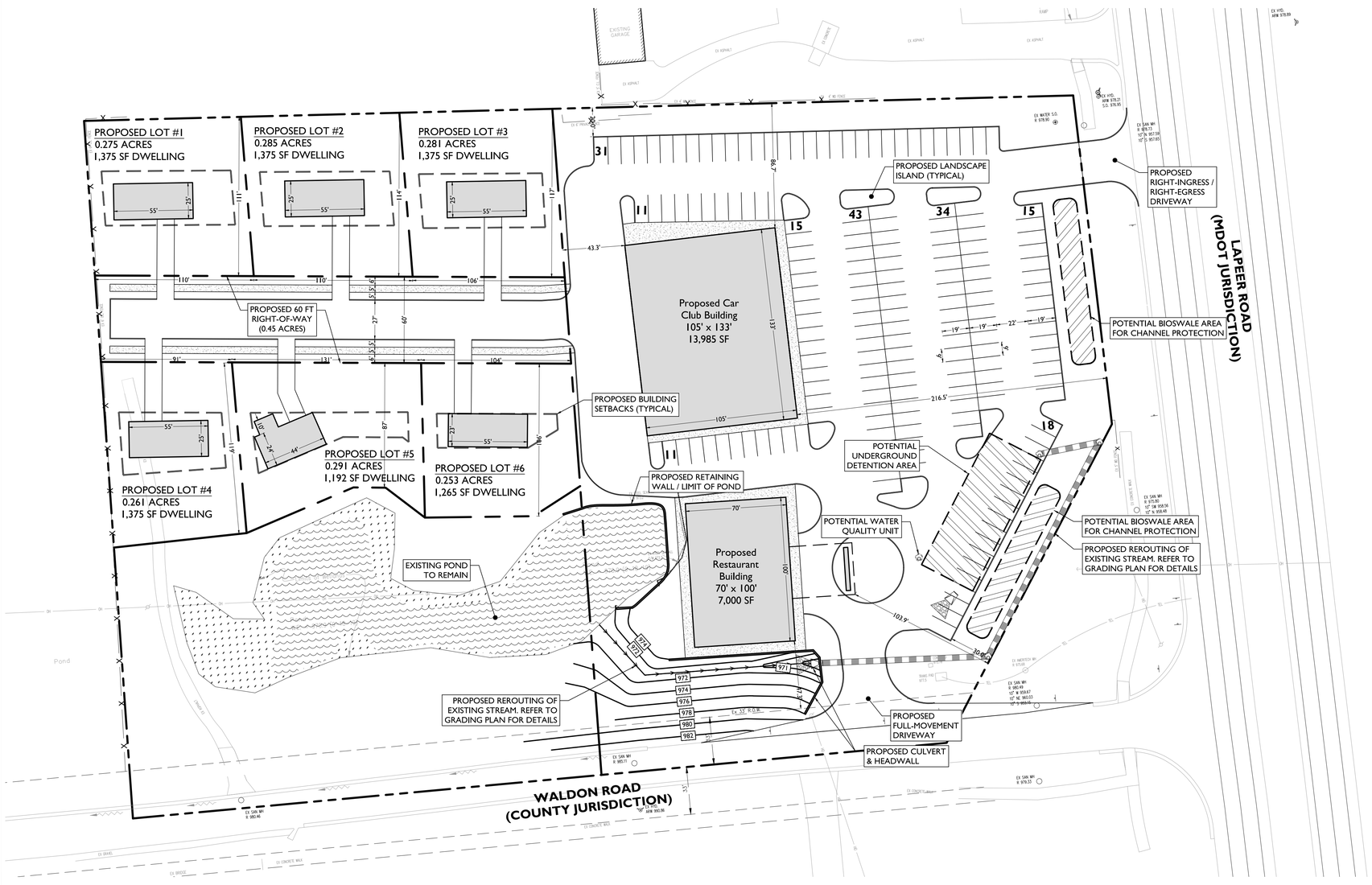
UNDERLYING ZONE: SINGLE-FAMILY (R-2)

PROPOSED USE		
MULTIPLE-FAMILY RESIDENTIAL		
ZONING REQUIREMENT	**REQUIRED**	**PROPOSED**
MINIMUM LOT SIZE	10,800 SF (0.250 AC)	11,020 SF (0.253 AC)
MINIMUM LOT WIDTH	80 FT	91 FT (LOT #4)
MAXIMUM LOT COVERAGE	25%	11.5% (LOT #6)
MAXIMUM BUILDING HEIGHT	30 FT	< 30 FT
MAXIMUM DENSITY	4 UNITS / ACRE	3 UNITS / ACRE
MINIMUM FRONT YARD SETBACK	35 FT	PROVIDED
MINIMUM SIDE YARD SETBACK	10 FT	PROVIDED
MINIMUM REAR YARD SETBACK	35 FT	PROVIDED
MINIMUM BUILDING CLEAR SPACE	20 FT	PROVIDED
MINIMUM FLOOR AREA / UNIT	1,080 SF	1,192 SF
MINIMUM OPEN SPACE	15%	PROVIDED

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 14.03.C	**RESTAURANT (SIT DOWN):** 1 SPACE PER 100 SF * (7,000 SF)(1 SPACE / 100 SF) = 70 SPACES **CLASSIC CAR CLUB:** 1 SPACE PER 200 SF OF GFA * (13,985 SF)(1 SPACE / 200 SF) = 70 SPACES TOTAL: 70 + 70 SPACES= **140 SPACES**	178 SPACES
	SINGLE FAMILY: N /A	2 SPACES PER DWELLING
§ 27.04.A	**90° PARKING:** 9 FT X 19 FT WITH 22 FT AISLE	9 FT X 19 FT WITH 22 FT AISLE
§ 27.04.A	**OFF STREET LOADING:** 10 FT X 50 FT	10 FT X 50 FT

* OFF-STREET PARKING DETERMINED USING GENERAL BUSINESS DISTRICT REQUIREMENTS



SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	PROPOSED CURB & GUTTER
	PROPOSED FLUSH CURB
	PROPOSED BUILDING
	PROPOSED CONCRETE PAVEMENT
	PROPOSED BUILDING DOORS
	PROPOSED WALL
	REROUTED STREAM CENTERLINE
	PROPOSED STORMWATER DETENTION / BIOSWALE / CHANNEL PROTECTION FEATURE

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

40' 0' 40' 80'

GRAPHIC SCALE IN FEET
1" = 40'

ISSUE	DATE	BY	DESCRIPTION
2	11/16/2022	KTH	REVISION FOR PUD APPROVAL
1	10/18/2022	KTH	FOR PUD APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLAN

HUDSON SQUARE
3030 S. LAPEER ROAD
PROPOSED MULTI-USE PLANNED UNIT DEVELOPMENT

PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
OXFORD TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN · JOHN THOMAS KOOKSEY · ENGINEER · J. THOMAS KOOKSEY · MICHIGAN LICENSE NO. 0701069428 · LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' PROJECT ID: DET-210193.01

TITLE:

DENSITY PLAN

DRAWING:

C-4

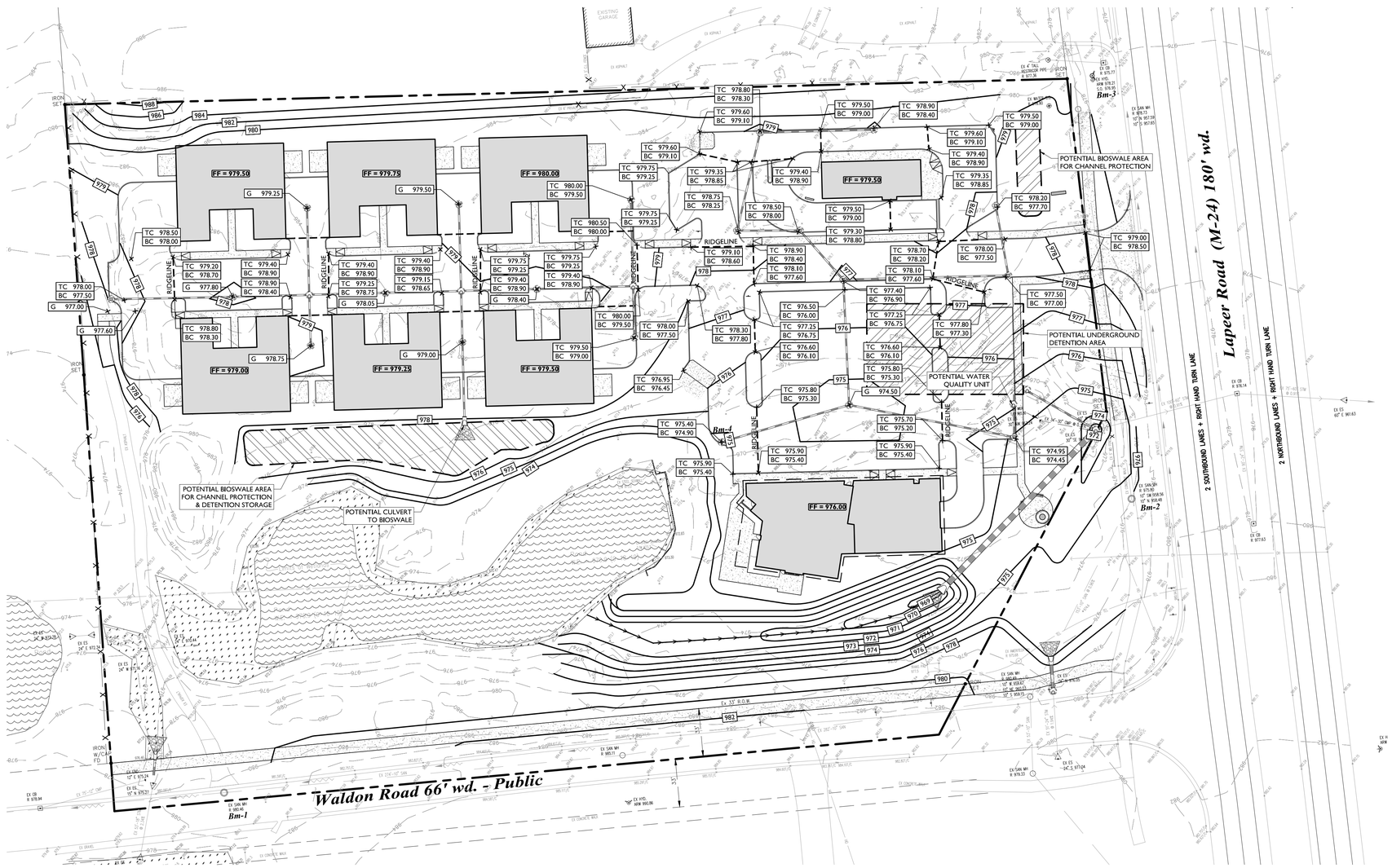
BENCHMARKS (NAVD 88)

BM# 1
RIM OF EXISTING SANITARY MANHOLE LOCATED NEAR THE SW CORNER OF PROPERTY.
ELEVATION = 980.46

BM# 2
RIM OF EXISTING SANITARY MANHOLE LOCATED ON THE WEST SIDE OF LAPEER ROAD, 140 FT ± NORTH OF WALDON ROAD.
ELEVATION = 975.80

BM# 3
ARROW OF EXISTING HYDRANT LOCATED NEAR THE NE PROPERTY CORNER.
ELEVATION = 978.21

BM# 4
MAG NAIL SET IN TEH NORTH FACE OF POWER POLE LOCATED ON THE SOUTH SIDE OF THE DOUBLE GREENHOUSES.
ELEVATION = 972.52



SYMBOL / DESCRIPTION

SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED DIRECTION OF DRAINAGE FLOW
G 100.00	PROPOSED GRADE SPOT SHOT
TC 100.50 BC 100.00	PROPOSED TOP OF CURB / BOTTOM OF CURB SPOT SHOT
	PROPOSED STORMWATER STRUCTURES
	PROPOSED STORMWATER PIPING

GRADING NOTES

1. ALL SOIL AND MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. ANY GROUNDWATER DE-WATERING PRACTICES SHALL BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FOR THE DISCHARGE OF DE-WATERED GROUNDWATER. ALL SOIL IMPORTED TO THE SITE SHALL BE CERTIFIED CLEAN FILL. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL FILL MATERIALS BROUGHT TO THE SITE.
2. THE CONTRACTOR IS REQUIRED TO PROVIDE TEMPORARY AND/OR PERMANENT SHORING WHERE REQUIRED DURING EXCAVATION ACTIVITIES, INCLUDING BUT NOT LIMITED TO UTILITY TRENCHES, TO ENSURE THE STRUCTURAL INTEGRITY OF NEARBY STRUCTURES AND STABILITY OF THE SURROUNDING SOILS.
3. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 4 INCHES TO 7 INCHES ABOVE EXISTING GRADES UNLESS OTHERWISE NOTED. THE CONTRACTOR WILL SUPPLY ALL STAKEOUT CURB GRADE SHEETS TO STONEFIELD ENGINEERING & DESIGN, LLC. FOR REVIEW AND APPROVAL PRIOR TO POURING CURBS.
4. THE CONTRACTOR IS RESPONSIBLE TO SET ALL PROPOSED UTILITY COVERS AND RESET ALL EXISTING UTILITY COVERS WITHIN THE PROJECT LIMITS TO PROPOSED GRADE IN ACCORDANCE WITH ANY APPLICABLE MUNICIPAL, COUNTY, STATE AND/OR UTILITY AUTHORITY REGULATIONS.
5. MINIMUM SLOPE REQUIREMENTS TO PREVENT PONDING SHALL BE AS FOLLOWS:
   - CURB GUTTER: 0.50%
   - CONCRETE SURFACES: 1.00%
   - ASPHALT SURFACES: 1.00%
5. A MINIMUM SLOPE OF 1.00% SHALL BE PROVIDED AWAY FROM ALL BUILDINGS. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FROM THE BUILDING IS ACHIEVED AND SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IF THIS CONDITION CANNOT BE MET.
6. FOR PROJECTS WHERE BASEMENTS ARE PROPOSED, THE DEVELOPER IS RESPONSIBLE TO DETERMINE THE DEPTH TO GROUNDWATER AT THE LOCATION OF THE PROPOSED STRUCTURE. IF GROUNDWATER IS ENCOUNTERED WITHIN THE BASEMENT AREA, SPECIAL CONSTRUCTION METHODS SHALL BE UTILIZED AND REVIEWED/APPROVED BY THE CONSTRUCTION CODE OFFICIAL. IF SUMP PUMPS ARE UTILIZED, ALL DISCHARGES SHALL BE CONNECTED DIRECTLY TO THE PUBLIC STORM SEWER SYSTEM WITH APPROVAL FROM THE GOVERNING STORM SEWER SYSTEM AUTHORITY.

ADA NOTES

1. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION WITHIN THE ADA PARKING SPACES AND ACCESS AISLES.
2. THE CONTRACTOR SHALL PROVIDE COMPLIANT SIGNAGE AT ALL ADA PARKING AREAS IN ACCORDANCE WITH STATE GUIDELINES.
3. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 5.00% RUNNING SLOPE AND A MAXIMUM OF 2.00% CROSS SLOPE ALONG WALKWAYS WITHIN THE ACCESSIBLE PATH OF TRAVEL (SEE THE SITE PLAN FOR THE LOCATION OF THE ACCESSIBLE PATH). THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE ACCESSIBLE PATH OF TRAVEL IS 36 INCHES WIDE OR GREATER UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
4. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION AT ALL LANDINGS. LANDINGS INCLUDE, BUT ARE NOT LIMITED TO, THE TOP AND BOTTOM OF AN ACCESSIBLE RAMP, AT ACCESSIBLE BUILDING ENTRANCES, AT AN AREA IN FRONT OF A WALK-UP ATM, AND AT TURNING SPACES ALONG THE ACCESSIBLE PATH OF TRAVEL. THE LANDING AREA SHALL HAVE A MINIMUM CLEAR AREA OF 60 INCHES BY 60 INCHES UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 8.33% RUNNING SLOPE AND A MAXIMUM 2.00% CROSS SLOPE ON ANY CURB RAMPS ALONG THE ACCESSIBLE PATH OF TRAVEL. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 10.00%. IF A LANDING AREA IS PROVIDED AT THE TOP OF THE RAMP, FOR ALTERATIONS, A CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 8.33%. IF A LANDING AREA IS NOT PROVIDED AT THE TOP OF THE RAMP, CURBS RAMPS SHALL NOT RISE MORE THAN 6 INCHES IN ELEVATION WITHOUT A HANDRAIL. THE CLEAR WIDTH OF A CURB RAMP SHALL BE NO LESS THAN 36 INCHES WIDE.
6. ACCESSIBLE RAMPS WITH A RISE GREATER THAN 6 INCHES SHALL CONTAIN COMPLIANT HANDRAILS ON BOTH SIDES OF THE RAMP AND SHALL NOT RISE MORE THAN 30" IN ELEVATION WITHOUT A LANDING AREA IN BETWEEN RAMP RUNS. LANDING AREAS SHALL ALSO BE PROVIDED AT THE TOP AND BOTTOM OF THE RAMP.
7. A SLIP RESISTANT SURFACE SHALL BE CONSTRUCTED ALONG THE ACCESSIBLE PATH AND WITHIN ADA PARKING AREAS.
8. THE CONTRACTOR SHALL ENSURE A MAXIMUM OF ¼ INCHES VERTICAL CHANGE IN LEVEL ALONG THE ACCESSIBLE PATH. WHERE A CHANGE IN LEVEL BETWEEN ¼ INCHES AND ½ INCHES EXISTS, CONTRACTOR SHALL ENSURE THAT THE TOP ¼ INCH CHANGE IN LEVEL IS BEVELED WITH A SLOPE NOT STEEPER THAN 1 UNIT VERTICAL AND 2 UNITS HORIZONTAL (2:1 SLOPE).
9. THE CONTRACTOR SHALL ENSURE THAT ANY OPENINGS (GAPS OR HORIZONTAL SEPARATION) ALONG THE ACCESSIBLE PATH SHALL NOT ALLOW PASSAGE OF A SPHERE GREATER THAN ½ INCH.

40' 0' 40' 80'
GRAPHIC SCALE IN FEET
1" = 40'

ISSUE	DATE	BY	DESCRIPTION
2	11/16/2022	KTH	REVISION FOR PUD APPROVAL
1	10/18/2022	KTH	FOR PUD APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLAN

HUDSON SQUARE

3030 S. LAPEER ROAD

PROPOSED MULTI-USE PLANNED UNIT DEVELOPMENT

PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
ADDISON TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JONATHAN REED JOCKSEY
ENGINEER
J. REED JOCKSEY, P.E.
MICHIGAN LICENSE NUMBER 6201069428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' PROJECT ID: DET-210193.01

TITLE:

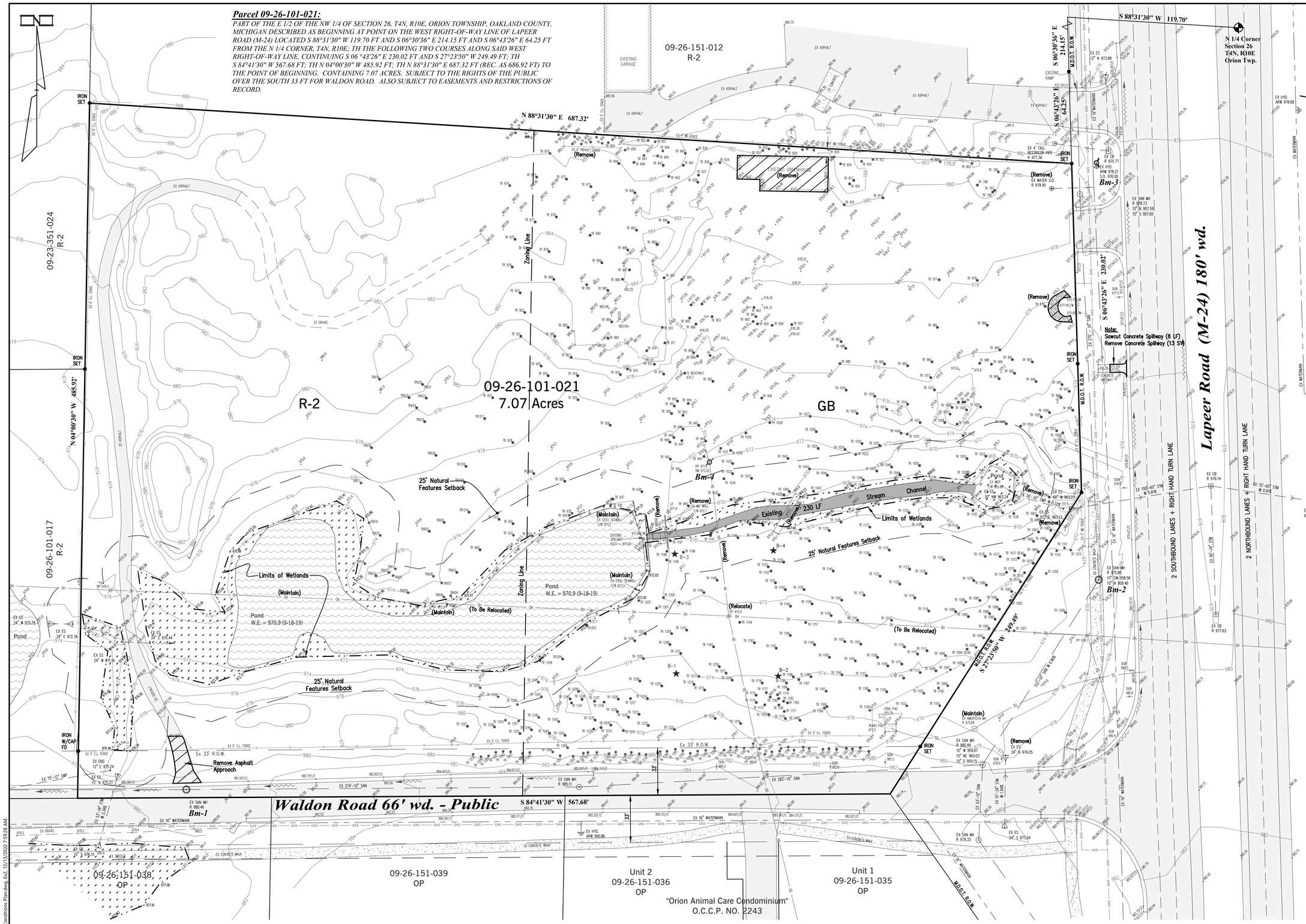
GRADING PLAN

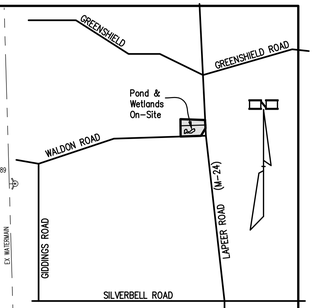
DRAWING:

C-5

Parcel 09-26-101-021:

PART OF THE E 1/2 OF THE NW 1/4 OF SECTION 26, T4N, R10E, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT POINT ON THE WEST RIGHT-OF-WAY LINE OF LAPEER ROAD (M-24) LOCATED S 88°31'30" W 119.70 FT AND S 06°30'36" E 214.15 FT AND S 06°43'26" E 64.25 FT FROM THE N 1/4 CORNER, T4N, R10E; TH THE FOLLOWING TWO COURSES ALONG SAID WEST RIGHT-OF-WAY LINE, CONTINUING S 06 °43'26" E 230.02 FT AND S 27°23'50" W 249.49 FT; TH S 84°41'30" W 567.68 FT; TH N 04°00'30" W 485.92 FT; TH N 88°31'30" E 687.32 FT (REC. AS 686.92 FT) TO THE POINT OF BEGINNING. CONTAINING 7.07 ACRES. SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE SOUTH 33 FT FOR WALDON ROAD. ALSO SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.





LOCATION MAP

SCALE: 1" = 2000'

LEGEND

- STORM SEWER
- SANITARY SEWER
- WATERMAIN
- GAS MAIN
- ELEC. TELE. CABLE
- EXISTING OVERHEAD
- WETLAND LIMITS
- 25' NATURAL FEATURES SETBACK
- STORM MANHOLE
- CATCH BASIN
- INLET
- REARYARD CATCH BASIN
- END SECTION
- SANITARY MANHOLE
- GATE VALVE AND WELL
- HYDRANT
- 960 CONTOURS
- POWER POLE
- LIGHT POLE
- +955.3 GRADE
- (C) SOIL BORING CALCULATED
- STREAM CHANNEL
- DEMOLITION LIMITS

Benchmarks: NAVD '88

BM #1 - RIM OF EXISTING SANITARY MANHOLE LOCATED NEAR THE SW CORNER OF PROPERTY. ELEVATION = 980.46

BM #2 - RIM OF EXISTING SANITARY MANHOLE LOCATED ON THE WEST SIDE OF LAPEER ROAD. 140 FT+/- NORTH OF WALDON ROAD.. ELEVATION = 975.80

BM #3 - ARROW OF EXISTING HYDRANT LOCATED NEAR THE NE PROPERTY CORNER. ELEVATION = 978.21

BM #4 - MAG NAIL SET IN NORTH FACE OF POWER POLE LOCATED ON THE SOUTH SIDE OF THE DOUBLE GREENHOUSES.. ELEVATION = 972.52

Note:

ALL EXISTING UTILITIES SHOWN ON THIS TOPOGRAPHIC SURVEY HAVE BEEN TAKEN FROM VISUAL OBSERVATION, AND RECORD MAPPING, WHERE AVAILABLE. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE UTILITIES SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS OF OVERHEAD AND UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION ACTIVITIES.

STATE OF MICHIGAN — WILLIAM JERRILL NORMAN II — NO. 4001046680 — LICENSED PROFESSIONAL SURVEYOR

G:\2019\139\dwg\Existing Conditions Plan.dwg, Ex2, 12/13/2022 7:59:28 AM

DATE	ISSUE

PROPRIETOR:
CONSTRUCTION DESIGN SERVICE
2867 GLENWOOD COURT
LAKE ORION, MICHIGAN 48360
(586) 216-5953

THIS DRAWING IS THE PROPERTY OF KIEFT ENGINEERING, INC. AND MAY NOT BE USED, REPRODUCED OR PUBLISHED, IN PART OR IN WHOLE, WITHOUT EXPRESSED WRITTEN PERMISSION FROM KIEFT ENGINEERING, INC.

KIEFT ENGINEERING

KIEFT ENGINEERING, INC.
PROFESSIONAL ENGINEERS AND PROFESSIONAL SURVEYORS
5852 SOUTH MAIN STREET, SUITE 1, CLARKSTON, MICHIGAN 48346
PHONE (248) 625-5251 www.kiefteng.com FAX (248) 625-7110

DATE 12-13-2022	CKD. BY	DATE
DRAWN GF		
DESIGN WJN		
SECTION 26	T- 4 -N. R- 10 -E.	

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

Existing Conditions Plan
Orion Classic Car Club
PART OF THE E 1/2 OF THE NW 1/4 OF SECTION 26, T4N, R10E, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN

SCALE 1" = 30'
SHEET 1 OF 1
KE 2019.139

Hudson Square

3030 S Lapeer Rd.

Orion Township, MI 48360

PROJECT TEAM

OWNER
DETROIT RIVERSIDE CAPITAL, LLC
1251 INDIAN MOUND RD.
BLOOMFIELD TOWNSHIP, MI 48301
MICHAEL WAYNE
ALEC HARRIS

ARCHITECT
DESIGNHAUS ARCHITECTURE
3300 AUBURN RD.
AUBURN HILLS, MI 48326
T: 248.601.4422
F: 248.453.5854
PROJECT MANAGER: JOE LATOZAS
PROJECT ARCHITECT:
PETER STUHLREYER, A.I.A

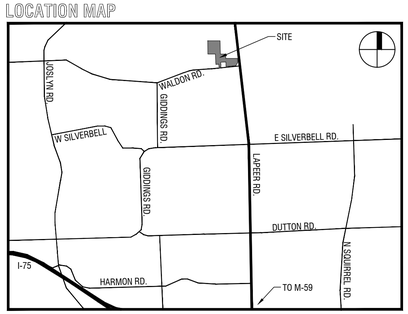
CIVIL ENGINEER
STONEFIELD
607 SHELBY ST. SUITE 200
DETROIT, MI 48226
T:248.247.1115
C:734.546.4941
CONTACT: ERIC WILLIAMS

STATEMENT OF SELECTED DESIGN PROFESSIONAL

THESE CONSTRUCTION DOCUMENTS WERE PREPARED FOR COMPLIANCE WITH THE MICHIGAN CONSTRUCTION CODES IN EFFECT AT THE TIME OF PERMIT SUBMITTAL. ALL ENGINEERS, CONTRACTORS AND SUPPLIERS INVOLVED WITH THIS PROJECT SHALL COMPLY WITH THE SAME CODES ISSUED AND APPROVED CODE MODIFICATIONS AND/OR MUNICIPAL CONSTRUCTION BOARDS OF APPEALS RULINGS AND WHENEVER REQUIRED SHALL PROVIDE SHOP DRAWINGS AND SUBMITTALS CLEARLY DESCRIBING COMPLIANCE TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW AND APPROVAL.

REGISTERED DESIGN PROFESSIONAL IN CHARGE:
PETER STUHLREYER. A.I.A.
MICHIGAN IDENTIFICATION # 44668
DESIGNHAUS ARCHITECTURE

LOCATION MAP



INDEX OF DRAWINGS

P.U.D. SUBMITTAL/ 10.20.22

- ☐ SHEET ISSUED
- △1 REVISED
- ■ SHEET REISSUED

SHEET NO:	DRAWING NAME
GENERAL	
G1.1	Title Sheet and Index
ARCHITECTURAL	
A1.00	Floor Plan
A2.00	Building Elevations
A-001	First Floor Plan
A-002	Second Floor Plan
A-003	Elevations
A-004	Elevations Bigby Elevation Reference

DESIGNHAUS EST 1998 ARCHITECTURE
3300 AUBURN RD. SUITE 300
AUBURN HILLS, MI 48326
T:248.601.4422 F:248.453.5854
WWW.DESIGNHAUS.COM
INFO@DESIGNHAUS.COM

Revision/issue	Date
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
P.U.D. SUBMITTAL	10.20.22

Hudson Square
3030 S Lapeer Rd.
Orion Township, MI 48360

Cover Sheet & Index

022165

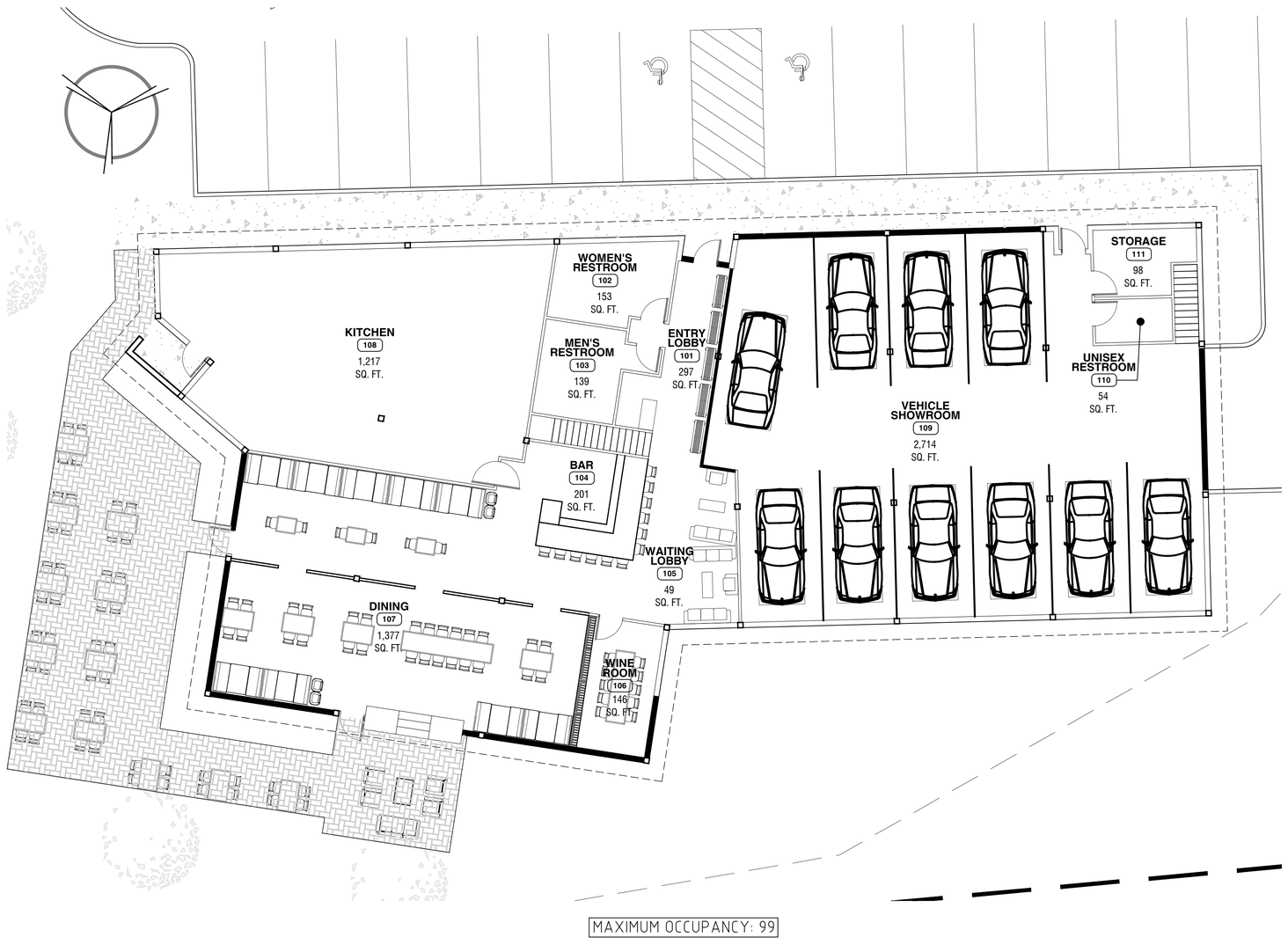
G0.01

SEATING:

INDOOR SEATING: 80 SEATS DINING, 12 @ BAR

OUTDOOR SEATING: 48

TOTAL: 140



MAXIMUM OCCUPANCY: 99

1 First Floor Plan

SCALE: 1/8" = 1'

NORTH

DESIGNHAUS EST 1998 ARCHITECTURE

3300 AUBURN RD. SUITE 300
AUBURN HILLS, MI 48326

T:248.601.4422 F:248.453.5854

WWW.DESIGNHAUS.COM
INFO@DESIGNHAUS.COM

Revision/Issue	Date
----	----
----	----
----	----
----	----
----	----
----	----
----	----
P.U.D. SUBMITTAL	10.20.22

99

Hudson Square

3030 S Lapeer Rd.
Orion Township, MI 48360

Floor Plan

022165

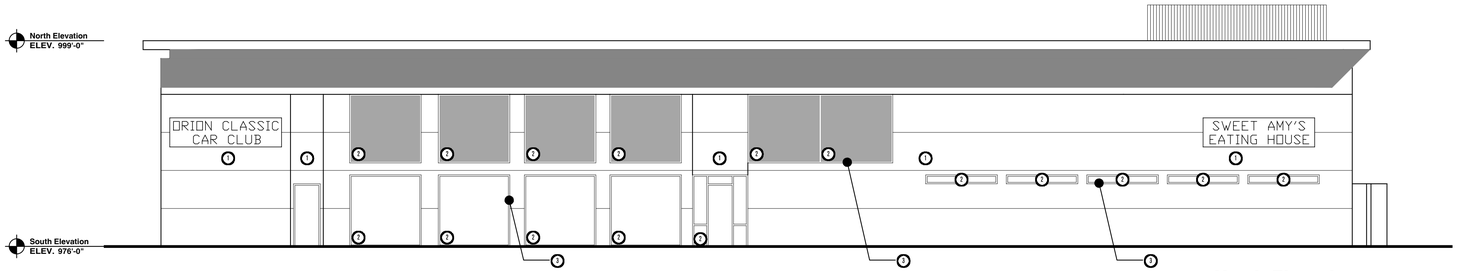
A1.00

A1.00 Floor Plan.dwg

10/19/2022

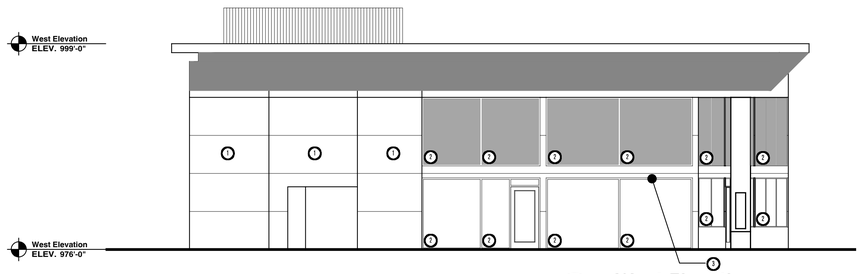
DH-32

MATERIAL LEGEND		
IMAGE	MARK	DESCRIPTION
	1	STUCCO
	2	CLEAR GLASS
	3	DARK BRONZE FRAMING



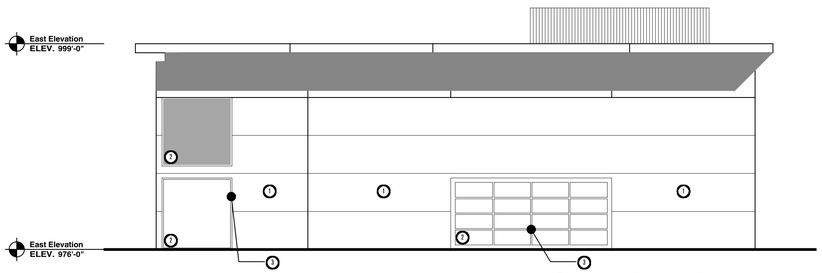
4 North Elevation

SCALE: 1/8" = 1'



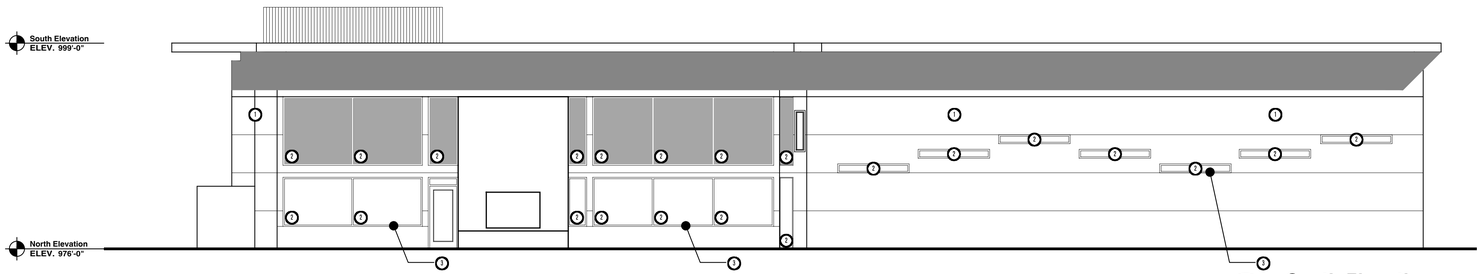
3 West Elevation

SCALE: 1/8" = 1'



2 East Elevation

SCALE: 1/8" = 1'



1 South Elevation

SCALE: 1/8" = 1'

DESIGNHAUS ARCHITECTURE EST 1998

3300 AUBURN RD. SUITE 300
AUBURN HILLS, MI 48326

T:248.601.4422 F:248.453.5854

WWW.DESIGNHAUS.COM
INFO@DESIGNHAUS.COM

Revision/Issue	Date
----	----
----	----
----	----
----	----
----	----
----	----
----	----
P.U.D. SUBMITTAL	10.20.22

Hudson Square
3030 S Lapeer Rd.
Orion Township, MI 48360

Building Elevations

022165

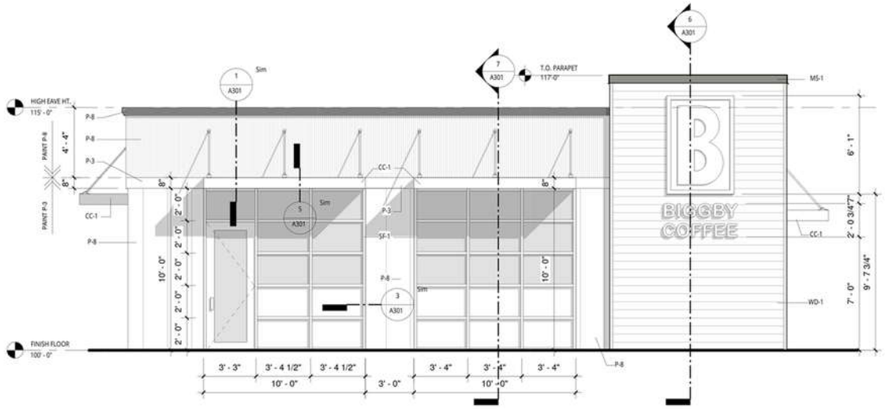
A2.00

100

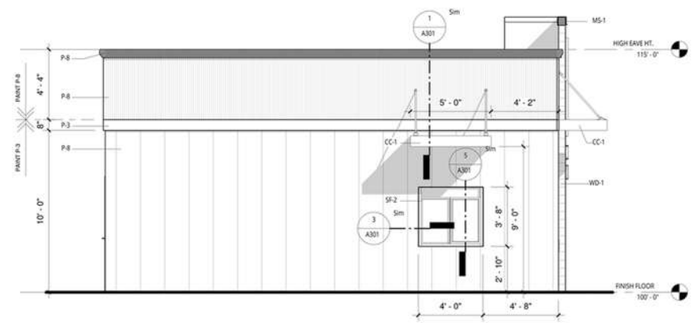
A2.00 Building Elevations.dwg

10/19/2022

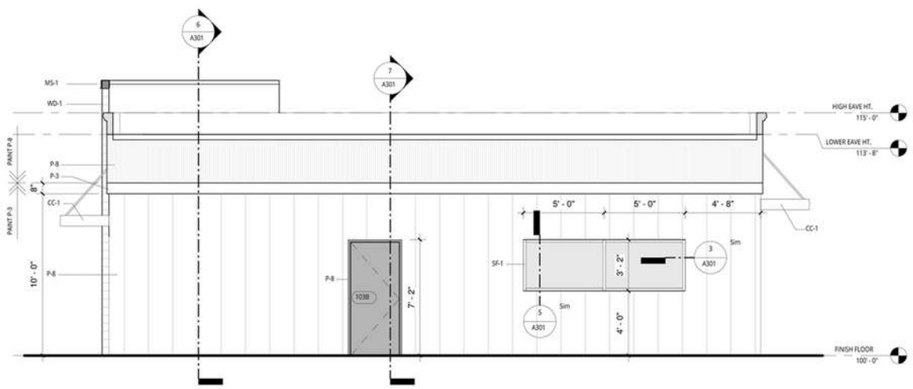
DH-32



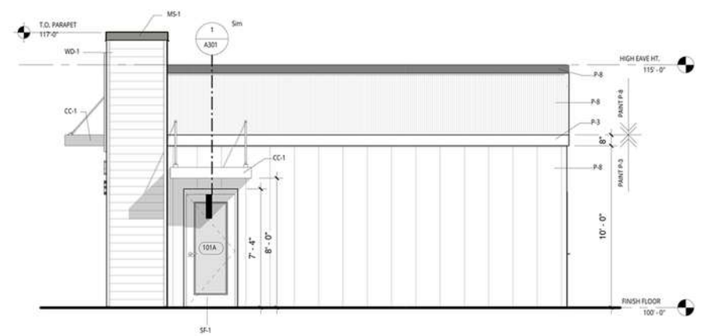
1 WEST ELEVATION



2 NORTH ELEVATION



3 EAST ELEVATION



4 SOUTH ELEVATION

Note: The pictured elevations are from an existing Biggby Coffee location and provided to serve as a reference for the general character of the proposed Biggby Coffee location. The proposed building size is roughly 500 SF larger than the reference. The dimensions of the proposed are 25' (w) x 68' (L), as provided on the PUD site plan. The proposed will contain similar façade design and materials.

EXTERIOR FINISH SCHEDULE

TAG	DESCRIPTION	SPEC SECTION	FINISH / COLOR	MANUFACTURER	ASSEMBLY
PAINT					
P-8	PAINT	09 91 13	DARK GREY	SHERWIN WILLIAMS SW 6006 BLACK BEAN	N/A
CANOPY					
CC-1	METAL CANOPY	10 73 16	RAL 2003 49/24540	MASA ARCHITECTURAL CANOPIES OR EQUAL	N/A
METAL SIDING					
MS-1	METAL CAP	13 34 19	MATCH P-8		N/A
STORE FRONT					
SF-1	ALUMINUM STORE FRONT WINDOWS	08 51 13	DARK BRONZE	TUBELITE	N/A
SF-2	DRIVE THROUGH WINDOW	08 56 53	DARK BRONZE	READY ACCESS OR EQUAL	N/A
WOOD					
WD-1	CEDAR RENDITIONS ALUMINUM SIDING	07 46 33	TBD	ROYAL BUILDING PRODUCTS	P4

Note: This is a photo of an existing Biggby Coffee location provided to serve as a reference for the general character of the proposed Biggby Coffee.

DESIGNHAUS EST 1998 ARCHITECTURE
3300 AUBURN RD. SUITE 300
AUBURN HILLS, MI 48326
T:248.601.4422 F:248.453.5854
WWW.DESIGNHAUS.COM
INFO@DESIGNHAUS.COM

Revision/Issue	Date
Reference Material	22.10.18
---	---
---	---
---	---
---	---
---	---
---	---
---	---

Biggby Coffee
Lapeer & Waldon
Orion Twp, MI 48359

22.10.18

1 ELEVATION 1
6" = 1'0"

2 ELEVATION 2
6" = 1'0"

GENERAL NOTES: THIS SET OF DRAWINGS IS INTENDED AS A GUIDE.
THE CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING AND FOLLOWING ALL APPLICABLE BUILDING CODES, LAWS, AND REGULATIONS WHICH ARE TO SUPERCEDE ANY INFORMATION IN THESE DRAWINGS.
ALL CONSTRUCTION IS TO MEET CURRENT STANDARDS OF CRAFTSMANSHIP AND CARE. ALL PRODUCTS ARE TO BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS ARE TO BE DESIGNED AND INSTALLED BY OTHERS AND ARE OUTSIDE THE SCOPE OF THESE DRAWINGS.

SEAL:

SIGNATURE:

CONTENT: ARCHITECTURE

SHEET TITLE: ELEVATIONS

DATE: AUGUST 2022

SHEET NO: A-003

3 ELEVATION 3

6" = 1'0"

4 ELEVATION 4

6" = 1'0"

GENERAL NOTES: THIS SET OF DRAWINGS IS INTENDED AS A GUIDE.
THE CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING AND FOLLOWING ALL APPLICABLE BUILDING CODES, LAWS, AND REGULATIONS WHICH ARE TO SUPERCEDE ANY INFORMATION IN THESE DRAWINGS.
ALL CONSTRUCTION IS TO MEET CURRENT STANDARDS OF CRAFTSMANSHIP AND CARE. ALL PRODUCTS ARE TO BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS ARE TO BE DESIGNED AND INSTALLED BY OTHERS AND ARE OUTSIDE THE SCOPE OF THESE DRAWINGS.

SEAL:	SIGNATURE:	CONTENT:	SHEET TITLE:	DATE:	SHEET NO:
		ARCHITECTURE	ELEVATIONS	AUGUST 2022	A-004

1 FIRST FLOOR PLAN

6" = 1'0"

GENERAL NOTES: THIS SET OF DRAWINGS IS INTENDED AS A GUIDE.
THE CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING AND FOLLOWING ALL APPLICABLE BUILDING CODES, LAWS, AND REGULATIONS WHICH ARE TO SUPERCEDE ANY INFORMATION IN THESE DRAWINGS.
ALL CONSTRUCTION IS TO MEET CURRENT STANDARDS OF CRAFTSMANSHIP AND CARE. ALL PRODUCTS ARE TO BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS ARE TO BE DESIGNED AND INSTALLED BY OTHERS AND ARE OUTSIDE THE SCOPE OF THESE DRAWINGS.

SEAL:

SIGNATURE:

CONTENT: ARCHITECTURE

SHEET TITLE: FIRST FLOOR PLAN

DATE: MAY 2022

SHEET NO: A-001

1 SECOND FLOOR PLAN

6" = 1'0"

GENERAL NOTES: THIS SET OF DRAWINGS IS INTENDED AS A GUIDE.
THE CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING AND FOLLOWING ALL APPLICABLE BUILDING CODES, LAWS, AND REGULATIONS WHICH ARE TO SUPERCEDE ANY INFORMATION IN THESE DRAWINGS.
ALL CONSTRUCTION IS TO MEET CURRENT STANDARDS OF CRAFTSMANSHIP AND CARE. ALL PRODUCTS ARE TO BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS ARE TO BE DESIGNED AND INSTALLED BY OTHERS AND ARE OUTSIDE THE SCOPE OF THESE DRAWINGS.

SEAL:

SIGNATURE:

CONTENT: ARCHITECTURE

SHEET TITLE: SECOND FLOOR PLAN

DATE: JULY 2022

SHEET NO: A-002

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

MEMO

VIA EMAIL michael.wayne@detroitriversidecapital.com

To:	**John and Nancy, LLC.**
From:	**Jacob Swanson, PE** **Fleis & VandenBrink**
Date:	**November 9, 2022**
Re:	**Hudson Square Planned Unit Development (PUD)** **Orion Township, Michigan** **Traffic Impact Study**

1 INTRODUCTION

This memorandum presents the results of a Traffic Impact Study (TIS) for the proposed Hudson Square Planned Unit Development (PUD) located in Orion Township, Michigan. The project site is located at 3030 S. Lapeer Road (M-24) on approximately 7 acres, in the northwest quadrant of the SB Lapeer Road (M-24) & Waldon Road intersection, as shown on the attached **Figure 1**. The project includes a mixed-use development, with the construction of restaurant and residential land uses. Site access is proposed via one (1) driveway on SB Lapeer Road (M-24), which is under the jurisdiction of the Michigan Department of Transportation (MDOT).

The lane use and traffic control at the study intersections are shown on the attached **Figure 2** and the study roadways characteristics are summarized in **Table 1**. For the purposes of this study, site driveways, median U-turns (crossovers), and residential streets were assumed to have an operating speed of 25 miles per hour (mph), unless otherwise noted.

Table 1: Roadway Information

Roadway	Lapeer Road (M-24)	Waldon Road
Number of Lanes	4 lanes (2 lanes each direction, median divided)	2 lanes (1 lanes each direction)
National Functional Classification	Other Principal Arterial	Major Collector
Speed Limit	55 mph	40 mph
AADT	43,400 vpd (SEMCOG 2016)	4,300 (SEMCOG 2018)

The scope of the study was developed based on Fleis & VandenBrink's (F&V) understanding of the development program, accepted traffic engineering practice, and methodologies published by the Institute of Transportation Engineers (ITE). In addition, Orion Township and MDOT provided input regarding the scope of work for this traffic impact study. The study analyses were completed using Synchro/SimTraffic (Version 11) traffic analysis software. Sources of data for this study include F&V subconsultant Quality Counts, LLC. (QC), information published by the Institute of Transportation Engineers (ITE), RCOC, and MDOT.

27725 Stansbury Boulevard, Suite 195
Farmington Hills, MI 48334
P: 248.536.0080
F: 248.536.0079
www.fveng.com

2 DATA COLLECTION

F&V subconsultant Quality Counts, LLC. (QC) collected existing Turning Movement Count (TMC) data on Thursday October 13th, 2022, and Tuesday October 18th, 2022, while school was in session. Eight hours of existing TMC data was collected during the AM (7:00 AM to 9:00 AM), MD (11:00 AM to 1:00 PM), and PM (2:00 PM to 6:00 PM) peak periods, at the following study intersections:

- SB Lapeer Road (M-24) & NB-to-SB Crossover, North of Waldon Road
- SB Lapeer Road (M-24) & Waldon Road
- NB Lapeer Road (M-24) & SB-to-NB Crossover, South of Waldon Road / Eagle Ridge Road

During collection of the turning movement counts, Peak Hour Factors (PHFs), pedestrian and bike volumes, and commercial truck percentages were recorded and used in the traffic analysis. The AM and PM peak hours for the adjacent roadway network were generally observed to occur on weekdays between 7:45 AM to 8:45 AM and 5:00 PM to 6:00 PM, respectively. F&V collected an inventory of existing lane use and traffic controls, as shown on the attached **Figure 2**.

Additionally, F&V obtained the current signal timing permits from MDOT for the upstream signalized intersections and included these signalized intersections within the Synchro Model to appropriately reflect the platooning and progression of vehicles along Lapeer Road (M-24). Data collection previously performed by F&V subconsultant Traffic Data Collection, Inc. (TDC) at the Silverbell intersection was utilized in the model and traffic volumes were balanced upward through the network at the study intersections. Therefore, the raw traffic volumes shown on the attached data collection summaries may not match the traffic volumes utilized in the study. The existing 2022 peak hour traffic volumes used in the analysis are shown on the attached **Figure 3**. All applicable background data referenced in this memorandum is attached.

3 EXISTING CONDITIONS

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro (Version 11) traffic analysis software. The study analyses were based on the existing lane use and traffic control shown on the attached **Figure 2**, the existing peak hour traffic volumes shown on the attached **Figure 3**, and the methodologies presented in the *Highway Capacity Manual 6th, Edition* (HCM).

Descriptions of LOS "A" through "F" as defined in the HCM6, are attached. Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. Additionally, SimTraffic network simulations were reviewed to evaluate network operations and vehicle queues. The results for the existing conditions analysis are attached and shown in **Table 2**.

Table 2: Existing Intersection Operations

Intersection		Control	Approach	Existing Conditions			
				AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS
10	SB Lapeer Road (M-24) & NB-to-SB Crossover, North of Waldon Road	Stop (Minor)	WBL	54.3	F	23.8	C
			SB	Free			
20	SB Lapeer Road (M-24) & Waldon Road	Stop (Minor)	EBR	54.3	F	23.3	C
			SB	Free			
30	NB Lapeer Road (M-24) & SB-to-NB Crossover, South of Waldon Road	Stop (Minor)	EBTL	22.9	C	580.1	F
			WBR	13.3	B	26.3	D
			NB	Free			

The result of the existing conditions analysis indicates that all approaches and movements and the study intersections are currently operating acceptably, at LOS D or better, during both the AM and the PM peak hours, with the exception of the following:

(INT #10) – SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon Road

- During the AM peak hour: The northbound to southbound U-turn movement is currently operating at LOS F.

(INT #20) – SB Lapeer Road (M-24) & Waldon Road

- During the AM peak hour: The eastbound right-turn movement currently operates at LOS F.

(INT #30) – NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon Road / Eagle Ridge Road

- During the PM peak hour: The southbound to northbound U-turn movement is currently operating at LOS F.

Review of SimTraffic network simulations during the AM peak hour indicates generally acceptable operations. Occasional periods of vehicle queues were observed along the eastbound Waldon Road approach and the northbound to southbound U-turn movement at the crossover (INT #10); however, these vehicle queues were observed to dissipate and were not present throughout the AM peak hour.

Review of SimTraffic microsimulations indicates long vehicle queues for the southbound to northbound U-turn movement at the crossover (INT #30) during the PM peak hour; these queues were occasionally observed to exceed the available storage area and block the southbound through traffic. Review of the data collection videos confirms periods of long vehicle queues resulting from vehicles struggling to find adequate gaps within the NB Lapeer Road (M-24) through traffic. Additionally, when the available SB-to-NB crossover storage area becomes blocked, vehicles along eastbound Waldon Road desiring to travel north on Lapeer Road (M-24) were observed to not progress through the intersection of SB Lapeer Road (M-24) & Waldon Road, even when adequate gaps were present within the southbound traffic flow. This issue was observed to create increased delays and longer vehicle queues for all traffic along eastbound Waldon Road, especially vehicles attempting to travel south.

3.1 Existing Conditions with Improvements

In order to improve the existing traffic operations to a LOS D or better, during all peak periods, for all intersection approaches and movements, mitigation measures were investigated. These mitigation measures include geometric improvements and traffic control modifications. The proposed improvements and their impact on intersection operations are discussed below.

3.1.1 Traffic Signal Warrant Analysis

A signal warrant analysis was conducted at each of the stop-controlled study intersections. The *2011 Michigan Manual on Uniform Traffic Control Devices* (MMUTCD) documents the guidelines by which traffic signal control may or should be considered. F&V collected 8 hours of turning movement traffic volume data for use in the study. F&V evaluated Warrant 1 (8-Hour Vehicular Volume), Warrant 2 (4-Hour Vehicular Volume), and Warrant 3 (Peak-Hour) for this study. The existing MMUTCD signal warrant chart outputs are attached and summarized below in **Table 3**.

Warrant 1

According to the MMUTCD, Warrant 1, Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. Condition B is intended for application where Condition A is not satisfied, and where the traffic volume on the major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. It is intended that Warrant 1 be treated as a single warrant, where Warrant 1 is satisfied if either Conditions A or B are met.

Warrant 2

The Four-Hour signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The need for a traffic signal shall be considered if, for each of any four hours of an average day, the intersection approach volumes fall above the applicable curve on Figure 4C-1.

Warrant 3

The Peak Hour signal warrant conditions is intended for use at a location where traffic conditions are such that, for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street. The need for a signal shall be considered if on any hour of an average day, the approach volumes fall above the applicable curve line shown on Figure 4C-3.

Table 3: Existing Signal Warrant Analysis Summary

Warrant		SB Lapeer Road (M-24) & NB-to-SB X/O	SB Lapeer Road (M-24) & Waldon Road	NB Lapeer Road (M-24) & SB-to-NB X/O
Warrant 1: Eight-Hour		YES	YES	YES
Condition A	*Hours Met*	3	8	8
	Warrant Met	NO	YES	YES
Condition B	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Warrant 2: Four-Hour	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Warrant 3: Peak-Hour	*Hours Met*	5	8	8
	Warrant Met	YES	YES	YES

The results of the signal warrant analyses indicate that traffic signals are warranted at all study intersections, based on the existing traffic volumes. The study intersections currently meet all of the volume thresholds for Warrant 1A, Warrant 1B, Warrant 2, and Warrant 3; with the exception of the intersection of SB Lapper Road (M-24) & NB-to-SB Crossover, which does not meet Warrant 1A. Additionally, a review of SimTraffic network simulations for the intersection of SB Lapper Road (M-24) & NB-to-SB Crossover does not indicate that the minor-street (median crossover) traffic suffers undue delay and during the field review, any vehicle queues present were observed to quickly dissipate within the peak periods.

3.1.2 SUMMARY

Traffic signals are warranted at all of the study intersections; however, field reviews indicate that traffic at the SB Lapeer Road (M-24) & NB-to-SB Crossover intersection does not experience undue delay. Therefore, in order to improve the existing intersection operations, the following mitigation measures are recommended:

Recommendations

Install a fully actuated/coordinated (SCATS) traffic signal at the following intersection to accommodate the existing traffic volumes:

- SB Lapeer Road (M-24) & Waldon Road (INT #20)
- NB Lapeer Road (M-24) & SB-to-NB Crossover, South of Waldon Road (INT #30)

The results of the existing improvements analysis are attached and summarized in **Table 4**. With the implementation of the recommended mitigation measures, all approaches and movements at the study intersections are expected to operate acceptably, at LOS D or better during both peak periods, with the exception of the following:

(INT #20) – SB Lapeer Road (M-24) & Waldon Road

- During the AM peak hour: The eastbound right-turn movement is expected to *improve* to LOS E.
- During the PM peak hour: The eastbound right-turn movement is expected to operate at LOS E.

(INT #30) – NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon Road / Eagle Ridge Road

- During the AM peak hour: The westbound right-turn movement is expected to operate at LOS E.

The LOS and delay at these intersections are due to moderately low volumes of vehicles on the minor street approaches and the random arrival of vehicles, in conjunction with the long cycle length (130 seconds) along the Lapeer Road (M-24) corridor. The consequence of this is that vehicles will often arrive at the intersection on a red signal and have to wait throughout the majority of the cycle length to receive a green signal. A reduction in cycle length at these intersections would improve operations for the minor street approaches and movements; however, this would impact the major street movements at this intersection, as well as the adjacent signalized intersections that are coordinated along the Lapeer Road (M-24) corridor.

Table 4: Existing Intersection Operations with Improvements

Intersection		Approach	Existing Conditions (STOP Control)				Existing IMP Conditions (Signalized)				Difference			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
20	SB Lapeer Road (M-24) & Waldon Road	EBR	54.3	F	23.3	C	63.0	E	62.8	E	8.7	F→E	39.5	C→E
		SBT	Free				6.0	A	4.9	A	N/A			
		SBR	Free				1.2	A	8.3	A	N/A			
		Overall	**N/A**				**8.8**	**A**	**11.3**	**B**	**N/A**			
30	NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon Rd.	EBTL	22.9	C	580.1	F	45.8	D	54.8	D	22.9	C→D	-525.3	F→D
		WBR	13.3	B	26.3	D	55.8	E	49.0	D	42.5	B→E	22.7	-
		NBT	Free				2.8	A	10.4	B	N/A			
		NBR	Free				1.7	A	3.1	A	N/A			
		Overall	**N/A**				**9.5**	**A**	**13.6**	**B**	**N/A**			

The eastbound right-turn movement at the SB Lapeer Road (M-24) & Waldon Road intersection is expected to experience an increased delay; however, the LOS is expected to improve. This is the result of the different range of delays that equate to the LOS descriptions for unsignalized and signalized intersection. Motorists at a signalized intersection are more comfortable waiting longer for a green light indication, as opposed to having to be constantly watching for gaps within the through traffic at a stop-controlled intersection.

Additionally, although the Synchro LOS analysis indicates poor operations for the eastbound right-turn movement at Waldon Road and the westbound right-turn movement at Eagle Ridge Road, a review of SimTraffic network simulations indicates acceptable operations; all vehicle queueing was observed to be processed through the signalized intersections within each cycle length, leaving no residual vehicle queueing.

4 BACKGROUND (2025) CONDITIONS

Population and economic growth profile data was obtained for Orion Township from the Southeast Michigan Council of Governments (SEMCOG) database to calculate a background growth rate for the 2022 peak hour traffic volumes in order to calculate the 2025 site buildout year traffic volumes. Population and employment projections from 2015 to 2045 were reviewed and showed an average annual growth of 0.19% and 0.08%, respectively. Therefore, a conservative annual background growth rate of **0.5%** per year was applied to the existing peak hour traffic volumes to forecast the background 2025 peak hour traffic volumes ***without the proposed development***, as shown on the attached **Figure 4**. Additionally, it is important to account for developments within the study network, which will be constructed prior to the site buildout year of 2025; however, no planned background developments were identified within the study network.

The background peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersection based on the existing lane use and traffic control shown on the attached **Figure 2**, the background peak hour traffic volumes shown on the attached **Figure 4**, and the methodologies presented in the HCM 6th Edition**.** The results of the background conditions analysis are attached and summarized in **Table 5.**

The results of the background conditions analysis indicates that all study intersection approaches and movements are expected to continue operating in a manner similar to the existing conditions analysis. Review of SimTraffic microsimulations also indicates operations similar to those observed under existing conditions.

Table 5: Background Intersection Operations

Intersection		Control	Approach	Existing Conditions				Background Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
10	SB Lapeer Road & NB-to-SB X/O, N. of Waldon Rd.	Stop (Minor)	WBL	54.3	F	23.8	C	58.7	F	24.4	C	4.4	-	0.6	-
			SB	Free				Free				N/A			
20	SB Lapeer Road & Waldon Road	Stop (Minor)	EBR	54.3	F	23.3	C	59.4	F	24.1	C	5.1	-	0.8	-
			SB	Free				Free				N/A			
30	NB Lapeer Road & SB-to-NB X/O, S. of Waldon Rd.	Stop (Minor)	EBTL	22.9	C	580.1	F	23.5	C	616.1	F	0.6	-	36.0	-
			WBR	13.3	B	26.3	D	13.4	B	26.8	D	0.1	-	0.5	-
			NB	Free				Free				N/A			

4.1 Background Conditions with Improvements

In order to improve the background traffic operations at the study intersections, the mitigation measures evaluated to improve existing conditions were re-evaluated:

4.1.1 Traffic Signal Warrant Analysis

A signal warrant analysis was again conducted at each of the stop-controlled study intersections, after applying the background growth rate to the buildout year of 2025, in order to reflect the background traffic volumes. The background signal warrant charts are summarized in **Table 6** below and are attached for reference.

Table 6: Background Signal Warrant Analysis Summary

Warrant		SB Lapeer Road (M-24) & NB-to-SB X/O	SB Lapeer Road (M-24) & Waldon Road	NB Lapeer Road (M-24) & SB-to-NB X/O
Warrant 1: Eight-Hour		YES	YES	YES
Condition A	*Hours Met*	4	8	8
	Warrant Met	NO	YES	YES
Condition B	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Warrant 2: Four-Hour	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Warrant 3: Peak-Hour	*Hours Met*	5	8	8
	Warrant Met	YES	YES	YES

The results of the signal warrant analyses indicates that traffic signals are warranted at all study intersections, based on the background traffic volumes. The study intersections are expected to meet all of the volume thresholds for Warrant 1A, Warrant 1B, Warrant 2, and Warrant 3; with the exception of the intersection of SB Lapper Road (M-24) & NB-to-SB Crossover, which does not meet Warrant 1A. Additionally, a review of SimTraffic network simulations for the intersection of SB Lapper Road (M-24) & NB-to-SB Crossover does not indicate that the minor-street (median crossover) traffic suffers undue delay and during the field review, any vehicle queues present were observed to quickly dissipate within the peak periods.

4.1.2 SUMMARY

Traffic signals are warranted at all of the study intersections; however, reviews indicate that traffic at the SB Lapeer Road (M-24) & NB-to-SB Crossover intersection does not experience undue delay. Therefore, in order to improve the background intersection operations, the following mitigation measures are recommended:

Recommendations

Install a fully actuated/coordinated (SCATS) traffic signal at the following intersection to accommodate the existing and background traffic volumes:

- SB Lapeer Road (M-24) & Waldon Road (INT #20)
- NB Lapeer Road (M-24) & SB-to-NB Crossover, South of Waldon Road (INT #30)

The results of the background improvements analysis are attached and summarized in **Table 7**. With the implementation of the recommended mitigation measures, all approaches and movements at the study intersections are expected to operate acceptably, at LOS D or better during both peak periods, with the exception of the following:

(INT #20) – SB Lapeer Road (M-24) & Waldon Road

- During the AM peak hour: The eastbound right-turn movement is expected to *improve* to LOS E.
- During the PM peak hour: The eastbound right-turn movement is expected to operate at LOS E.

(INT #30) – NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon Road / Eagle Ridge Road

- During the AM peak hour: The westbound right-turn movement is expected to operate at LOS E.

Table 7: Background Intersection Operations with Improvements

Intersection		Approach	Background Conditions (STOP Control)				Background IMP Conditions (Signalized)				Difference			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
20	SB Lapeer Road (M-24) & Waldon Road	EBR	59.4	F	24.1	C	62.8	E	63.0	E	3.4	F→E	38.9	C→E
		SBT	Free				6.3	A	5.1	A	N/A			
		SBR	Free				1.2	A	8.5	A	N/A			
		Overall	**N/A**				**9.0**	**A**	**11.6**	**B**	**N/A**			
30	NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon Rd.	EBTL	23.5	C	616.1	F	46.1	D	54.5	D	22.6	C→D	-561.6	F→D
		WBR	13.4	B	26.8	D	55.4	E	48.9	D	42.0	B→E	22.1	-
		NBT	Free				2.9	A	10.8	B	N/A			
		NBR	Free				1.7	A	3.1	A	N/A			
		Overall	**N/A**				**9.6**	**A**	**13.9**	**B**	**N/A**			

Although the Synchro LOS analysis indicates poor operations for the minor street movements, due to the long cycle length, a review of SimTraffic network simulations indicates acceptable operations. All vehicle queueing was observed to be processed through the signalized intersections within each cycle length, leaving no residual vehicle queueing during either peak period.

5 SITE TRIP GENERATION

The number of weekday peak hour (AM and PM) and daily vehicle trips that would be generated by the proposed development were forecast based on data published by ITE in the *Trip Generation Manual, 11th Edition.* Through discussion with the Township Engineer, the ITE standard methods of evaluation were utilized in this study. The proposed development includes the construction of a coffee shop with drive-through, a sit-down restaurant, a car storage club, and 24 multi-family units. The trip generation utilized for this study is summarized in **Table 8.**

Table 8: Site Trip Generation

Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
					In	Out	Total	In	Out	Total
Mini-Storage	151	3,026	SF	4	1	0	1	1	0	1
Multi-Family Housing (Low-Rise)	220	24	DU	229	7	23	30	20	11	31
High Turnover (Sit-down) Restaurant	932	4,008	SF	430	21	17	38	22	14	36
Coffee Shop with Drive-Through	937	1,720	SF	918	75	73	148	34	33	67
Pass-By (50% AM, 55% PM)				*482*	*37*	*37*	*74*	*18*	*18*	*36*
Total Trips				**1,581**	**104**	**113**	**217**	**77**	**58**	**135**
Total Pass-By				*482*	*37*	*37*	*74*	*18*	*18*	*36*
Total New Trips				**1,099**	**67**	**76**	**143**	**59**	**40**	**99**

As is typical of commercial developments, a portion of the trips generated by the development are from vehicles already on the adjacent roadway network that will pass the site on their way from an origin to their ultimate destination. Therefore, not all traffic at the site driveways is necessarily new traffic added to the street system. This percentage of the trips generated by the development are considered "pass-by" trips and do not add new traffic to the adjacent street system. Through discussion with the Township engineer pass-by trips were only considered for the coffee-shop land use. These trips are reduced from the total external trips generated by a study site. The percentage of pass-by trips used in this analysis was determined based on the rates published by ITE in the *Trip Generation Manual, 11th Edition.* However, ITE does not provide pass-by data for LUC 937: Coffee Shop with Drive-Through; therefore, the pass-by data for LUC 934: Fast-Food Restaurant with Drive-Through was conservatively utilized for this analysis.

6 Site Trip Distribution

The vehicular trips that would be generated by the proposed development were assigned to the study roadway network based on the proposed site access plan and driveway configurations, the existing peak hour traffic patterns in the adjacent roadway network, and the methodologies published by ITE. The ITE trip distribution methodology assumes that new trips will enter the network and access the development, then leave the development and return to their direction of origin, whereas pass-by trips will enter and exit the development, then continue on their original direction of travel. The site trip distributions utilized in this analysis are summarized in **Table 9**.

Table 9: Site Trip Distribution

To/From	Via	New Commercial		Pass-By		Residential	
		AM	PM	AM	PM	AM	PM
North	Lapeer Road (M-24)	65%	36%	31% (NB)	61% (NB)	31%	36%
South	Lapeer Road (M-24)	31%	60%	69% (SB)	39% (SB)	65%	60%
West	Waldon Road	4%	4%			4%	4%
Total		**100%**	**100%**		**100%**	**100%**	**100%**

The vehicular traffic volumes shown in **Table 8** were distributed to the study network according to the distribution shown in **Table 9**. The site-generated trips shown on the attached **Figure 5** were added to the background peak hour traffic volumes shown on the attached **Figure 4**, in order to calculate the future peak hour traffic volumes with the addition of the proposed development. Future peak hour traffic volumes are shown on the attached **Figure 6**.

7 Future (2025) Conditions

The future peak hour vehicle delays and LOS ***with the proposed development*** were calculated based on the future lane use and traffic control shown on the attached **Figure 2**, the proposed site access, the future traffic volumes shown on the attached **Figure 6**, and the methodologies presented in the HCM 6th Edition. The results of the future conditions analysis are attached and summarized in **Table 10**.

Table 10: FUTURE INTERSECTION OPERATIONS

Intersection		Control	Approach	Background Conditions				Future Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
10	SB Lapeer Road & NB-to-SB X/O, N. of Waldon Rd.	Stop (Minor)	WBL	58.7	F	24.4	C	102.8	F	36.2	E	44.1	-	11.8	C→E
			SB	Free				Free				N/A			
20	SB Lapeer Road & Waldon Road	Stop (Minor)	EBR	59.4	F	24.1	C	71.6	F	26.3	D	12.2	-	2.2	C→D
			SB	Free				Free				N/A			
30	NB Lapeer Road & SB-to-NB X/O, S. of Waldon Rd.	Stop (Minor)	EBTL	23.5	C	616.1	F	33.4	D	780.4	F	9.9	C→D	164.3	-
			WBR	13.4	B	26.8	D	13.6	B	27.5	D	0.2	-	0.7	-
			NB	Free				Free				N/A			
40	SB Lapeer Road & Site Driveway	Stop (Minor)	EBR	N/A				100.3	F	25.3	D	N/A			
			SB					Free							

The results of the future conditions analysis indicates that the study intersections are expected to continue operating in a manner similar to the background conditions analysis, with the following additional impacts anticipated to intersection LOS:

(INT #10) – SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon Road

- <u>During the PM peak hour:</u> The northbound to southbound U-turn movement is expected to operate at LOS E.

(INT #40) – SB Lapeer Road (M-24) & Site Driveway

- <u>During the AM peak hour:</u> The eastbound right-turn movement is expected to operate at LOS F.

Review of SimTraffic network simulations during the AM peak hour indicates generally acceptable operations, similar to those observed during the background conditions analysis. Occasional periods of vehicle queues were observed along the eastbound Waldon Road approach (INT #20) and the northbound to southbound U-turn movement at the crossover (INT #10); however, these vehicle queues were typically observed to dissipate and were not present throughout the AM peak hour. Additionally, although the LOS analysis indicates poor operations at the proposed site driveway, review of SimTraffic network simulations indicates a 95th percentile queue length of approximately 95-feet (3-4 vehicles), which is not significant.

Review of SimTraffic network simulations during the PM peak hour indicates long vehicle queues for the southbound to northbound U-turn movement at the crossover (INT #30). These vehicle queues were often observed to exceed the available storage area, resulting in southbound traffic spilling back into and blocking the other study intersections along SB Lapeer Road (M-24). As a result, when the available SB-to-NB crossover storage area becomes blocked, increased delays and longer vehicle queues are experienced for all traffic on the eastbound Waldon Road approach and on the eastbound site driveway approach, especially for vehicles attempting to travel south.

7.1 FUTURE CONDITIONS WITH IMPROVEMENTS

In order to improve the future traffic operations at the study intersections, the mitigation measures evaluated to improve existing conditions were re-evaluated.

7.1.1 Traffic Signal Warrant Analysis

A signal warrant analysis was again conducted at all the stop-controlled study intersections. The site generated hourly traffic volumes utilized in this analysis were determined based on hourly variations in daily traffic data published by the ITE in *Trip Generation, 11th Edition*. The corresponding hourly traffic volumes generated by the proposed development were projected for the eight hours of TMC data collected and combined with the background traffic volumes to provide eight-hour traffic volume data for the signal warrant evaluation. The future signal warrant charts are summarized in **Table 11** below and are attached for reference.

The results of the signal warrant analyses indicate that the study intersections are expected to meet all of the warrant volume thresholds, based on the future traffic volumes. However, a review of SimTraffic network simulations for the intersection of SB Lapper Road (M-24) & NB-to-SB Crossover does not indicate that the minor-street (median crossover) traffic suffers undue delay and during the field review, any vehicle queues present were observed to quickly dissipate within the peak periods.

Table 11: Future Signal Warrant Analysis Summary

Warrant		SB Lapeer Road (M-24) & NB-to-SB X/O	SB Lapeer Road (M-24) & Waldon Road	NB Lapeer Road (M-24) & SB-to-NB X/O
Warrant 1: Eight-Hour		YES	YES	YES
Condition A	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Condition B	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Warrant 2: Four-Hour	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Warrant 3: Peak-Hour	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES

7.1.2 Summary

Traffic signals are warranted at all of the study intersections; however, reviews indicate that traffic at the SB Lapeer Road (M-24) & NB-to-SB Crossover intersection does not experience undue delay. Therefore, in order to improve the future intersection operations, the following mitigation measures are recommended:

Recommendations

Install a fully actuated/coordinated (SCATS) traffic signal at the following intersection to accommodate the existing, background, and future traffic volumes:

- SB Lapeer Road (M-24) & Waldon Road (INT #20)
- NB Lapeer Road (M-24) & SB-to-NB Crossover, South of Waldon Road (INT #30)

The results of the future improvements analysis are attached and summarized in **Table 12**. With the implementation of the recommended mitigation measures, all approaches and movements at the study intersections are expected to operate acceptably, at LOS D or better during both peak periods, with the exception of the following:

(INT #20) – SB Lapeer Road (M-24) & Waldon Road

- During the AM peak hour: The eastbound right-turn movement is expected to *improve* to LOS E.
- During the PM peak hour: The eastbound right-turn movement is expected to operate at LOS E.

Although the Synchro LOS analysis indicates poor operations for the minor street movements, due to the long cycle length, a review of SimTraffic network simulations indicates acceptable operations. All vehicle queueing was observed to be processed through the signalized intersections within each cycle length, leaving no residual vehicle queueing during either peak period.

Table 12: Future Intersection Operations with Improvements

Intersection		Approach	Future Conditions (STOP Control)				Future IMP Conditions (Signalized)				Difference			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
20	SB Lapeer Road (M-24) & Waldon Road	EBR	71.6	F	26.3	D	63.0	E	63.1	E	-8.6	F→E	36.8	D→E
		SBT	Free				7.4	A	5.5	A	N/A			
		SBR	Free				1.1	A	8.0	A	N/A			
		Overall	**N/A**				**10.0**	**A**	**11.7**	**B**	**N/A**			
30	NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon Rd.	EBTL	33.4	D	780.4	F	45.7	D	54.3	D	12.3	-	-726.1	F→D
		WBR	13.6	B	27.5	D	51.0	D	46.9	D	37.4	B→D	19.4	-
		NBT	Free				4.4	A	13.1	B	N/A			
		NBR	Free				2.6	A	3.7	A	N/A			
		Overall	**N/A**				**12.3**	**B**	**16.4**	**B**	**N/A**			

8 CRASH ANALYSIS

A crash analysis was conducted at the study intersections. F&V obtained the crash data used in the analysis from the Michigan Traffic Crash Facts (MTCF) historical crash database, for the most recent **three years** (January 1, 2019, to December 31, 2021) of available data at the study intersections. The results of the crash analysis are summarized in **Table 13**.

Table 13: Crash Analysis Summary

Crash Type	Description	SB Lapeer (M-24) Road & NB-to-SB Crossover		SB Lapeer (M-24) Road & Waldon Road		NB Lapeer (M-24) Road & SB-to-NB Crossover	
		Total Crashes	Percentage	Total Crashes	Percentage	Total Crashes	Percentage
1	Single Motor Vehicle Crash	0	0%	1	3%	0	0%
2	Head On	0	0%	0	0%	0	0%
3	Head On Left-Turn	0	0%	0	0%	0	0%
4	Angle	0	0%	2	5%	0	0%
5	Rear-End (Straight)	0	0%	0	0%	0	0%
6	Rear-End (Left-Turn)	0	0%	0	0%	0	0%
7	Rear-End (Right-Turn)	0	0%	32	87%	0	0%
8	Sideswipe-Same	0	0%	2	5%	0	0%
9	Sideswipe-Opposite	0	0%	0	0%	0	0%
10	Other/Unknown	0	0%	0	0%	0	0%
Total		**0**	**0%**	**37**	**100%**	**0**	**0%**

SB Lapeer Road (M-24) & NB-to-SB Crossover, N. of Waldon Road: Zero (0) crashes reported at this intersection between 2019 and 2021.

NB Lapeer Road (M-24) & SB-to-NB Crossover, S. of Waldon Road / Eagle Ridge Road: Zero (0) crashes reported at this intersection between 2019 and 2021.

SB Lapeer Road (M-24) & Waldon Road: There were 37 crashes reported between 2019 and 2021. The majority of crashes (32 reports) at the study intersection were Rear-End Right-Turn (86%) crashes; the remaining five (5) crashes (14%) were Sideswipe (5%), Angle (5%), and Single Motor Vehicle (3%) crash types.

The majority of crashes at this intersection are a result of vehicles traversing from Waldon Road to the southbound-to-northbound crossover. Drivers are looking north for gaps in southbound traffic and are not paying attention to the vehicle in front of them, are misjudging the available gap, or are not aware of backups in the crossover lane. Further details of the existing crash patterns are summarized below.

- Detailed review of the crash reports (UD-10s) indicates that the rear-end crashes were primarily resulting from motorist on the stop-controlled Waldon Road approach watching for gaps within the through traffic along SB Lapeer Road (M-24) traffic. These drivers were noted to rear-end the vehicle in front of them on Waldon Road, thinking the vehicle had already turned onto SB Lapeer Road (M-24). Therefore, creating controlled gaps in traffic with intersection signalization would mitigate the existing rear-end crashes associated with the existing conditions.
- Similar to the rear-end crashes, the sideswipe crashes occurred as a result of inattentive drivers believing the vehicle in front of them had already made their turn from Waldon Road onto SB Lapeer Road (M-24). The angle crashes occurred as a result of vehicles turning out onto SB Lapeer Road (M-24) without having an adequate gap within the southbound through traffic.
- The Single Motor Vehicle crash occurred when a vehicle was driving too fast for conditions, due to ice on the roadway, and lost control, striking the stop sign on Waldon Road.
- Three (3) Type-C injury crashes were reported; no fatal or Type-A injury crashes were reported within the most recent three years of available data.

The SEMCOG Crash Analysis Process *Regional Critical Intersection Crash Rates, Frequencies, and Casualty Ratios: By Presence or Absence of Signalization* was used to compare the actual crash rates and frequencies to the regional rates for similar intersection operations. Using methodology from the SEMCOG Crash Analysis Process, the intersections were further analyzed and compared to the SEMCOG regional crash frequency for signalized and unsignalized intersections. The results of this analysis are summarized in **Table 14**. The results of the SEMCOG analysis indicates that the crash rates and frequencies for the study intersection of SB Lapeer Road (M-24) & Waldon Road are greater than the SEMCOG averages for similar types of intersections.

Table 14: Study Network Intersection Crash Analysis Summary

Intersection	Average ADT (Entering Volume vpd)	Crash Frequency (crashes/year)			Crash Rate (crashes per MEV)		
		Intersection Annual Crash Frequency	SEMCOG Average Annual Crash Frequency	Difference	Intersection Annual Crash Rate	SEMCOG Average Annual Crash Rate	Difference
SB Lapeer Road (M-24) & Waldon Road	24,335	12.33	3.32	9.01	1.39	0.37	1.02
SB Lapeer Rd. (M-24) & NB-to-SB X/O, N. of Waldon	23,735	0	3.32	-3.32	0	0.37	-0.37
NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon	24,955	0	3.32	-3.32	0	0.37	-0.37

9 Access Management

9.1 Auxiliary Lanes

The MDOT auxiliary turn lane treatment warrants were evaluated at the proposed site driveway; Lapeer Road (M-24) is a median divided roadway; therefore, the left-turn warrants were not evaluated. This analysis was based on the future peak hour traffic volumes shown on the attached **Figure 6**. The results of the analysis are shown on the attached MDOT warranting charts and summarized in **Table 15**.

Table 15: Auxiliary Turn Lane Summary

Intersection	AM Peak	PM Peak	Recommendation
SB Lapeer Road (M-24) & Site Drive	Right-Turn Lane	Right-Turn Lane	**Right-Turn Lane**

The results of the MDOT auxiliary turn lane evaluation indicates that a full-width southbound right-turn deceleration lane is warranted on SB Lapeer Road (M-45) at the proposed site driveway. However, the proposed driveway will be located within the existing right-turn lane at Waldon Road; therefore, no changes are recommended to the existing roadway configuration.

9.2 Driveway Spacing

The MDOT Geometric Design Guidance (section 1.2.2) was utilized to evaluate the location of the proposed site driveways in relation to nearby intersections and driveways within close proximity to the project site. The AASHTO desirable unsignalized access spacing and intersection corner clearance criteria were evaluated for the 55-mph section of SB Lapeer Road (M-24). The distance of the proposed site driveways from nearby access points and the warranting criteria are summarized in **Table 15** and displayed in **Exhibit 1**.

Table 16: Desirable Corner Clearance Summary

Adjacent Driveways & Intersections			Distance	Criteria (45 mph)	Meets
Site Driveway	To	Waldon Road	300 feet	230 feet	**YES**
Site Driveway	To	Church Driveway	140 feet	455 feet	**NO**
Site Driveway	To	NB-to-SB Crossover	600 feet	150 feet	**YES**

Exhibit 1: Driveway Spacing

The results of the driveway spacing analysis indicates that the proposed site driveway location is expected to meet the desirable corner clearance criteria, in relation to the nearby roadway and median crossover. The proposed access point will be located within close proximity (~140-ft) to the existing Divine Grace Lutheran Church and School driveway; however, the proposed driveway is located on the northern portion of the site in order to provide sufficient spacing from Waldon Road. Additionally, the existing church driveway is not expected to be a high trip generator; therefore, the potential conflicts between the adjacent access points is minimal.

10 SITE CIRCULATION

The projected drive-through vehicle queuing was reviewed to determine if the proposed on-site queue length for the drive-through is adequate to accommodate the projected operations. Hourly drive-through market average data for similar Biggby restaurants indicates an average service rate of approximately 60 vehicles/hour. Additionally, the dataset indicates that approximately 67% of customers at Biggby will utilize a drive-through. Therefore, based on these averages, assumptions and the conservative ITE trip generation projections, it is estimated that approximately 50 vehicles per hour will use the proposed Biggby drive-through facility during the AM peak hour. The evaluation of the queue length included two criteria:

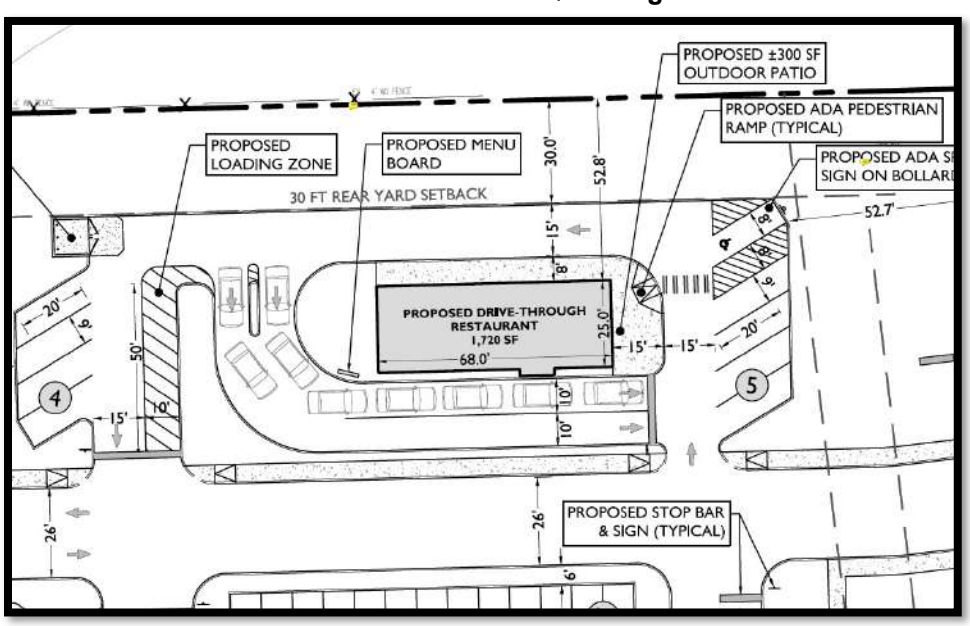
1) A queuing analysis was performed to determine if the projected demand exceeds the service rate and calculate the projected queuing.
2) Since the peak demand for the proposed drive-through is less than the available capacity, a Poisson Distribution was performed to determine the probability of random arrivals; the results indicate a maximum potential of 5 vehicles arriving at one time.

Therefore, providing queueing on site for 5 random arrival vehicles (125 feet) past the order board will adequately accommodate the peak demands for this site. The projected maximum vehicle queueing is summarized in **Table 17** and is shown on **Exhibit 2**; showing that the projected maximum vehicle queueing will not impact internal traffic operations and/or the site driveway connection to SB Lapeer Road (M-24).

Table 17: Vehicle Queuing Analysis

Biggby Drive-Through Stacking Space	
Number of Arrivals	50
Time per Vehicle (s)	60
Service Rate (veh/hr)	60
Drive-through Queue (veh)	**0**
Random Arrival (veh)	**5**
Vehicle Length	25
TOTAL QUEUE LENGTH (ft)	**125**

Exhibit 2: Vehicle Queueing



11 CONCLUSIONS

The conclusions of this TIS are as follows:

11.1 EXISTING CONDITIONS (2022)

The results of the existing conditions analysis indicates that all approaches and movements at the study intersections are currently operate acceptably, at LOS D or better during both peak periods, with the exception of the following:

- **(INT #10) – SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon Road:** During the AM peak hour, the northbound to southbound U-turn movement currently operates at LOS F.
- **(INT #20) – SB Lapeer Road (M-24) & Waldon Road:** During the AM peak hour, the eastbound right-turn movement currently operates at LOS F.
- **(INT #30) – NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon Road / Eagle Ridge Road:** During the PM peak hour, the southbound to northbound U-turn movement is currently operating at LOS F. Review of SimTraffic network indicates long vehicle queues which were observed to exceed the available storage area and block the southbound through traffic. Review of the data collection videos confirms periods of long vehicle queues resulting from vehicles struggling to find adequate gaps within the NB Lapeer Road (M-24) through traffic.

11.2 BACKGROUND CONDITIONS (2025)

- The results of the background conditions analysis indicate that all study intersections are expected to continue to operate in a manner similar to the existing conditions analysis. Review of SimTraffic network simulations indicates operations similar to those observed under existing conditions.

11.3 FUTURE CONDITIONS (2025)

The results of the future conditions analysis indicates that the study intersections are expected to continue operating in a manner similar to the background conditions analysis, with the following additional impacts to LOS:

- **(INT #10) – SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon Road:** During the PM peak hour, the northbound to southbound U-turn movement is expected to operate at LOS E.
- **(INT #40) – SB Lapeer Road (M-24) & Site Driveway:** During the AM peak hour, the eastbound right-turn movement is expected to operate at LOS F. Although the LOS analysis indicates poor operations at the proposed site driveway, review of SimTraffic network simulations indicates a 95th percentile queue length of approximately 95-feet (3-4 vehicles), which is not significant.

11.4 Signal Warrant Analysis

- Traffic signals are currently warranted at all of the study intersections as summarized in the table below and shown on the attached tables.

Existing Conditions Signal Warrant Analysis Summary

Warrant		SB Lapeer Road (M-24) & NB-to-SB X/O	SB Lapeer Road (M-24) & Waldon Road	NB Lapeer Road (M-24) & SB-to-NB X/O
Warrant 1: Eight-Hour		YES	YES	YES
Condition A	*Hours Met*	3	8	8
	Warrant Met	NO	YES	YES
Condition B	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Warrant 2: Four-Hour	*Hours Met*	8	8	8
	Warrant Met	YES	YES	YES
Warrant 3: Peak-Hour	*Hours Met*	5	8	8
	Warrant Met	YES	YES	YES

11.5 Crash Analysis

- **SB Lapeer Road (M-24) & NB-to-SB Crossover**: Zero (0) crashes reported at this intersection between 2019 and 2021.
- **NB Lapeer Road (M-24) & SB-to-NB Crossover**: Zero (0) crashes reported at this intersection between 2019 and 2021.
- **SB Lapeer Road (M-24) & Waldon Road**: There were 37 crashes reported between 2019 and 2021. The majority of crashes (32 reports) at the study intersection were Rear-End Right-Turn (86%) crashes; the remaining five (5) crashes (14%) were Sideswipe (5%), Angle (5%), and Single Motor Vehicle (3%) crash types.

  The majority of crashes at this intersection are a result of vehicles traversing from Waldon Road to the southbound-to-northbound crossover. Drivers are looking north for gaps in southbound traffic and are not paying attention to the vehicle in front or misjudge the available gap, or backups in the crossover lane. Therefore, creating controlled gaps in traffic with intersection signalization would mitigate the existing rear-end crashes associated with the existing conditions.

11.6 Access Management

- The results of the driveway spacing evaluation indicates that the location of the proposed site driveway is expected to meet the desirable MDOT spacing criteria, in relation to nearby roadway intersection and median crossover.
- The proposed site driveway is within close proximity (~140-feet) from an existing church driveway; however, the proposed driveway is located on the northern portion of the site in order to provide sufficient spacing from Waldon Road. Additionally, the church driveway is not expected to be a high trip generator; therefore, the potential conflicts between the adjacent access points is minimal.

11.7 Site Circulation Review

- The results of the drive-through queueing evaluation indicates that the proposed site plan can adequately accommodate the projected vehicle queueing generated by the drive-through operations without impacting the internal site circulation or the adjacent roadway network.

12 RECOMMENDATIONS

The recommendations of this TIS are summarized as follows:

Recommended Improvements	Existing	Background	Future
(INT #20) – SB Lapeer Road (M-24) & Waldon Road			
Install a fully actuated/coordinated (SCATS) traffic signal at the following intersection to accommodate the existing traffic volumes.	✓		
(INT #30) – NB Lapeer Road (M-24) & SB-to-NB X/O, S. of Waldon Road / Eagle Ridge Road			
Install a fully actuated/coordinated (SCATS) traffic signal at the following intersection to accommodate the existing traffic volumes	✓		

Any questions related to this memorandum, study, analysis, and results should be addressed to Fleis & VandenBrink.

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Michigan.

Jacob Swanson

Digitally signed by Jacob Swanson
Date: 2022.11.09 13:50:03 -05'00'

Attached:
Figures 1-6
Proposed Site Plan
Traffic Volume Data
SEMCOG Data
Synchro / SimTraffic Results
MDOT Auxiliary Turn Lane Warrants
MMUTCD Signal Warrants
Drive-Through Poisson Distribution

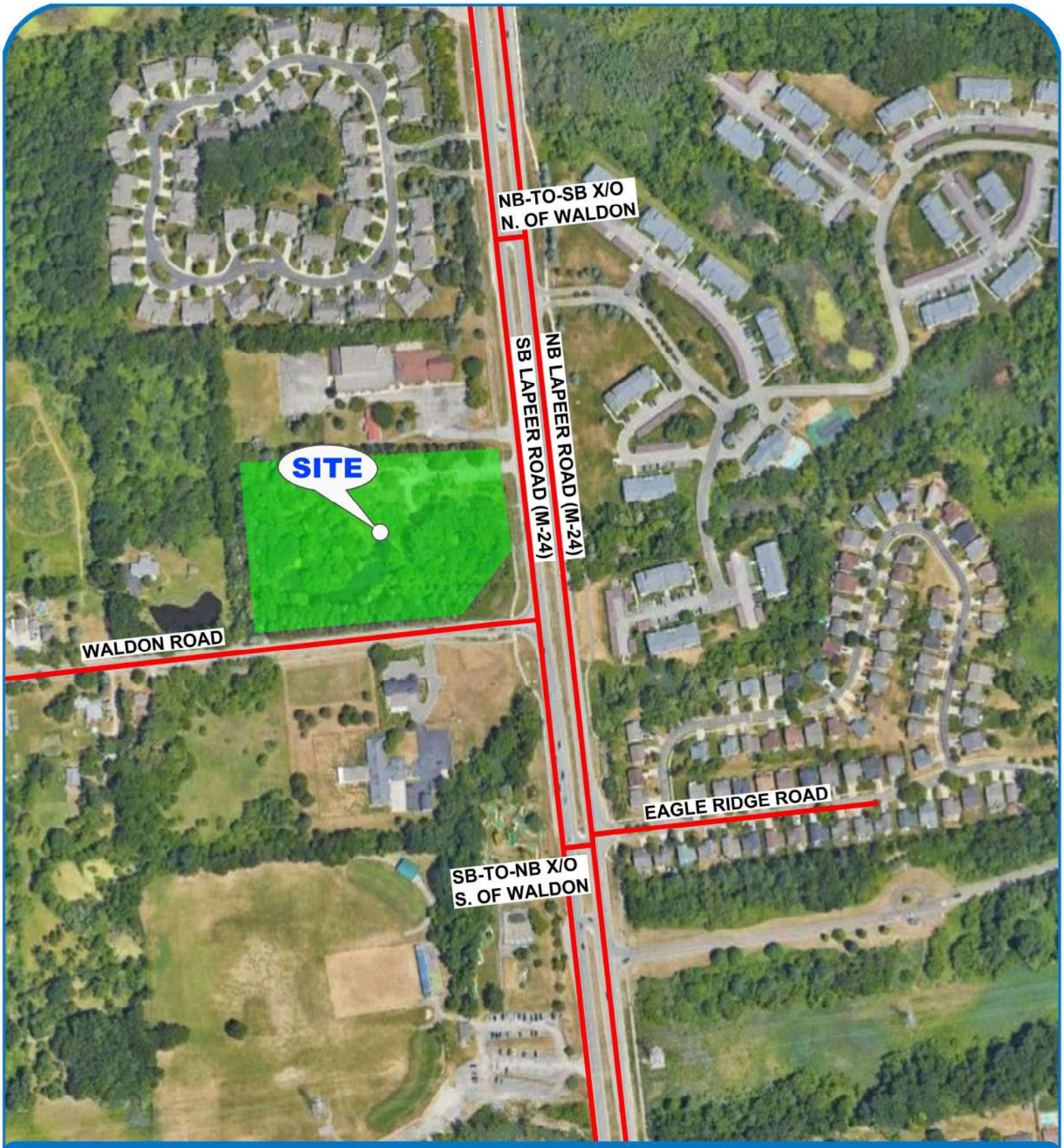


FIGURE 1

SITE LOCATION MAP

HUDSON SQUARE TIS - ORION TOWNSHIP, MI

LEGEND

SITE — SITE LOCATION

NORTH

SCALE: NOT TO SCALE

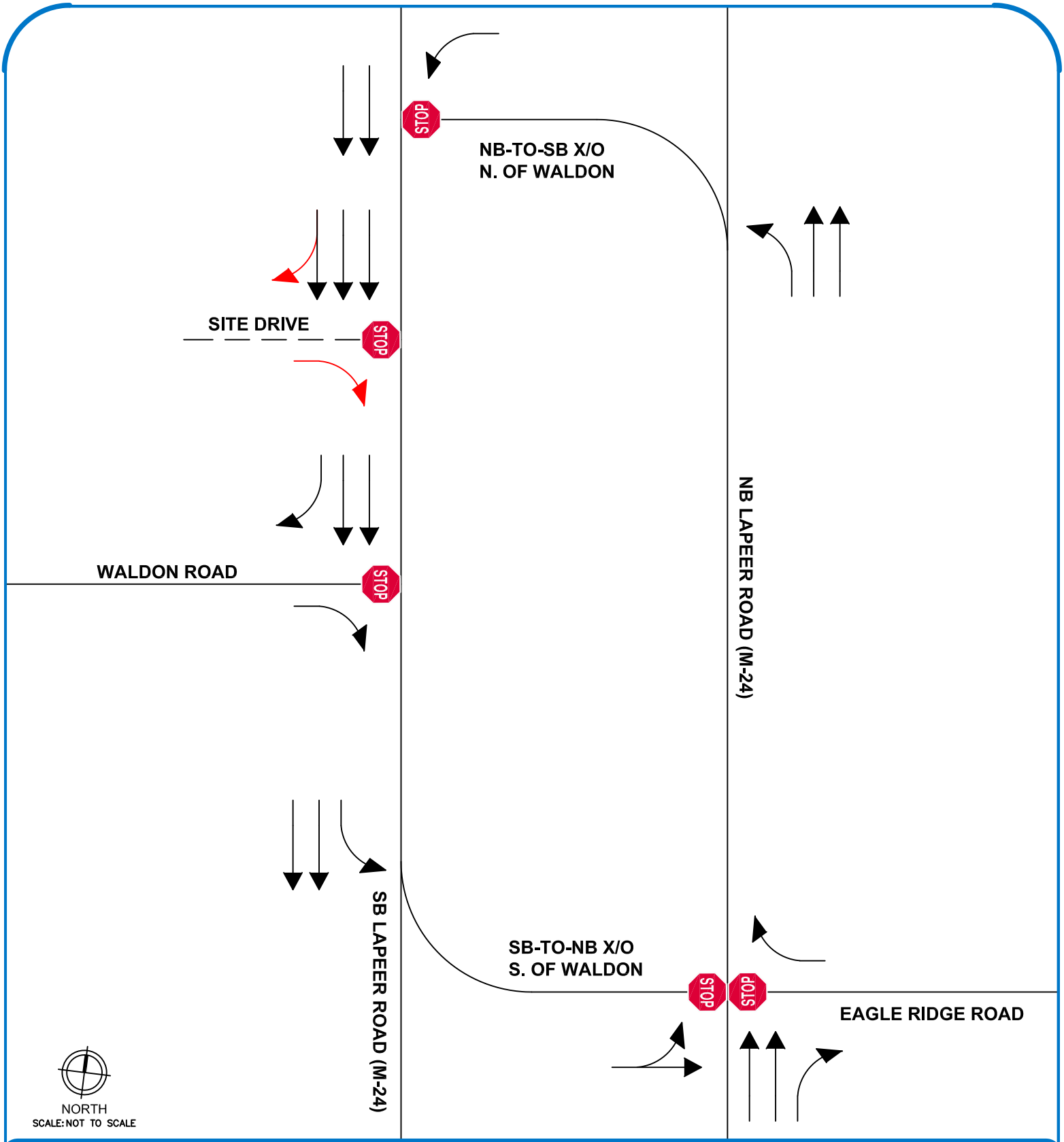


FIGURE 2

LANE USE AND TRAFFIC CONTROL

HUDSON SQUARE TIS - ORION TOWNSHIP, MI

LEGEND

- ROADS
- PROPOSED ROADS
- LANE USE
- PROPOSED LANE USE
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION

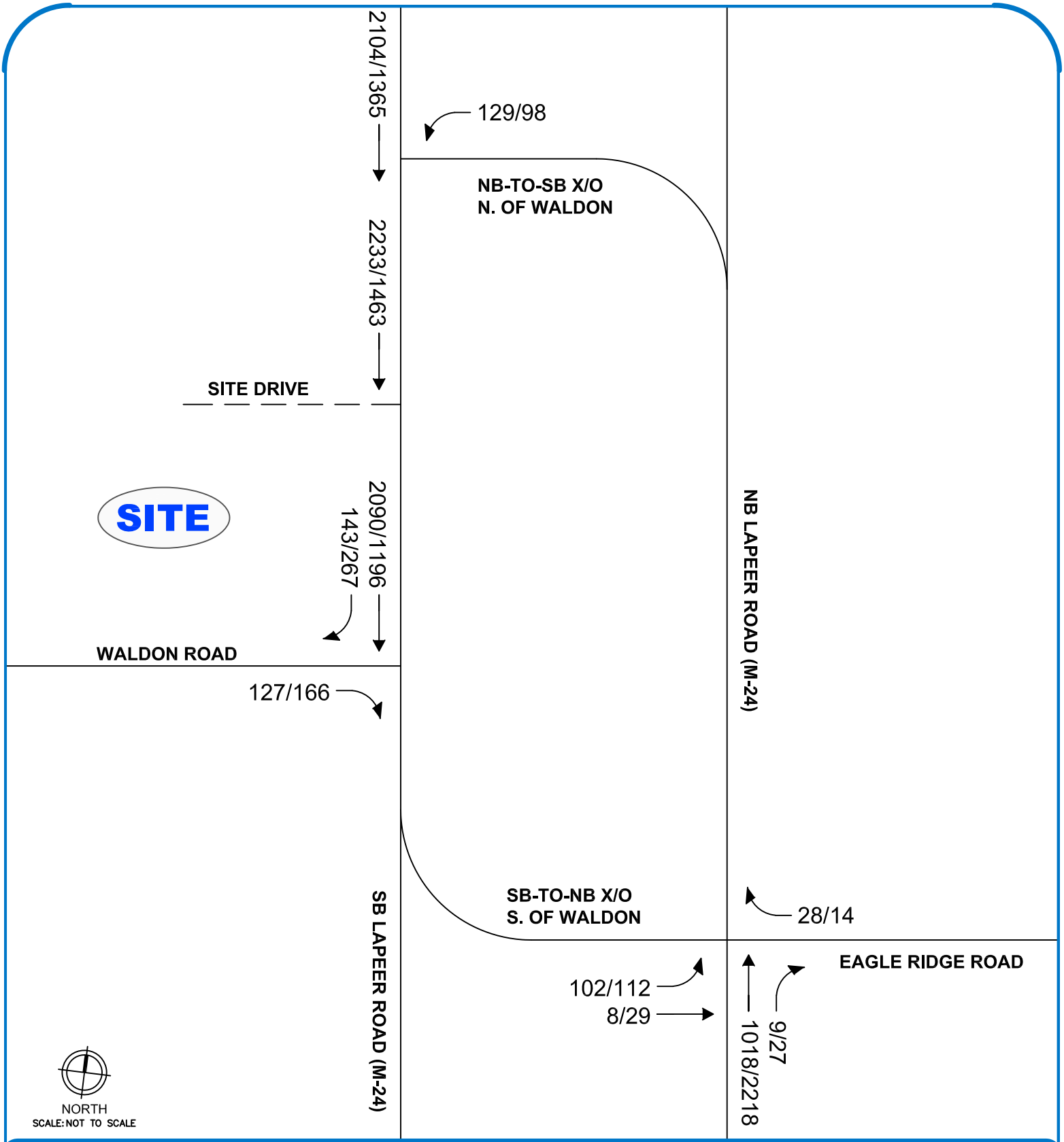


FIGURE 3

EXISTING TRAFFIC VOLUMES

HUDSON SQUARE TIS - ORION TOWNSHIP, MI

LEGEND

ROADS

PROPOSED ROADS

TRAFFIC VOLUMES (AM/PM)

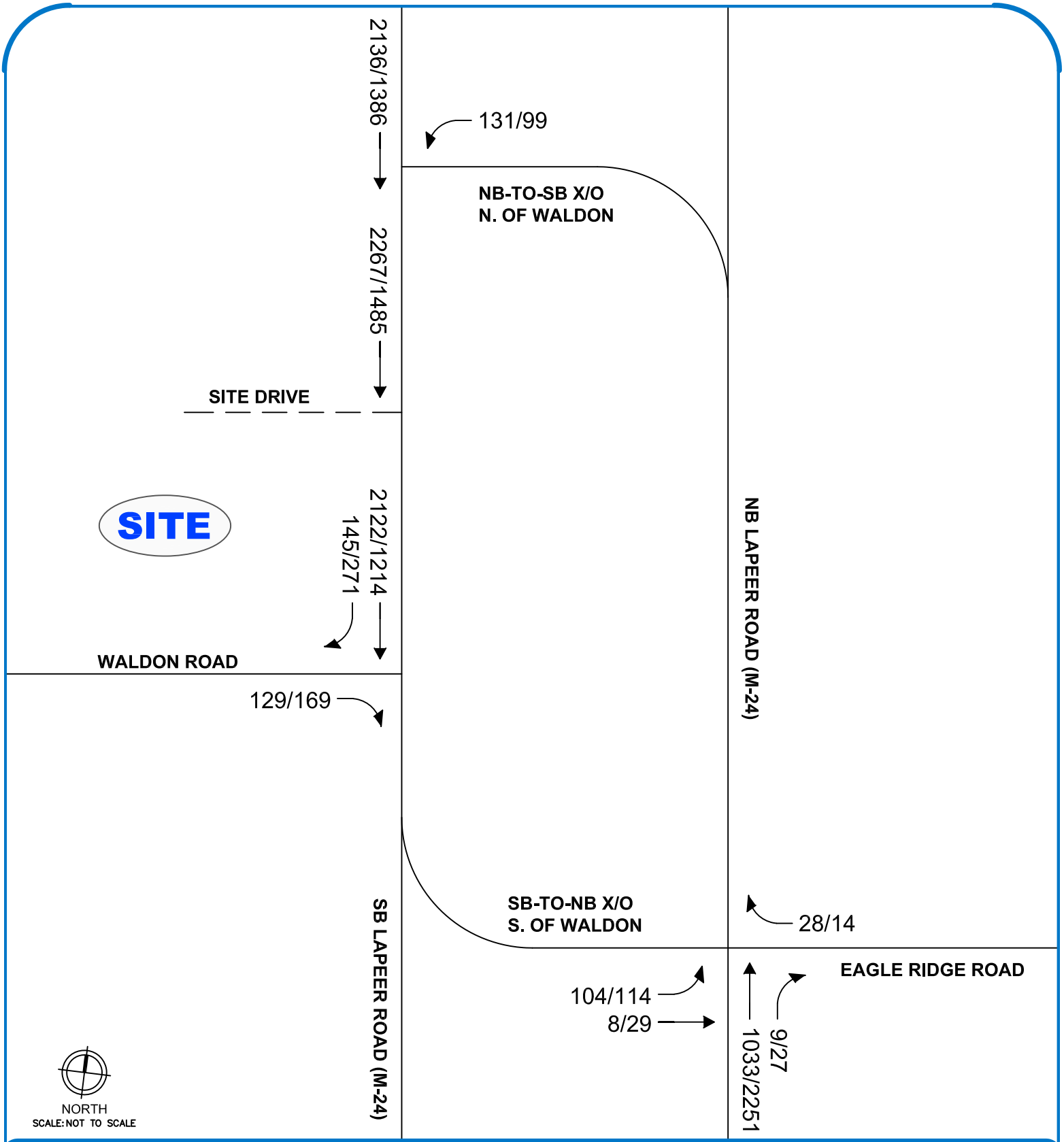


FIGURE 4

BACKGROUND TRAFFIC VOLUMES

HUDSON SQUARE TIS - ORION TOWNSHIP, MI

LEGEND

ROADS

PROPOSED ROADS

TRAFFIC VOLUMES (AM/PM)

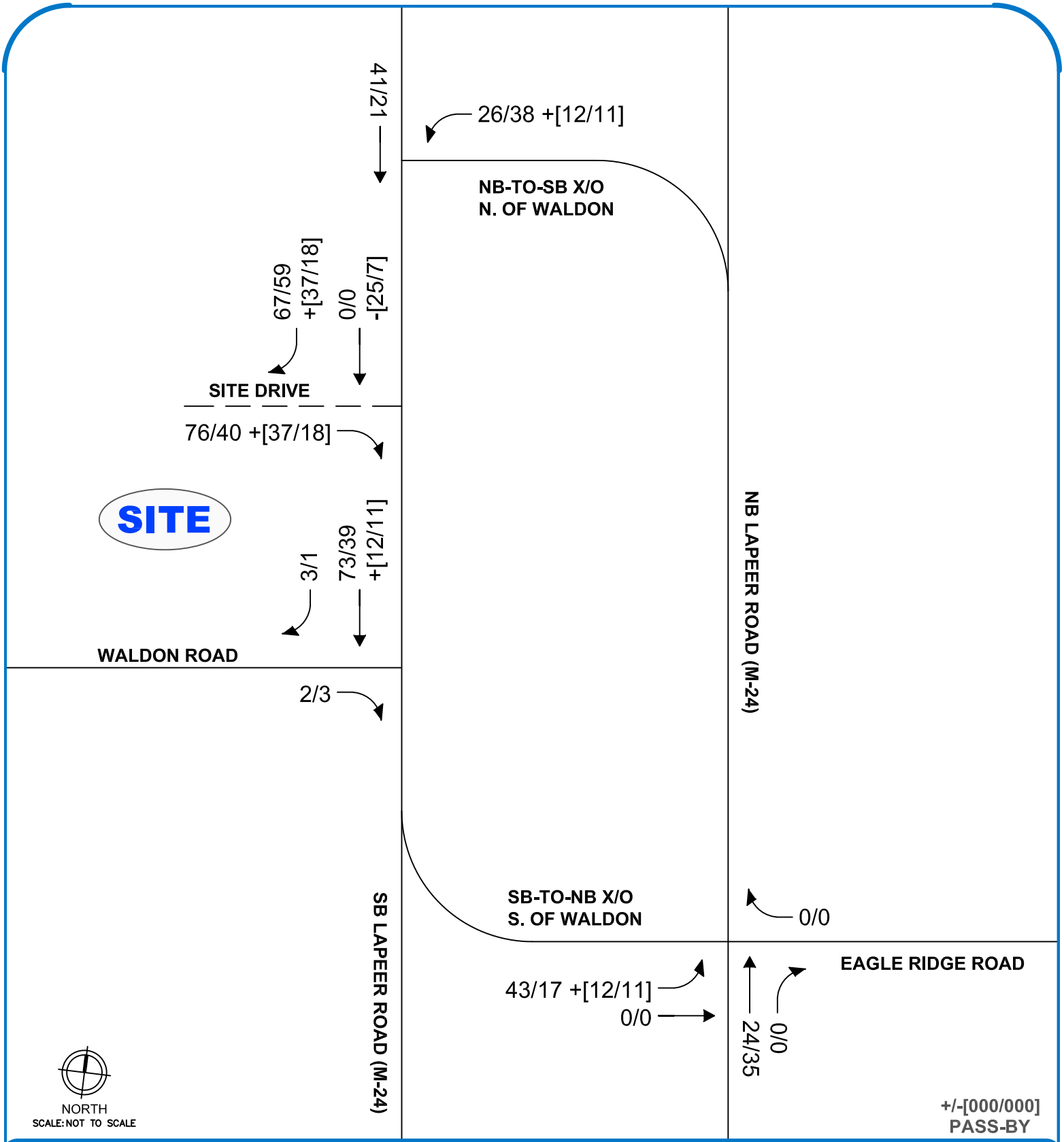


FIGURE 5

SITE-GENERATED TRAFFIC VOLUMES

HUDSON SQUARE TIS - ORION TOWNSHIP, MI

LEGEND

ROADS

PROPOSED ROADS

TRAFFIC VOLUMES (AM/PM)

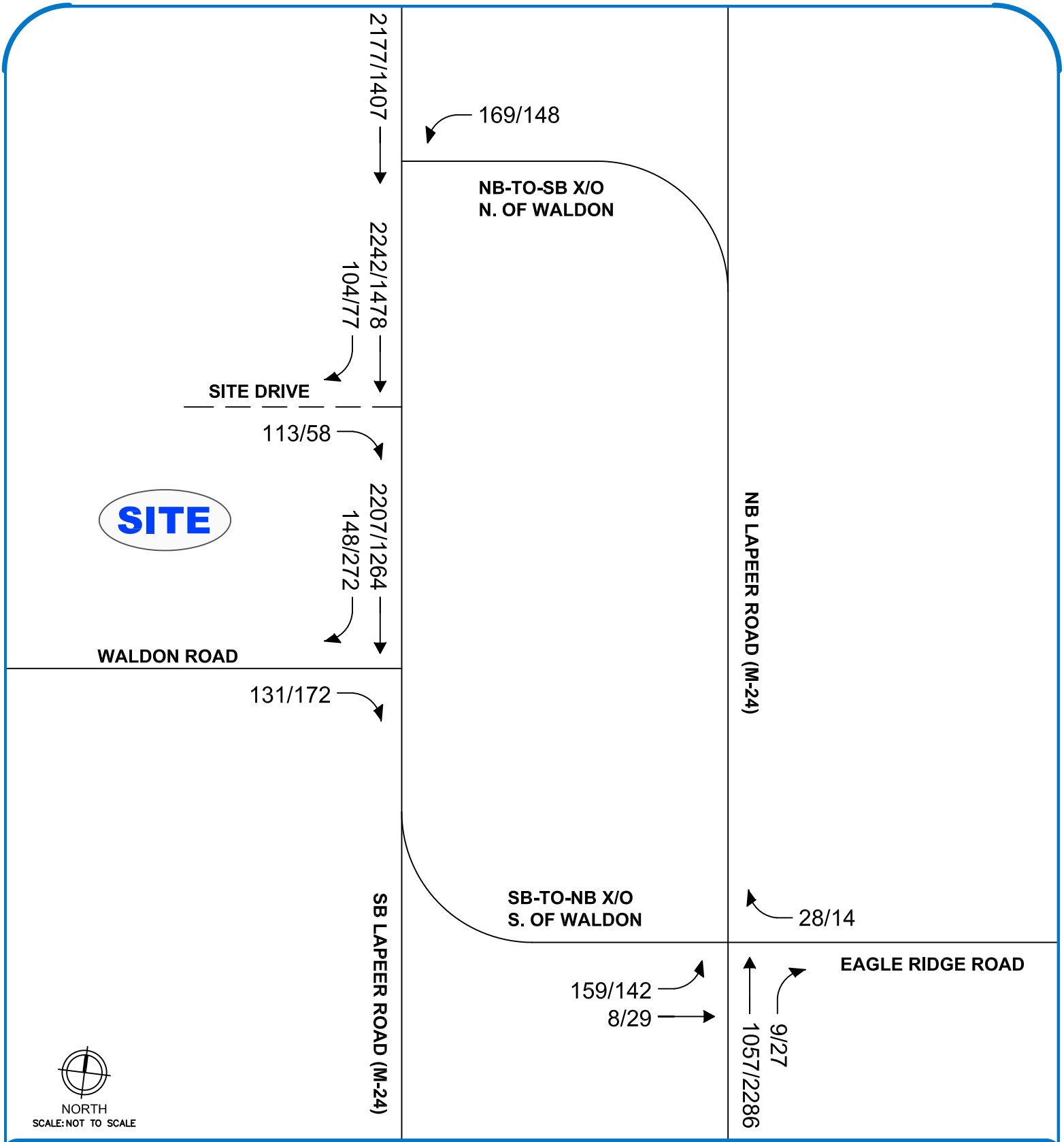


FIGURE 6

FUTURE TRAFFIC VOLUMES

HUDSON SQUARE TIS - ORION TOWNSHIP, MI

LEGEND

ROADS

PROPOSED ROADS

TRAFFIC VOLUMES (AM/PM)

SITE DEVELOPMENT PLAN

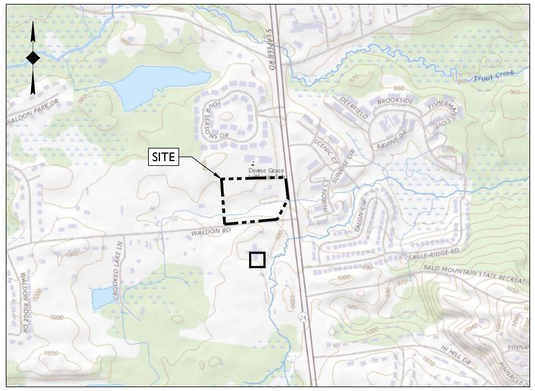
FOR

HUDSON SQUARE
3030 SOUTH LAPEER ROAD
PROPOSED MULTI-USE PLANNED UNIT DEVELOPMENT

PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN

APPLICANT

DETROIT RIVERSIDE CAPITAL
3300 AUBURN ROAD
AUBURN HILLS, MI 48326
313-964-5552
MICHAEL.WAYNE@DETROITRIVERSIDECAPITAL.COM



SOURCE: USGS MAPS, DATE RETRIEVED 10/11/2022

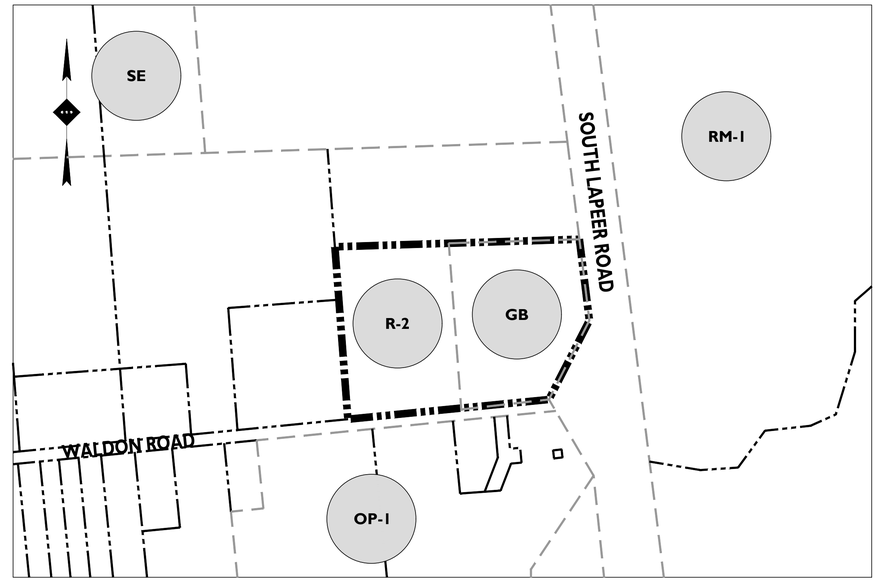
LOCATION MAP

SCALE: 1" = 800'±

SOURCE: NEARMAP DATE RETRIEVED, 10/11/2022

AERIAL MAP

SCALE: 1" = 200'±



SOURCE: OAKLAND COUNTY PROPERTY GATEWAY & ORION TOWNSHIP ZONING MAP, DATE RETRIEVED 10/11/2022

ZONING MAP

SCALE: 1" = 200'±

PLANS PREPARED BY:

STONEFIELD engineering & design

Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

811 Know what's **below** **Call** before you dig.

PLAN REFERENCE MATERIALS:

1. THIS PLAN SET REFERENCES THE FOLLOWING DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
   - SURVEY PROVIDED BY KEIFT ENGINEERING, INC.
   - ARCHITECTURAL PLANS PROVIDED BY DEISNGHAUS ARCHITECTURE
   - AERIAL MAP FROM NEARMAPS ONLINE MAPPING SYSTEM, DATE RETRIEVED 10/11/2022
   - LOCATION MAP FROM USGS ONLINE MAPPING SYSTEM, DATE RETRIEVED 10/11/2022
2. ALL REFERENCE MATERIAL LISTED ABOVE SHALL BE CONSIDERED A PART OF THIS PLAN SET AND ALL INFORMATION CONTAINED WITHIN THESE MATERIALS SHALL BE UTILIZED IN CONJUNCTION WITH THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A COPY OF EACH REFERENCE AND REVIEW IT THOROUGHLY PRIOR TO THE START OF CONSTRUCTION.

SHEET INDEX

DRAWING TITLE	SHEET #
COVER SHEET	C-1
SITE PLAN	C-2
AERIAL OVERLAY PLAN	C-3
DENSITY PLAN	C-4
GRADING PLAN	C-5

ADDITIONAL SHEETS

DRAWING TITLE	SHEET #
EXISTING CONDITIONS PLAN	1 OF 1

ISSUE	DATE	BY	DESCRIPTION
1	10/18/2022	KTH	FOR PUD APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLAN
HUDSON SQUARE
3030 S. LAPEER ROAD
PROPOSED MULTI-USE
PLANNED UNIT DEVELOPMENT
PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
ORION TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN
JARED COOKSEY
ENGINEER
No. 201069428
JARED COOKSEY, P.E.
MICHIGAN LICENSE NO. 201069428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210193.01

TITLE: COVER SHEET

DRAWING: C-1

V:\DET\2021\DET-210193_JOHN AND NANCY, LLC - 3049 CLARKSTON ROAD, CLARKSTON, MI\CAD\PLAN\SITE\PLAN\C-COVER.DWG

TABLE OF LAND USE AND ZONING

PIN: 09-26-101-021

PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)

STORAGE

ZONING REQUIREMENT	REQUIRED	PROPOSED
MINIMUM LOT AREA	435,600 SF (10 AC)	307,766 SF (7.07 AC) (M)
MAXIMUM LOT COVERAGE	30% (92,330 SF)	17.4% (53,460 SF)

(M) MODIFICATION

TABLE OF LAND USE AND ZONING

PIN: 09-26-101-021

PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)

UNDERLYING ZONE: GENERAL BUSINESS (GB)

PROPOSED USE

RESTAURANT WITH DRIVE-THRU
SIT DOWN RESTAURANT
CLASSIC CAR CLUB

ZONING REQUIREMENT	REQUIRED	PROPOSED
MINIMUM LOT AREA	12,000 SF (0.275 AC)	163,195 SF (3.75 AC)
MAXIMUM LOT COVERAGE	30%	5.4% (8,754 SF)
MAXIMUM BUILDING HEIGHT	25 FT	< 25 FT
MINIMUM FRONT YARD SETBACK	30 FT	56.0 FT
MINIMUM SIDE YARD SETBACK	20 FT	N / A
MINIMUM REAR YARD SETBACK	30 FT	52.8 FT
MINIMUM BUILDING CLEAR SPACE	20 FT	PROVIDED
MINIMUM R.O.W. GREENBELT BUFFER	20 FT	52.7 FT
MINIMUM SINGLE-FAMILY GREENBELT BUFFER	30 FT	30.0 FT
MINIMUM OPEN SPACE	10%	PROVIDED
DRIVE-THRU / SINGLE FAMILY SETBACK	100 FT	52.8 FT (M)

(M) MODIFICATION

TABLE OF LAND USE AND ZONING

PIN: 09-26-101-021

PROPOSED ZONE: PLANNED UNIT DEVELOPMENT (PUD)

UNDERLYING ZONE: SINGLE-FAMILY (R-2)

PROPOSED USE

MULTIPLE-FAMILY RESIDENTIAL

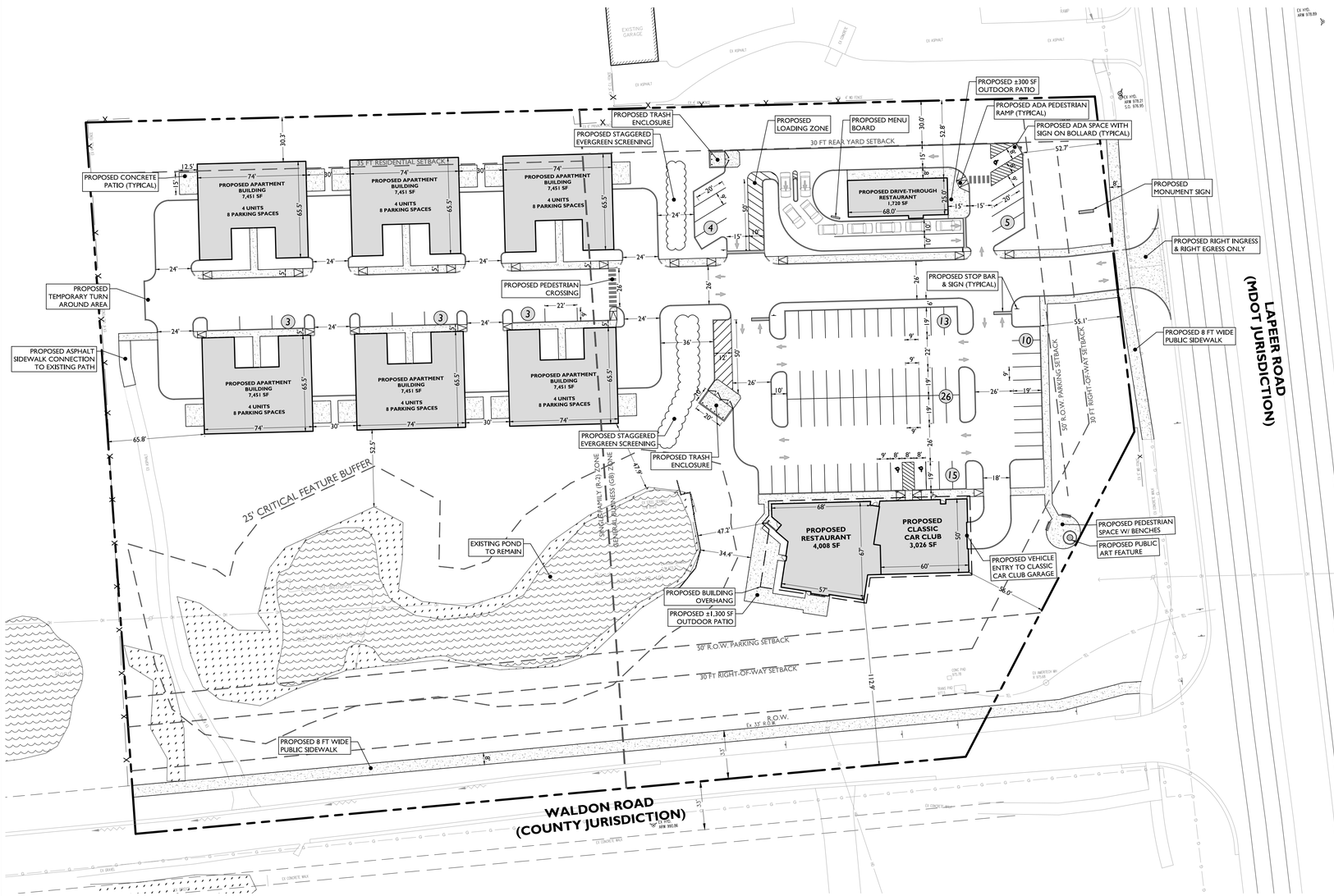
ZONING REQUIREMENT	REQUIRED	PROPOSED
MINIMUM LOT SIZE	10,800 SF	N / A
MINIMUM LOT WIDTH	80 FT	N / A
MAXIMUM LOT COVERAGE	25%	N / A
MAXIMUM BUILDING HEIGHT	30 FT	< 30 FT
MINIMUM FRONT YARD SETBACK	25 FT	248.0 FT
MINIMUM SIDE YARD SETBACK	35 FT	65.8 FT
MINIMUM REAR YARD SETBACK	35 FT	30.3 FT (M)
MINIMUM BUILDING CLEAR SPACE	20 FT	30.0 FT
MINIMUM FLOOR AREA / UNIT	1,080 SF	N / A
MINIMUM OPEN SPACE	15%	PROVIDED

(M) MODIFICATION

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 14.03.C	**DRIVE-THROUGH RESTAURANT:** 1 SPACE PER 100 SF OF GFA * (1,720 SF)(1 SPACE/100 SF) = 17 SPACES **RESTAURANT (SIT DOWN):** 1 SPACE PER 100 SF * (4,008 SF)(1 SPACE / 100 SF) = 40 SPACES **CLASSIC CAR CLUB:** 1 SPACE PER 200 SF OF GFA * (3,026 SF)(1 SPACE / 200 SF) = 15 SPACES TOTAL: 17 + 40 + 15 SPACES = **72 SPACES**	73 SPACES
	MULTI-FAMILY APARTMENT: 2 SPACES PER UNIT (24 UNITS)(2 SPACES/UNIT) = 48 SPACES	48 SPACES
	APARTMENT GUEST PARKING: 1 SPACE PER 3 UNITS (24 UNITS)(1 SPACE / 3 UNITS) = 8 SPACES	9 SPACES
§ 27.04.A	**90° PARKING:** 9 FT X 19 FT WITH 22 FT AISLE	9 FT X 19 FT WITH 22 FT AISLE
§ 14.04.A	**PARALLEL PARKING:** 9 FT X 22 FT	9 FT X 22 FT
§ 27.04.A	**OFF STREET LOADING:** 10 FT X 50 FT	10 FT X 50 FT

* OFF-STREET PARKING DETERMINED USING GENERAL BUSINESS DISTRICT REQUIREMENTS



SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	PROPOSED CURB & GUTTER
	PROPOSED FLUSH CURB
	PROPOSED SIGNS / BOLLARDS
	PROPOSED BUILDING
	PROPOSED CONCRETE PAVEMENT
	PROPOSED WALL
	PROPOSED BUILDING DOORS
	PROPOSED EVERGREEN LANDSCAPING SCREEN

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

40' 0' 40' 80'

GRAPHIC SCALE IN FEET
1" = 40'

ISSUE	DATE	BY	DESCRIPTION
1	10/18/2022	KTH	FOR PUD APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLAN

HUDSON SQUARE
3030 S. LAPEER ROAD
PROPOSED MULTI-USE PLANNED UNIT DEVELOPMENT

PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
CITY OF LAKE ORION
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN · JARED SOUTHWORTH COOKSEY · ENGINEER · No. 01069428 · LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' | PROJECT ID: DET-210193.01

TITLE: SITE PLAN

DRAWING: C-2

V:\DET\2021\DET-210193\ JOHN AND NANCY, LLC - 3041 CLARKSTON ROAD, CLARKSTON, MI\CADD\PDT\DP-R2-03-04-SITE.DWG

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	PROPOSED CURB & GUTTER
	PROPOSED FLUSH CURB
	PROPOSED SIGNS / BOLLARDS
	PROPOSED BUILDING
	PROPOSED CONCRETE PAVEMENT
	PROPOSED WALL
	PROPOSED BUILDING DOORS
	PROPOSED EVERGREEN LANDSCAPING SCREEN

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

40' 0' 40' 80'

GRAPHIC SCALE IN FEET
1" = 40'

ISSUE	DATE	BY	DESCRIPTION
1	10/18/2022	KTH	FOR PUD APPROVAL

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLAN

HUDSON SQUARE

3030 S. LAPEER ROAD

PROPOSED MULTI-USE
PLANNED UNIT DEVELOPMENT

PID: 09-26-101-021
3030 SOUTH LAPEER ROAD
ROCHESTER TOWNSHIP
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN · JARED COOKSEY · ENGINEER · 01001069428
JARED COOKSEY, P.E.
MICHIGAN REGISTRATION NO. 01001069428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' PROJECT ID: DET-210193.01

TITLE:

AERIAL OVERLAY PLAN

DRAWING:

C-3

V:\DET\2021\DET-210193\01 JOHN AND NANCY, LLC - 3049 CLARKSTON ROAD, CLARKSTON, MI\CADD\PD\TDP\TDP-02-03-04-SITE.DWG

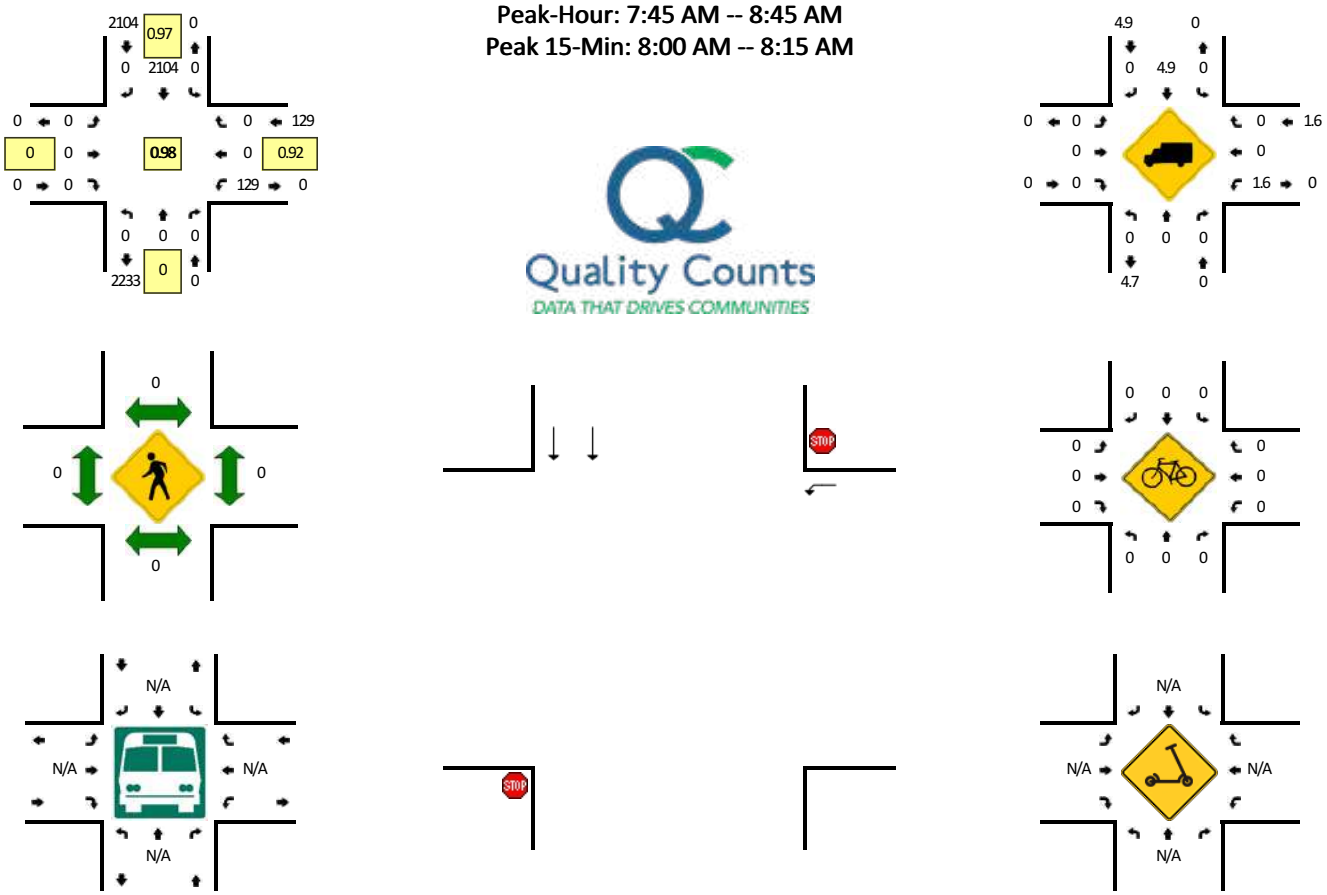
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SB Lapeer Rd -- NB to SB X/O North of Waldon
CITY/STATE: Orion Township, MI

QC JOB #: 15971077
DATE: Thu, Oct 13 2022

Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 8:00 AM -- 8:15 AM



15-Min Count Period Beginning At	SB Lapeer Rd (Northbound)				SB Lapeer Rd (Southbound)				NB to SB X/O North of Waldon (Eastbound)				NB to SB X/O North of Waldon (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	432	0	0	0	0	0	0	22	0	0	0	454	
7:15 AM	0	0	0	0	0	498	0	0	0	0	0	0	21	0	0	0	519	
7:30 AM	0	0	0	0	0	503	0	0	0	0	0	0	30	0	0	0	533	
7:45 AM	0	0	0	0	0	534	0	0	0	0	0	0	31	0	0	0	565	2071
8:00 AM	0	0	0	0	0	543	0	0	0	0	0	0	28	0	0	0	571	2188
8:15 AM	0	0	0	0	0	517	0	0	0	0	0	0	35	0	0	0	552	2221
8:30 AM	0	0	0	0	0	510	0	0	0	0	0	0	35	0	0	0	545	2233
8:45 AM	0	0	0	0	0	457	0	0	0	0	0	0	21	0	0	0	478	2146

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	2172	0	0	0	0	0	0	112	0	0	0	2284
Heavy Trucks	0	0	0		0	84	0		0	0	0		0	0	0		84
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 12:50 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

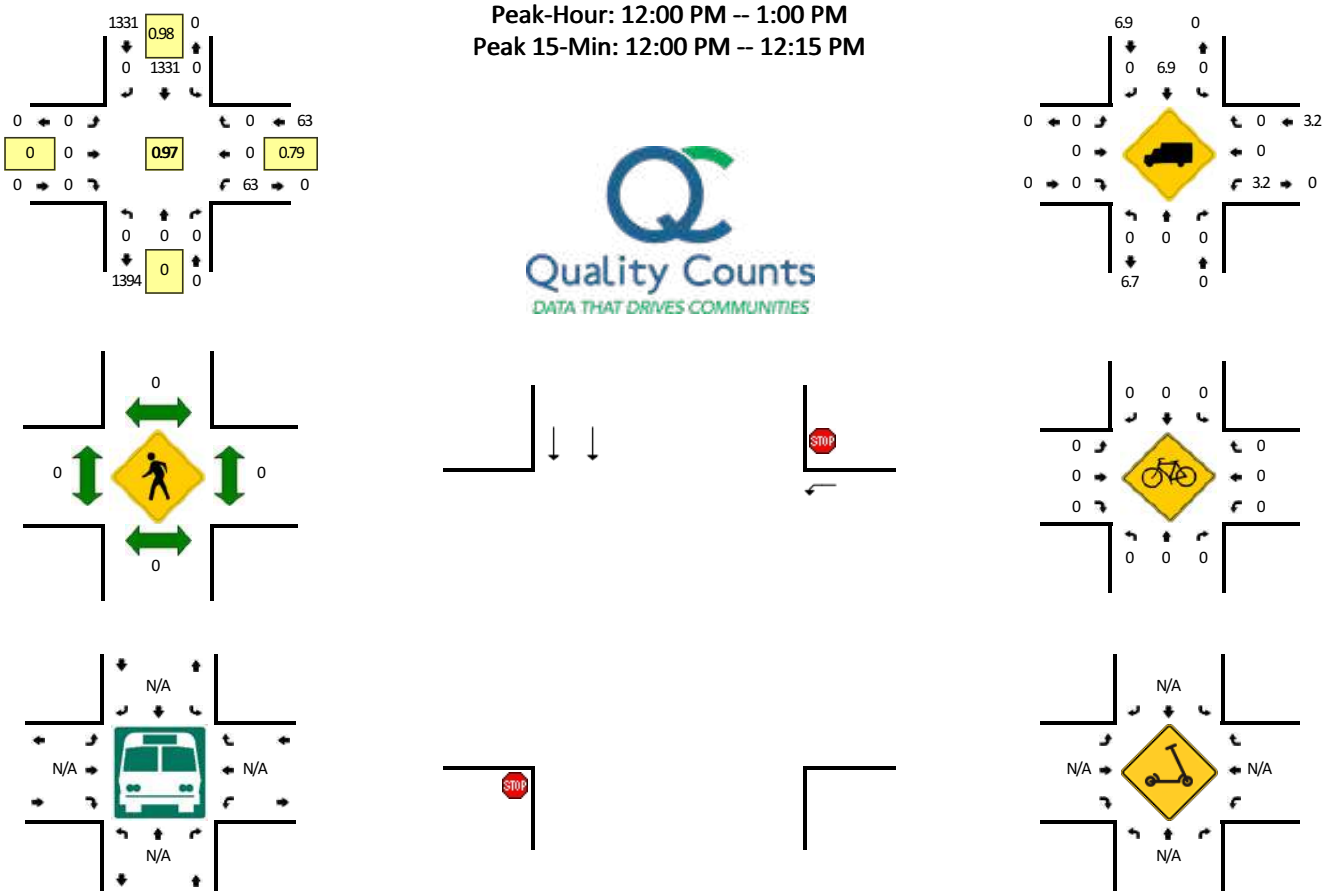
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SB Lapeer Rd -- NB to SB X/O North of Waldon
CITY/STATE: Orion Township, MI

QC JOB #: 15971079
DATE: Thu, Oct 13 2022

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:00 PM -- 12:15 PM



15-Min Count Period Beginning At	SB Lapeer Rd (Northbound)				SB Lapeer Rd (Southbound)				NB to SB X/O North of Waldon (Eastbound)				NB to SB X/O North of Waldon (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	0	318	0	0	0	0	0	0	10	0	0	0	328	
11:15 AM	0	0	0	0	0	288	0	0	0	0	0	0	13	0	0	0	301	
11:30 AM	0	0	0	0	0	309	0	0	0	0	0	0	16	0	0	0	325	
11:45 AM	0	0	0	0	0	311	0	0	0	0	0	0	24	0	0	0	335	1289
12:00 PM	0	0	0	0	0	340	0	0	0	0	0	0	20	0	0	0	360	1321
12:15 PM	0	0	0	0	0	336	0	0	0	0	0	0	17	0	0	0	353	1373
12:30 PM	0	0	0	0	0	330	0	0	0	0	0	0	13	0	0	0	343	1391
12:45 PM	0	0	0	0	0	325	0	0	0	0	0	0	13	0	0	0	338	1394

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	1360	0	0	0	0	0	0	80	0	0	0	1440
Heavy Trucks	0	0	0		0	76	0		0	0	0		4	0	0		80
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 12:50 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

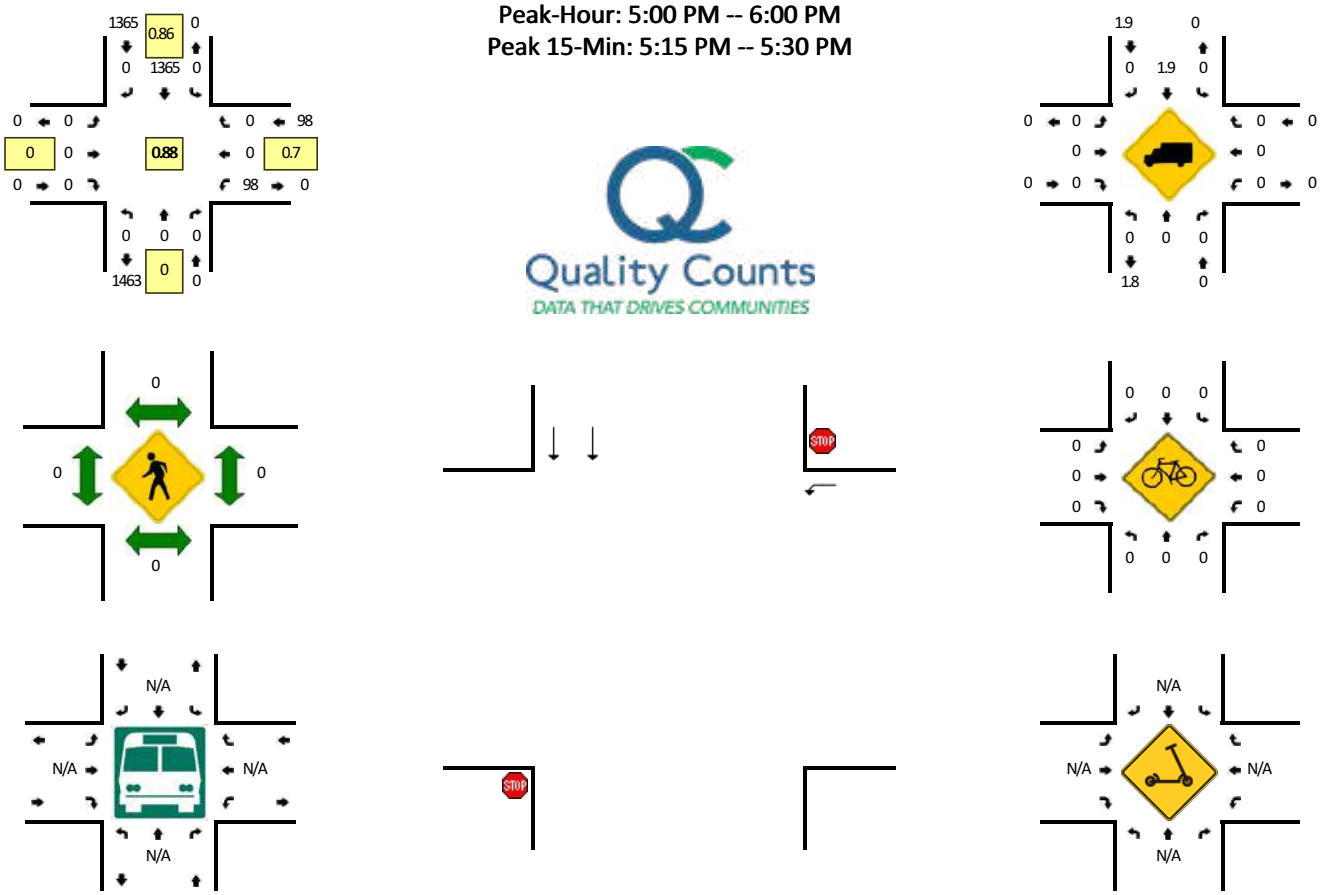
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: SB Lapeer Rd -- NB to SB X/O North of Waldon
CITY/STATE: Orion Township, MI

QC JOB #: 15971080
DATE: Tue, Oct 18 2022

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



15-Min Count Period Beginning At	SB Lapeer Rd (Northbound)				SB Lapeer Rd (Southbound)				NB to SB X/O North of Waldon (Eastbound)				NB to SB X/O North of Waldon (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	0	0	0	0	297	0	0	0	0	0	0	20	0	0	0	317	
2:15 PM	0	0	0	0	0	287	0	0	0	0	0	0	14	0	0	0	301	
2:30 PM	0	0	0	0	0	347	0	0	0	0	0	0	15	0	0	0	362	
2:45 PM	0	0	0	0	0	472	0	0	0	0	0	0	25	0	0	0	497	1477
3:00 PM	0	0	0	0	0	364	0	0	0	0	0	0	33	0	0	0	397	1557
3:15 PM	0	0	0	0	0	369	0	0	0	0	0	0	24	0	0	0	393	1649
3:30 PM	0	0	0	0	0	363	0	0	0	0	0	0	29	0	0	0	392	1679
3:45 PM	0	0	0	0	0	369	0	0	0	0	0	0	22	0	0	0	391	1573
4:00 PM	0	0	0	0	0	342	0	0	0	0	0	0	25	0	0	0	367	1543
4:15 PM	0	0	0	0	0	384	0	0	0	0	0	0	30	0	0	0	414	1564
4:30 PM	0	0	0	0	0	357	0	0	0	0	0	0	32	0	0	0	389	1561
4:45 PM	0	0	0	0	0	287	0	0	0	0	0	0	29	0	0	0	316	1486
5:00 PM	0	0	0	0	0	322	0	0	0	0	0	0	35	0	0	0	357	1476
5:15 PM	0	0	0	0	0	396	0	0	0	0	0	0	20	0	0	0	416	1478
5:30 PM	0	0	0	0	0	343	0	0	0	0	0	0	18	0	0	0	361	1450
5:45 PM	0	0	0	0	0	304	0	0	0	0	0	0	25	0	0	0	329	1463

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	1584	0	0	0	0	0	0	80	0	0	0	1664
Heavy Trucks	0	0	0		0	20	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 1:25 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

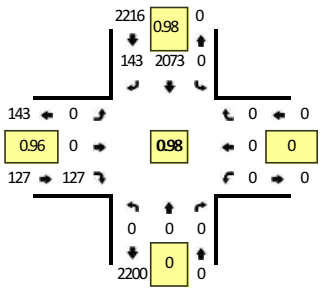
Type of peak hour being reported: Intersection Peak

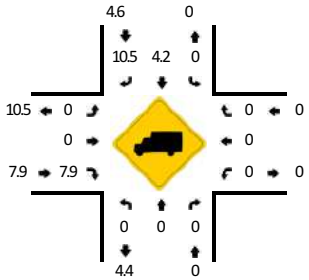
Method for determining peak hour: Total Entering Volume

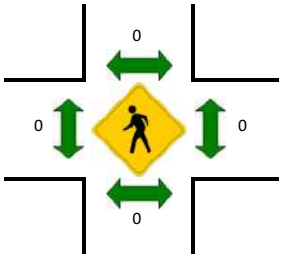
LOCATION: SB Lapeer Rd -- Waldon Road
CITY/STATE: Orion Township, MI

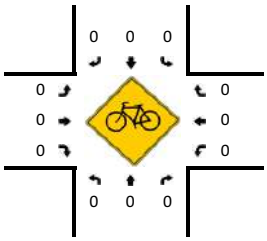
QC JOB #: 15971069
DATE: Thu, Oct 13 2022

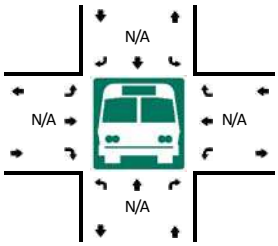
Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

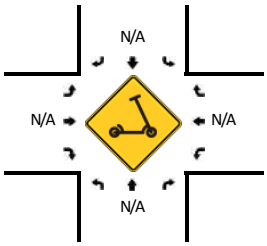












15-Min Count Period Beginning At	SB Lapeer Rd (Northbound)				SB Lapeer Rd (Southbound)				Waldon Road (Eastbound)				Waldon Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	423	32	0	0	0	64	0	0	0	0	0	519	
7:15 AM	0	0	0	0	0	482	37	0	0	0	34	0	0	0	0	0	553	
7:30 AM	0	0	0	0	0	495	36	0	0	0	32	0	0	0	0	0	563	
7:45 AM	0	0	0	0	0	534	30	0	0	0	32	0	0	0	0	0	596	2231
8:00 AM	0	0	0	0	0	529	30	0	0	0	29	0	0	0	0	0	588	2300
8:15 AM	0	0	0	0	0	514	37	0	0	0	33	0	0	0	0	0	584	2331
8:30 AM	0	0	0	0	0	496	46	0	0	0	33	0	0	0	0	0	575	2343
8:45 AM	0	0	0	0	0	432	51	0	0	0	36	0	0	0	0	0	519	2266

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	2136	120	0	0	0	128	0	0	0	0	0	2384
Heavy Trucks	0	0	0		0	80	4		0	0	12		0	0	0		96
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 12:50 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

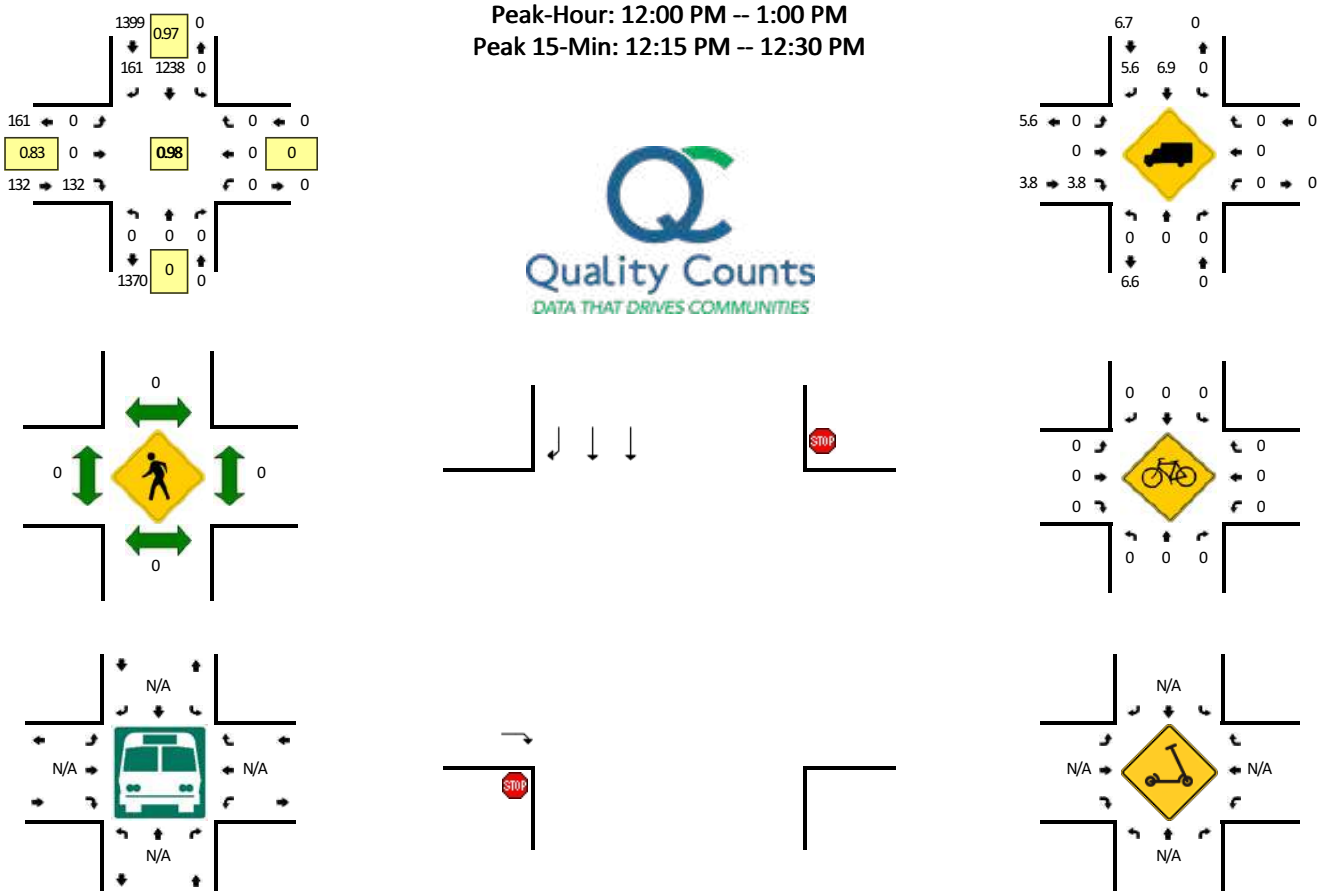
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SB Lapeer Rd -- Waldon Road
CITY/STATE: Orion Township, MI

QC JOB #: 15971071
DATE: Thu, Oct 13 2022

Peak-Hour: 12:00 PM -- 1:00 PM
Peak 15-Min: 12:15 PM -- 12:30 PM



15-Min Count Period Beginning At	SB Lapeer Rd (Northbound)				SB Lapeer Rd (Southbound)				Waldon Road (Eastbound)				Waldon Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	0	0	0	297	30	0	0	0	25	0	0	0	0	0	352	
11:15 AM	0	0	0	0	0	273	29	0	0	0	24	0	0	0	0	0	326	
11:30 AM	0	0	0	0	0	281	44	0	0	0	45	0	0	0	0	0	370	
11:45 AM	0	0	0	0	0	289	43	0	0	0	22	0	0	0	0	0	354	1402
12:00 PM	0	0	0	0	0	302	58	0	0	0	27	0	0	0	0	0	387	1437
12:15 PM	0	0	0	0	0	323	34	0	0	0	34	0	0	0	0	0	391	1502
12:30 PM	0	0	0	0	0	307	31	0	0	0	40	0	0	0	0	0	378	1510
12:45 PM	0	0	0	0	0	306	38	0	0	0	31	0	0	0	0	0	375	1531

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	1292	136	0	0	0	136	0	0	0	0	0	1564
Heavy Trucks	0	0	0		0	104	12		0	0	4		0	0	0		120
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 12:50 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

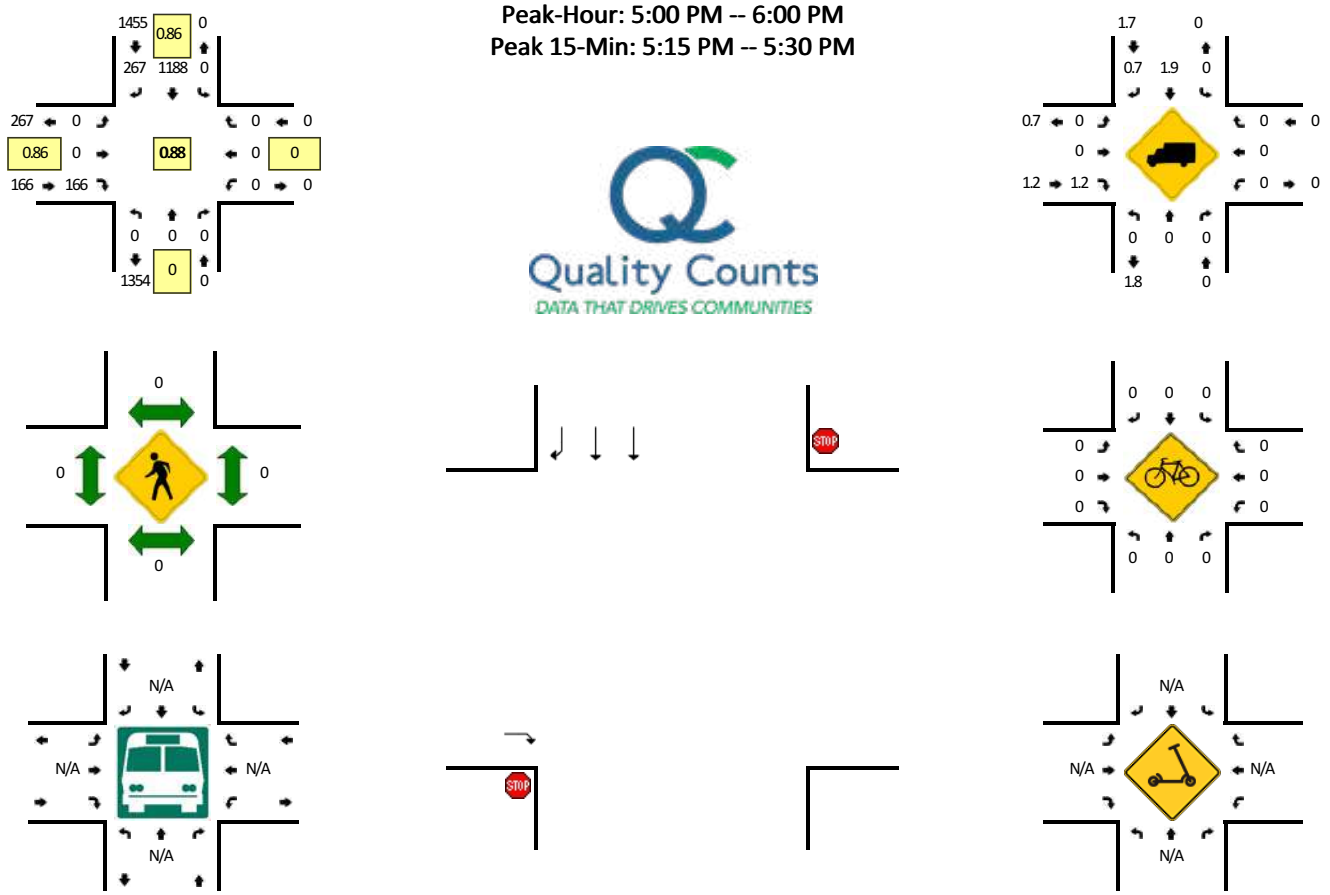
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: SB Lapeer Rd -- Waldon Road
CITY/STATE: Orion Township, MI

QC JOB #: 15971072
DATE: Tue, Oct 18 2022

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



15-Min Count Period Beginning At	SB Lapeer Rd (Northbound)				SB Lapeer Rd (Southbound)				Waldon Road (Eastbound)				Waldon Road (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	0	0	0	0	270	40	0	0	0	42	0	0	0	0	0	352	
2:15 PM	0	0	0	0	0	261	37	0	0	0	34	0	0	0	0	0	332	
2:30 PM	0	0	0	0	0	306	50	0	0	0	30	0	0	0	0	0	386	
2:45 PM	0	0	0	0	0	361	128	0	0	0	38	0	0	0	0	0	527	1597
3:00 PM	0	0	0	0	0	342	77	0	0	0	35	0	0	0	0	0	454	1699
3:15 PM	0	0	0	0	0	314	57	0	0	0	29	0	0	0	0	0	400	1767
3:30 PM	0	0	0	0	0	334	73	0	0	0	33	0	0	0	0	0	440	1821
3:45 PM	0	0	0	0	0	328	63	0	0	0	31	0	0	0	0	0	422	1716
4:00 PM	0	0	0	0	0	309	58	0	0	0	53	0	0	0	0	0	420	1682
4:15 PM	0	0	0	0	0	331	89	0	0	0	37	0	0	0	0	0	457	1739
4:30 PM	0	0	0	0	0	308	77	0	0	0	29	0	0	0	0	0	414	1713
4:45 PM	0	0	0	0	0	266	60	0	0	0	40	0	0	0	0	0	366	1657
5:00 PM	0	0	0	0	0	269	76	0	0	0	48	0	0	0	0	0	393	1630
5:15 PM	0	0	0	0	0	345	76	0	0	0	42	0	0	0	0	0	463	1636
5:30 PM	0	0	0	0	0	298	61	0	0	0	40	0	0	0	0	0	399	1621
5:45 PM	0	0	0	0	0	276	54	0	0	0	36	0	0	0	0	0	366	1621

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	1380	304	0	0	0	168	0	0	0	0	0	1852
Heavy Trucks	0	0	0		0	12	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 1:25 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

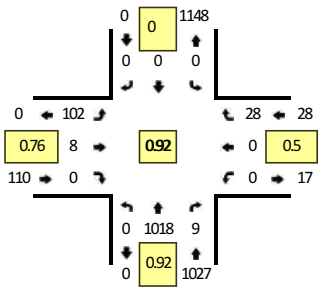
Type of peak hour being reported: Intersection Peak

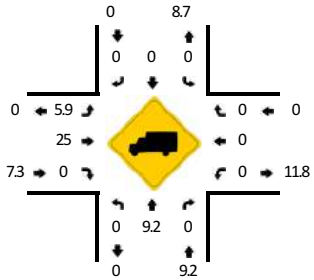
Method for determining peak hour: Total Entering Volume

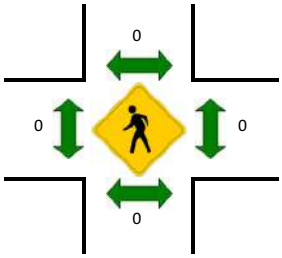
LOCATION: NB Lapeer Rd -- Eagle Ridge Rd
CITY/STATE: Orion Township, MI

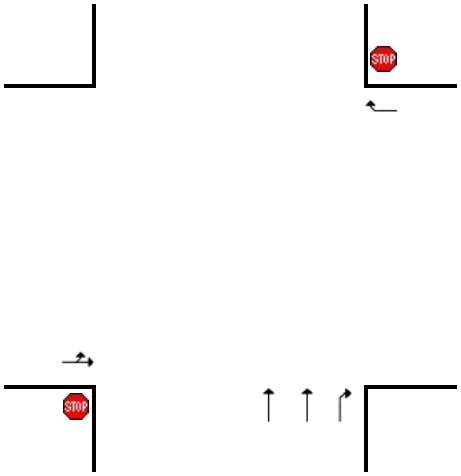
QC JOB #: 15971073
DATE: Thu, Oct 13 2022

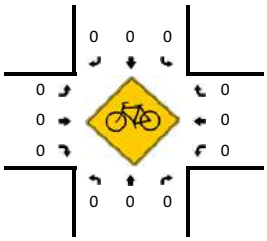
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

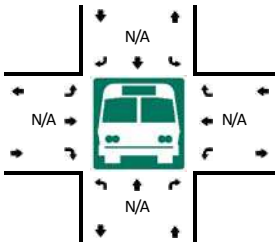


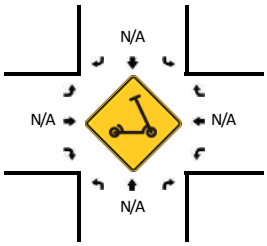












15-Min Count Period Beginning At	NB Lapeer Rd (Northbound)				NB Lapeer Rd (Southbound)				Eagle Ridge Rd (Eastbound)				Eagle Ridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	312	0	0	0	0	0	0	52	0	0	0	0	0	12	0	376	
7:15 AM	0	243	0	0	0	0	0	0	24	4	0	0	0	0	4	0	275	
7:30 AM	0	183	0	0	0	0	0	0	22	2	0	0	0	0	8	0	215	
7:45 AM	0	267	1	0	0	0	0	0	18	0	0	0	0	0	8	0	294	1160
8:00 AM	0	278	2	0	0	0	0	0	23	1	0	0	0	0	8	0	312	1096
8:15 AM	0	210	3	0	0	0	0	0	21	3	0	0	0	0	14	0	251	1072
8:30 AM	0	258	1	0	0	0	0	0	22	4	0	0	0	0	2	0	287	1144
8:45 AM	0	272	3	0	0	0	0	0	36	0	0	0	0	0	4	0	315	1165

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1088	12	0	0	0	0	0	144	0	0	0	0	0	16	0	1260
Heavy Trucks	0	100	0		0	0	0		8	0	0		0	0	0		108
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 12:50 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

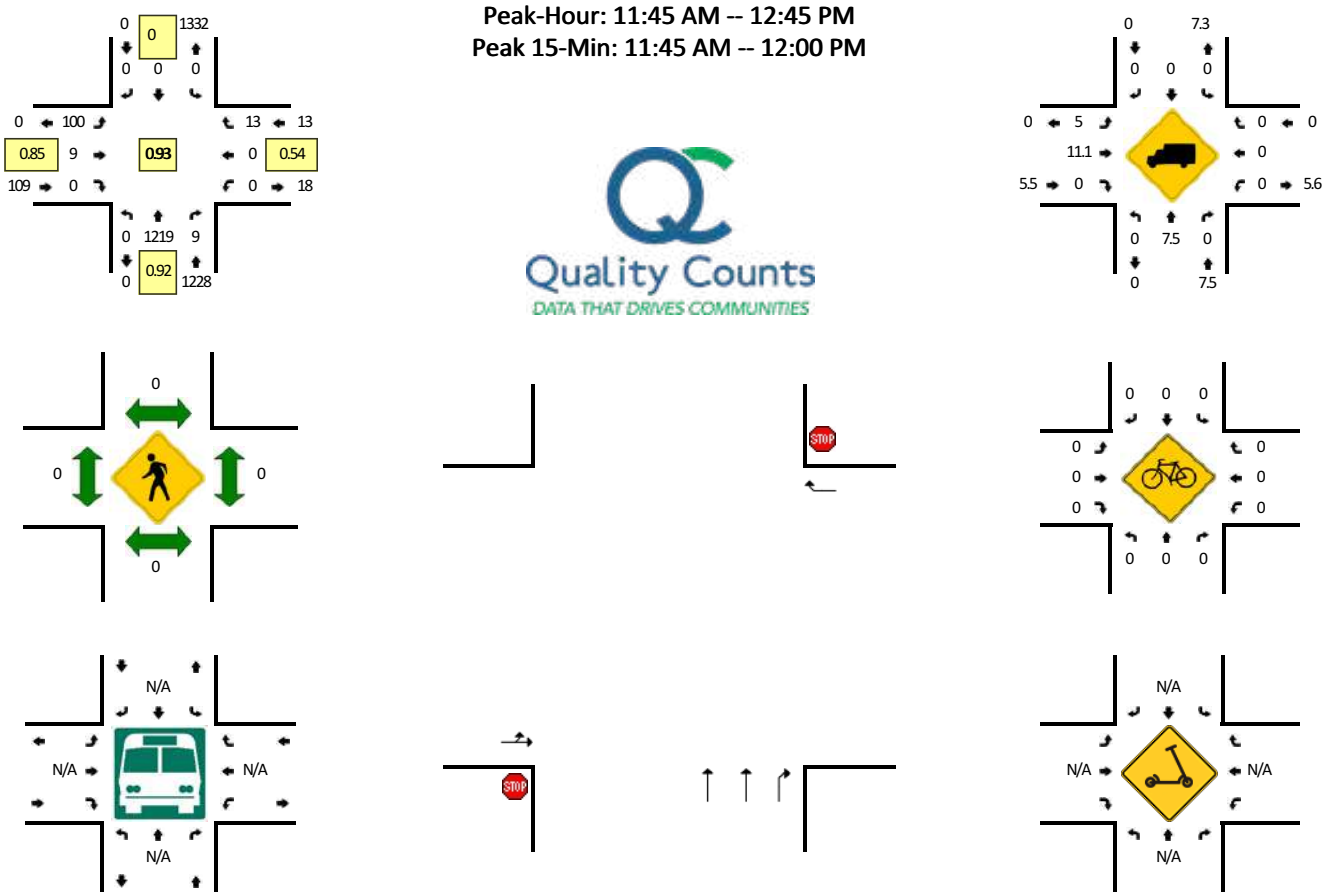
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: NB Lapeer Rd -- Eagle Ridge Rd
CITY/STATE: Orion Township, MI

QC JOB #: 15971075
DATE: Thu, Oct 13 2022

Peak-Hour: 11:45 AM -- 12:45 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



15-Min Count Period Beginning At	NB Lapeer Rd (Northbound)				NB Lapeer Rd (Southbound)				Eagle Ridge Rd (Eastbound)				Eagle Ridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	267	2	0	0	0	0	0	19	5	0	0	0	0	2	0	295	
11:15 AM	0	271	1	0	0	0	0	0	26	3	0	0	0	0	3	0	304	
11:30 AM	0	295	1	0	0	0	0	0	21	2	0	0	0	0	4	0	323	
11:45 AM	0	332	2	0	0	0	0	0	28	2	0	0	0	0	0	0	364	1286
12:00 PM	0	310	3	0	0	0	0	0	18	2	0	0	0	0	3	0	336	1327
12:15 PM	0	286	3	0	0	0	0	0	27	0	0	0	0	0	6	0	322	1345
12:30 PM	0	291	1	0	0	0	0	0	27	5	0	0	0	0	4	0	328	1350
12:45 PM	0	304	1	0	0	0	0	0	29	3	0	0	0	0	2	0	339	1325

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1328	8	0	0	0	0	0	112	8	0	0	0	0	0	0	1456
Heavy Trucks	0	104	0		0	0	0		12	0	0		0	0	0		116
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 12:50 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

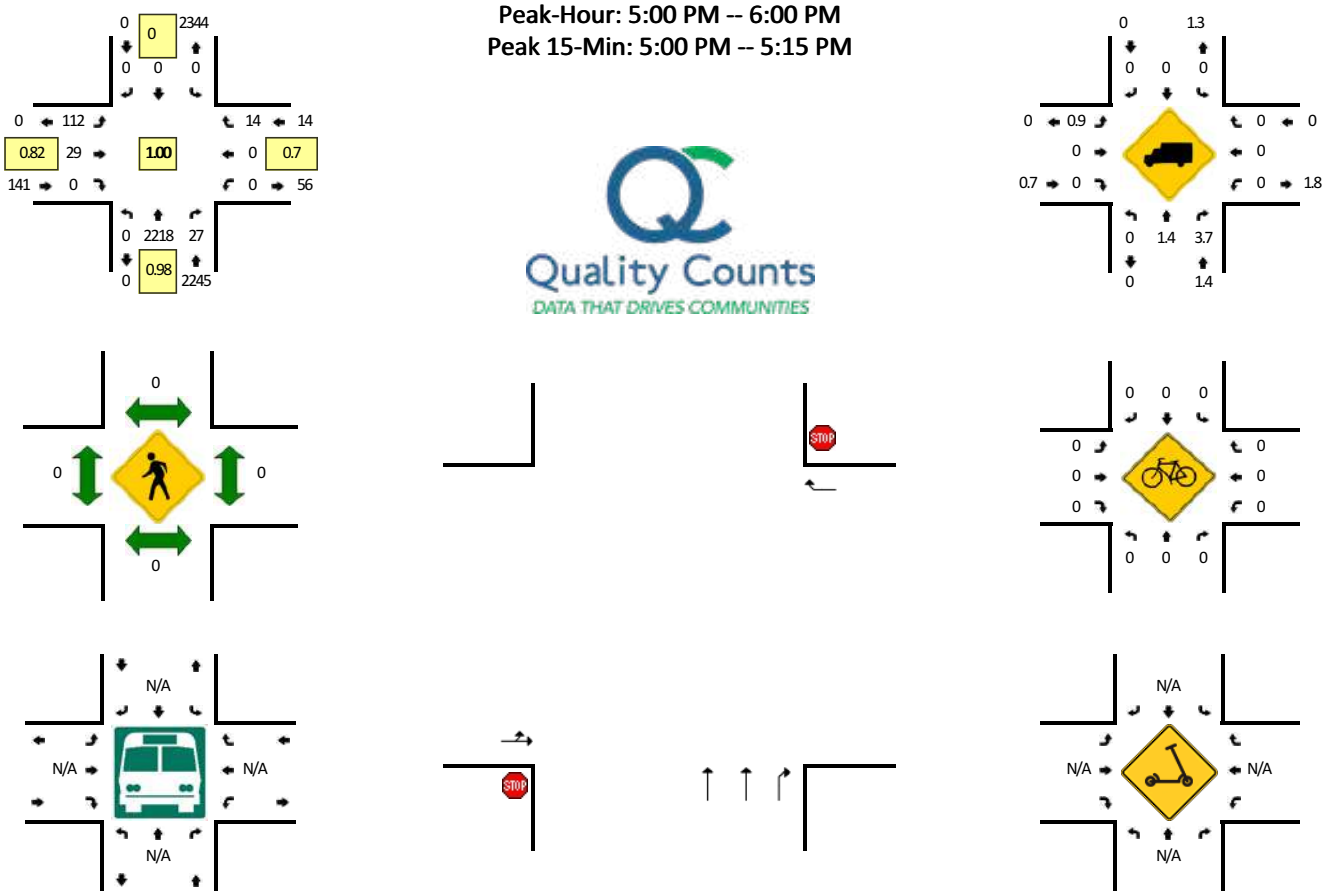
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: NB Lapeer Rd -- Eagle Ridge Rd
CITY/STATE: Orion Township, MI

QC JOB #: 15971076
DATE: Tue, Oct 18 2022

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	NB Lapeer Rd (Northbound)				NB Lapeer Rd (Southbound)				Eagle Ridge Rd (Eastbound)				Eagle Ridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	358	2	0	0	0	0	0	30	0	0	0	0	0	6	0	396	
2:15 PM	0	416	0	0	0	0	0	0	26	1	0	0	0	0	3	0	446	
2:30 PM	0	446	2	0	0	0	0	0	25	1	0	0	0	0	3	0	477	
2:45 PM	0	465	1	0	0	0	0	0	29	7	0	0	0	0	3	0	505	1824
3:00 PM	0	456	5	0	0	0	0	0	19	7	0	0	0	0	7	0	494	1922
3:15 PM	0	455	6	0	0	0	0	0	17	4	0	0	0	0	4	0	486	1962
3:30 PM	0	550	9	0	0	0	0	0	33	2	0	0	0	0	7	0	601	2086
3:45 PM	0	572	8	0	0	0	0	0	22	7	0	0	0	0	6	0	615	2196
4:00 PM	0	528	7	0	0	0	0	0	33	4	0	0	0	0	4	0	576	2278
4:15 PM	0	474	4	0	0	0	0	0	32	6	0	0	0	0	4	0	520	2312
4:30 PM	0	536	4	0	0	0	0	0	28	2	0	0	0	0	7	0	577	2288
4:45 PM	0	537	3	0	0	0	0	0	30	3	0	0	0	0	10	0	583	2256
5:00 PM	0	567	5	0	0	0	0	0	21	5	0	0	0	0	5	0	603	2283
5:15 PM	0	558	7	0	0	0	0	0	27	8	0	0	0	0	3	0	603	2366
5:30 PM	0	547	9	0	0	0	0	0	28	9	0	0	0	0	3	0	596	2385
5:45 PM	0	546	6	0	0	0	0	0	36	7	0	0	0	0	3	0	598	2400

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	2268	20	0	0	0	0	0	84	20	0	0	0	0	20	0	2412
Heavy Trucks	0	40	0		0	0	0		0	0	0		0	0	0		40
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/3/2022 12:50 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Search...

Crash and Road Data

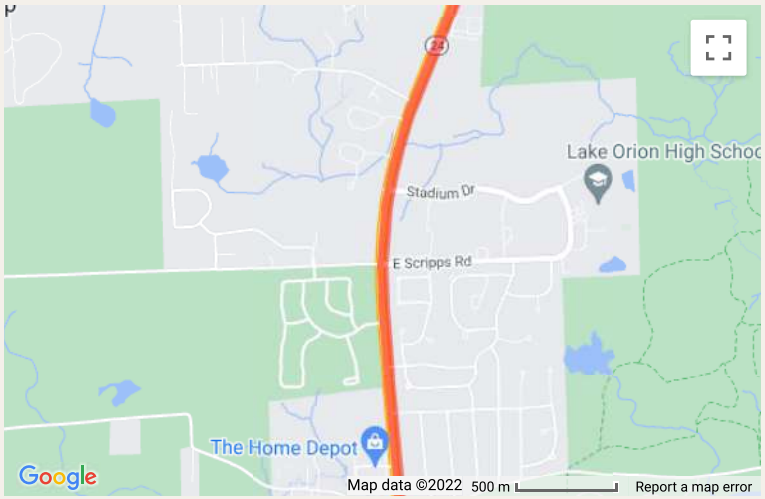
Road Segment Report

Lapeer Rd, (PR Number 616604)

From:	Waldon Rd 3.933 BMP
To:	Clarkston Rd W 6.206 EMP
Jurisdiction:	State
FALINK ID:	323
Community:	Orion Township
County:	Oakland
Functional Class:	3 - Other Principal Arterial
Direction:	1 Way
Length:	2.273 miles
Number of Lanes:	2
Posted Speed:	55 (source: TCO)
Route Classification:	Not a route
Annual Crash Average 2017-2021:	43
Traffic Volume (2016)*:	20,800 (Observed AADT)
Pavement Type (2021):	Asphalt
Pavement Rating (2021):	Fair
Short Range (TIP) Projects:	No TIP projects for this segment.
Long Range (RTP) Projects:	No long-range projects for this segment.

* AADT values are derived from **Traffic Counts**

Street View



Search...

Crash and Road Data

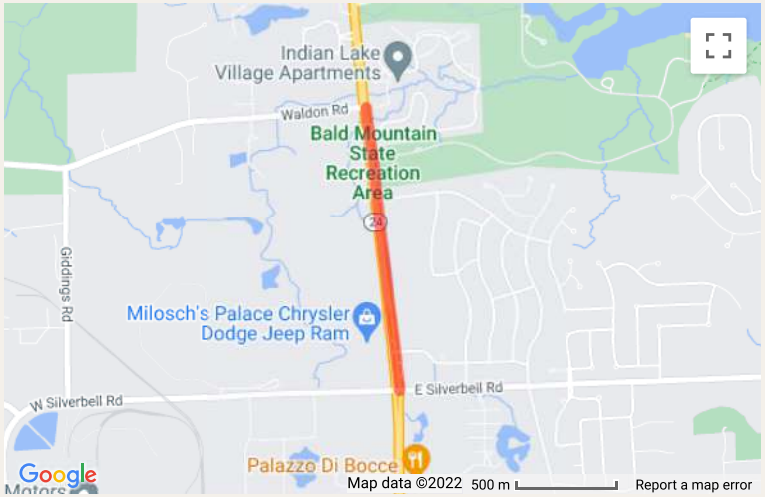
Road Segment Report

Lapeer Rd, (PR Number 616604)

From:	Silver Bell Rd E 3.050 BMP
To:	Waldon Rd 3.933 EMP
Jurisdiction:	State
FALINK ID:	322
Community:	Orion Township
County:	Oakland
Functional Class:	3 - Other Principal Arterial
Direction:	1 Way
Length:	0.883 miles
Number of Lanes:	2
Posted Speed:	55 (source: TCO)
Route Classification:	Not a route
Annual Crash Average 2017-2021:	19
Traffic Volume (2019)*:	23,700 (Observed AADT)
Pavement Type (2021):	Asphalt
Pavement Rating (2021):	Fair
Short Range (TIP) Projects:	No TIP projects for this segment.
Long Range (RTP) Projects:	No long-range projects for this segment.

* AADT values are derived from **Traffic Counts**

Street View



Search...

Crash and Road Data

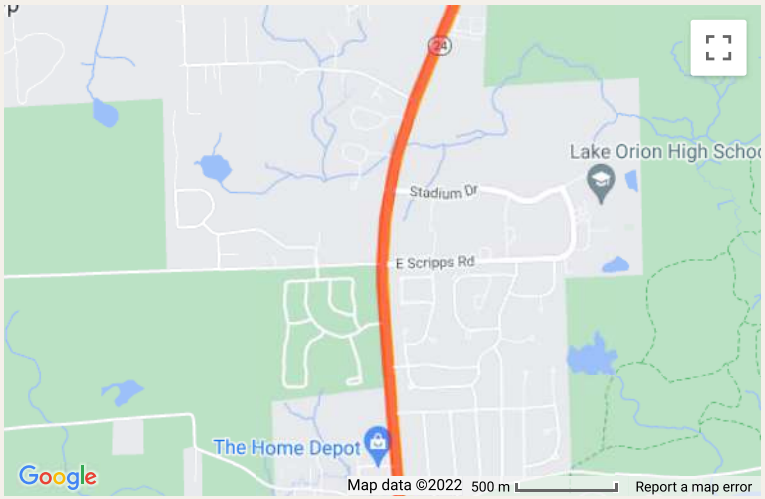
Road Segment Report

Lapeer Rd, (PR Number 616605)

From:	Waldon Rd 3.920 BMP
To:	Clarkston Rd W 6.193 EMP
Jurisdiction:	State
FALINK ID:	349
Community:	Orion Township
County:	Oakland
Functional Class:	3 - Other Principal Arterial
Direction:	1 Way
Length:	2.273 miles
Number of Lanes:	2
Posted Speed:	55 (source: TCO)
Route Classification:	BL-75
Annual Crash Average 2017-2021:	43
Traffic Volume (2016)*:	22,600 (Observed AADT)
Pavement Type (2021):	Asphalt
Pavement Rating (2021):	Good
Short Range (TIP) Projects:	(10867) Rehabilitate Roadway
Long Range (RTP) Projects:	No long-range projects for this segment.

* AADT values are derived from **Traffic Counts**

Street View



Search...

Crash and Road Data

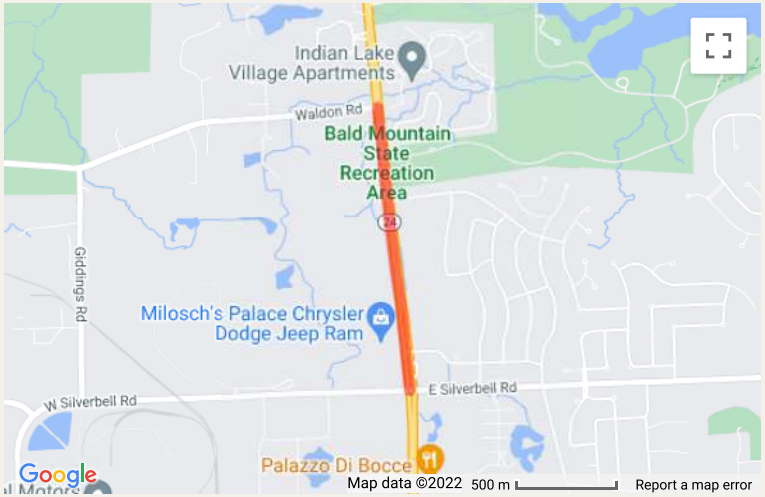
Road Segment Report

Lapeer Rd, (PR Number 616605)

From:	Silver Bell Rd E 3.037 BMP
To:	Waldon Rd 3.920 EMP
Jurisdiction:	State
FALINK ID:	348
Community:	Orion Township
County:	Oakland
Functional Class:	3 - Other Principal Arterial
Direction:	1 Way
Length:	0.883 miles
Number of Lanes:	2
Posted Speed:	55 (source: TCO)
Route Classification:	BL-75
Annual Crash Average 2017-2021:	19
Traffic Volume (2016)*:	21,900 (Observed AADT)
Pavement Type (2021):	Asphalt
Pavement Rating (2021):	Good
Short Range (TIP) Projects:	(10867) Rehabilitate Roadway
Long Range (RTP) Projects:	No long-range projects for this segment.

* AADT values are derived from **Traffic Counts**

Street View



Search...

Crash and Road Data

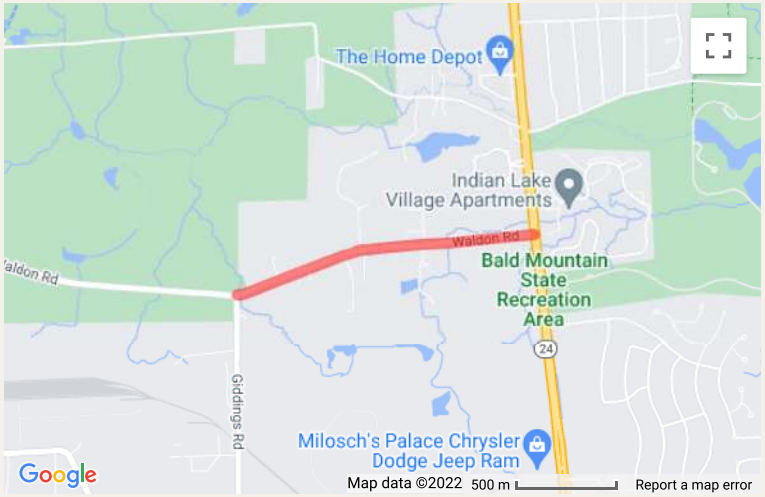
Road Segment Report

Waldon Rd, (PR Number 627303)

From:	Giddings Rd 8.038 BMP
To:	Lapeer Rd 8.990 EMP
Jurisdiction:	County
FALINK ID:	661
Community:	Orion Township
County:	Oakland
Functional Class:	5 - Major Collector
Direction:	1 Way
Length:	0.952 miles
Number of Lanes:	2
Posted Speed:	40 (source: TCO)
Route Classification:	BL-75
Annual Crash Average 2017-2021:	16
Traffic Volume (2018)*:	4,300 (Observed AADT)
Pavement Type (2021):	Asphalt
Pavement Rating (2021):	Fair
Short Range (TIP) Projects:	No TIP projects for this segment.
Long Range (RTP) Projects:	No long-range projects for this segment.

* AADT values are derived from **Traffic Counts**

Street View



SEMCOG | Southeast Michigan Council of Governments

Community Profiles

YOU ARE VIEWING DATA FOR:

Orion Township

2323 Joslyn Road
Lake Orion, MI 48360
http://www.oriontownship.org

SEMCOG MEMBER

Census 2020 Population: 35,330
Area: 34.6 square miles

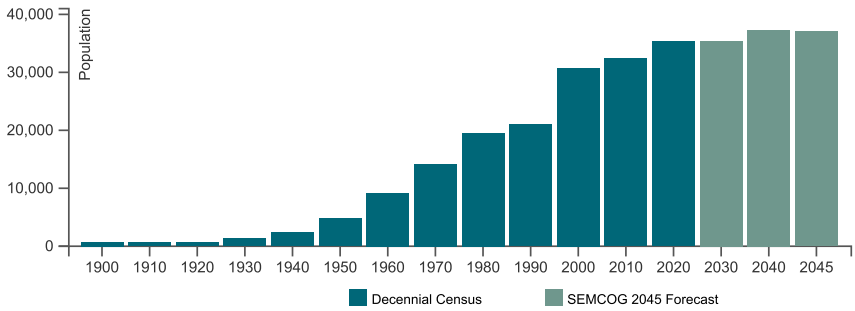
VIEW COMMUNITY EXPLORER MAP VIEW 2020 CENSUS MAP

Population and Households

Link to American Community Survey (ACS) Profiles: **Select a Year** 2016-2020 **Social** | **Demographic**

Population and Household Estimates for Southeast Michigan, 2021

Population Forecast



Population and Households

Population and Households	Census 2020	Census 2010	Change 2010-2020	Pct Change 2010-2020	SEMCOG Jul 2021	SEMCOG 2045
Total Population	35,330	32,421	2,909	9.0%	35,541	37,032
Group Quarters Population	121	140	-19	-13.6%	121	212
Household Population	35,209	32,281	2,928	9.1%	35,420	36,820
Housing Units	13,885	12,515	1,370	10.9%	14,018	-
Households (Occupied Units)	13,219	11,673	1,546	13.2%	13,361	14,652
Residential Vacancy Rate	4.8%	6.7%	-1.9%	-	4.7%	-
Average Household Size	2.66	2.77	-0.10	-	2.65	2.51

Source: **U.S. Census Bureau** and **SEMCOG 2045 Regional Development Forecast**

Components of Population Change

Components of Population Change	2000-2005 Avg.	2006-2010 Avg.	2011-2018 Avg.
Natural Increase (Births - Deaths)	132	50	94
Births	275	172	260
Deaths	143	122	166
Net Migration (Movement In - Movement Out)	78	75	349
Population Change (Natural Increase + Net Migration)	210	125	443

Source: **Michigan Department of Community Health Vital Statistics**, **U.S. Census Bureau**, and SEMCOG

SEMCOG | Southeast Michigan Council of Governments

Community Profiles

YOU ARE VIEWING DATA FOR:

Orion Township

2323 Joslyn Road
Lake Orion, MI 48360
http://www.oriontownship.org

SEMCOG MEMBER

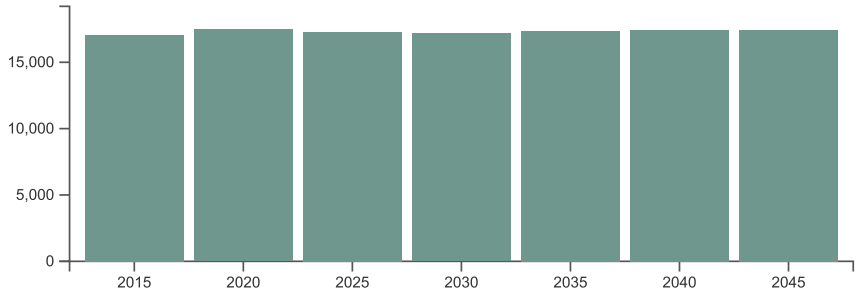
Census 2020 Population: 35,330
Area: 34.6 square miles

VIEW COMMUNITY EXPLORER MAP VIEW 2020 CENSUS MAP

Economy & Jobs

Link to American Community Survey (ACS) Profiles: **Select a Year** 2016-2020 **Economic**

Forecasted Jobs



Source: **SEMCOG 2045 Regional Development Forecast**

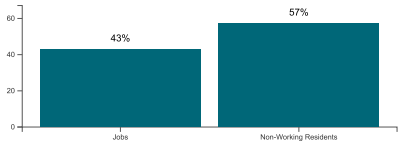
Forecasted Jobs by Industry Sector

Forecasted Jobs By Industry Sector	2015	2020	2025	2030	2035	2040	2045	Change 2015-2045	Pct Change 2015-2045
Natural Resources, Mining, & Construction	975	1,126	1,072	1,057	1,068	1,079	1,091	116	11.9%
Manufacturing	2,885	2,576	2,415	2,224	2,102	1,995	1,880	-1,005	-34.8%
Wholesale Trade	904	925	923	913	913	912	905	1	0.1%
Retail Trade	2,458	2,600	2,613	2,586	2,575	2,552	2,493	35	1.4%
Transportation, Warehousing, & Utilities	576	595	589	587	598	611	618	42	7.3%
Information & Financial Activities	1,611	1,692	1,691	1,712	1,752	1,759	1,779	168	10.4%
Professional and Technical Services & Corporate HQ	1,175	1,233	1,159	1,253	1,349	1,332	1,346	171	14.6%
Administrative, Support, & Waste Services	1,690	1,745	1,768	1,778	1,817	1,859	1,884	194	11.5%
Education Services	1,020	992	993	992	1,004	1,009	1,023	3	0.3%
Healthcare Services	1,014	1,095	1,147	1,184	1,274	1,365	1,450	436	43%
Leisure & Hospitality	1,368	1,499	1,539	1,558	1,592	1,664	1,659	291	21.3%
Other Services	1,219	1,253	1,223	1,200	1,194	1,184	1,168	-51	-4.2%
Public Administration	138	138	137	135	135	135	135	-3	-2.2%
Total Employment Numbers	17,033	17,469	17,269	17,179	17,373	17,456	17,431	398	2.3%

Source: **SEMCOG 2045 Regional Development Forecast**

Daytime Population

Daytime Population	ACS 2016
Jobs	12,576
Non-Working Residents	16,770
Age 15 and under	8,051
Not in labor force	7,657
Unemployed	1,062
Daytime Population	29,346



Source: **2012-2016 American Community Survey 5-Year Estimates** and **2012-2016 Census Transportation Planning Products Program (CTPP)**. For additional information, visit SEMCOG's **Interactive Commuting Patterns Map**

Note: The number of residents attending school outside Southeast Michigan is not available. Likewise, the number of students commuting into Southeast Michigan to attend school is also not known.

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Exhibit 20-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular controlled movement is a function three (capacity) factors: distribution of gaps in the major-street traffic stream, driver judgment in selecting gaps through which to execute the desired maneuvers, and the follow-up headways required by each driver in a queue.

The basic capacity model assumes gaps in the conflicting movements are randomly distributed. When traffic signals are present on the major street, upstream of the subject intersection, flows may not be random but will likely have some platoon structure. Although the procedures in this chapter provide a method for approximating the operations of a TWSC intersection with an upstream signal, the operations of such an intersection is arguably best handled by including it in a complete simulation

Exhibit 20-2. Level of Service Criteria for Stop-Controlled Intersections (Motor Vehciles)

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. A total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The LOS criteria for TWSC intersections differ somewhat from the criteria used in Chapter 19 for signalized intersections, primarily because user perceptions differ among transportation facility types. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will present greater delay than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection.

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 6th Edition. Transportation Research Board, National Research Council

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS can be characterized for the entire intersection, each intersection approach, and each lane group. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle. The criteria are given in Exhibit 19-8. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LOS A describes operations with a control delay of 10 s/veh or less. This level is typically assigned when the volume-to-capacity ratio is low and either progression is extremely favorable or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during a green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

Exhibit 19.8. Level-of-Service Criteria for Signalized Intersections (Motorized Vehicles)

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤10.0
B	> 10.0 and ≤20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	>80.0

1. If the v/c ratio for a lane group exceeds 1.0, a LOS F is assigned to the individual lane group. LOS for approach-based and intersection-wide assessments are determined solely by the control delay.

LOS C describes operations with control delay between 20 and 35 s/veh. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e. one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number if vehicle stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D describes operations with control delay between 35 and 55 s/veh. This level is typically assigned when when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E describes operations with control delay between 55 and 80 s/veh. This level is typically assigned when when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level, considered to be unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of the intersection. This level is typically assigned when the volume-to-capacity ratio is high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual, 6th Edition. Transportation Research Board, National Research Council

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↑↑
Traffic Vol, veh/h	129	0	0	0	0	2104
Future Vol, veh/h	129	0	0	0	0	2104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	95	95
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	140	0	0	0	0	2215

Major/Minor	Minor1		Major2	
Conflicting Flow All	1108	-	-	-
Stage 1	0	-	-	-
Stage 2	1108	-	-	-
Critical Hdwy	6.84	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-
Follow-up Hdwy	3.52	-	-	-
Pot Cap-1 Maneuver	204	0	0	-
Stage 1	-	0	0	-
Stage 2	278	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	204	-	-	-
Mov Cap-2 Maneuver	204	-	-	-
Stage 1	-	-	-	-
Stage 2	278	-	-	-

Approach	WB	SB
HCM Control Delay, s	54.3	0
HCM LOS	F	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	204	-
HCM Lane V/C Ratio	0.687	-
HCM Control Delay (s)	54.3	-
HCM Lane LOS	F	-
HCM 95th %tile Q(veh)	4.3	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑↑	↱
Traffic Vol, veh/h	0	127	0	0	2090	143
Future Vol, veh/h	0	127	0	0	2090	143
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	500
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	92	92	95	95
Heavy Vehicles, %	8	8	2	2	5	5
Mvmt Flow	0	134	0	0	2200	151

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	1100	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	7.06	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.38	-	-
Pot Cap-1 Maneuver	0	198	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	198	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	54.3	0
HCM LOS	F	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	198	-	-
HCM Lane V/C Ratio	0.675	-	-
HCM Control Delay (s)	54.3	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	4.1	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	102	8	0	0	0	28	0	1018	9	0	0	0
Future Vol, veh/h	102	8	0	0	0	28	0	1018	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	475	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1085	325	568 -
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	60	60	60	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	0	0	0	9	9	9	2	2	2
Mvmt Flow	134	11	0	0	0	47	0	1107	10	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	554	1117	-	-	-	554	-	0	0
Stage 1	0	0	-	-	-	-	-	-	-
Stage 2	554	1117	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	-	-	-	6.9	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	-	-	-	3.3	-	-	-
Pot Cap-1 Maneuver	404	198	0	0	0	481	0	-	-
Stage 1	-	-	0	0	0	-	0	-	-
Stage 2	472	271	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	365	198	-	-	-	481	-	-	-
Mov Cap-2 Maneuver	365	198	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	426	271	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	22.9	13.3	0
HCM LOS	C	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	344	481
HCM Lane V/C Ratio	-	-	0.421	0.097
HCM Control Delay (s)	-	-	22.9	13.3
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	2	0.3

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↑↑
Traffic Vol, veh/h	98	0	0	0	0	1365
Future Vol, veh/h	98	0	0	0	0	1365
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	92	92	86	86
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	140	0	0	0	0	1587

Major/Minor	Minor1		Major2	
Conflicting Flow All	794	-	-	-
Stage 1	0	-	-	-
Stage 2	794	-	-	-
Critical Hdwy	6.8	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-
Follow-up Hdwy	3.5	-	-	-
Pot Cap-1 Maneuver	329	0	0	-
Stage 1	-	0	0	-
Stage 2	411	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	329	-	-	-
Mov Cap-2 Maneuver	329	-	-	-
Stage 1	-	-	-	-
Stage 2	411	-	-	-

Approach	WB	SB
HCM Control Delay, s	23.8	0
HCM LOS	C	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	329	-
HCM Lane V/C Ratio	0.426	-
HCM Control Delay (s)	23.8	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	2	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑↑	↱
Traffic Vol, veh/h	0	166	0	0	1196	267
Future Vol, veh/h	0	166	0	0	1196	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	500
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	92	92	86	86
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	0	193	0	0	1391	310

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	696	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.92	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.31	-	-
Pot Cap-1 Maneuver	0	386	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	386	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	23.3	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	386	-	-
HCM Lane V/C Ratio	0.5	-	-
HCM Control Delay (s)	23.3	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	2.7	-	-

Intersection	
Int Delay, s/veh	39.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	112	29	0	0	0	14	0	2218	27	0	0	0
Future Vol, veh/h	112	29	0	0	0	14	0	2218	27	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	475	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1085325568		-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	70	70	70	95	95	95	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	137	35	0	0	0	20	0	2335	28	0	0	0

Major/Minor	Minor2		Minor1			Major1			
Conflicting Flow All	1168	2363	-	-	-	1168	-	0	0
Stage 1	0	0	-	-	-	-	-	-	-
Stage 2	1168	2363	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	-	-	-	6.9	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	-	-	-	3.3	-	-	-
Pot Cap-1 Maneuver	150	~ 35	0	0	0	189	0	-	-
Stage 1	-	-	0	0	0	-	0	-	-
Stage 2	207	68	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	~ 134	~ 35	-	-	-	189	-	-	-
Mov Cap-2 Maneuver	~ 134	~ 35	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	185	68	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	$ 580.1	26.3	0
HCM LOS	F	D	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	85	189
HCM Lane V/C Ratio	-	-	2.023	0.106
HCM Control Delay (s)	-	-	$ 580.1	26.3
HCM Lane LOS	-	-	F	D
HCM 95th %tile Q(veh)	-	-	15.1	0.3

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	66
Average Queue (ft)	46
95th Queue (ft)	60
Link Distance (ft)	12
Upstream Blk Time (%)	64
Queuing Penalty (veh)	82
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB	NB
Directions Served	L	T
Maximum Queue (ft)	196	61
Average Queue (ft)	60	2
95th Queue (ft)	154	44
Link Distance (ft)		1471
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	250	
Storage Blk Time (%)	1	
Queuing Penalty (veh)	4	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	203
Average Queue (ft)	82
95th Queue (ft)	188
Link Distance (ft)	2710
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB
Directions Served	LT	R
Maximum Queue (ft)	69	38
Average Queue (ft)	38	13
95th Queue (ft)	60	32
Link Distance (ft)	4	354
Upstream Blk Time (%)	13	
Queuing Penalty (veh)	15	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB
Directions Served	L
Maximum Queue (ft)	73
Average Queue (ft)	13
95th Queue (ft)	48
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 101

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	48
Average Queue (ft)	36
95th Queue (ft)	54
Link Distance (ft)	12
Upstream Blk Time (%)	25
Queuing Penalty (veh)	26
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB
Directions Served	L
Maximum Queue (ft)	66
Average Queue (ft)	11
95th Queue (ft)	43
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	108
Average Queue (ft)	46
95th Queue (ft)	87
Link Distance (ft)	2710
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB
Directions Served	LT	R	T
Maximum Queue (ft)	57	43	514
Average Queue (ft)	40	10	18
95th Queue (ft)	51	32	368
Link Distance (ft)	4	354	2497
Upstream Blk Time (%)	87		0
Queuing Penalty (veh)	123		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	389	355	346
Average Queue (ft)	194	64	53
95th Queue (ft)	372	274	249
Link Distance (ft)		529	529
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		
Storage Blk Time (%)	12	3	
Queuing Penalty (veh)	74	4	

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 227

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	127	0	0	2090	143
Future Volume (vph)	0	127	0	0	2090	143
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8			6.1	6.1
Lane Util. Factor		1.00			0.95	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1602			3619	1619
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1602			3619	1619
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	134	0	0	2200	151
RTOR Reduction (vph)	0	0	0	0	0	26
Lane Group Flow (vph)	0	134	0	0	2200	125
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%
Turn Type		Perm			NA	Perm
Protected Phases					6	
Permitted Phases		4				6
Actuated Green, G (s)		16.2			102.9	102.9
Effective Green, g (s)		16.2			102.9	102.9
Actuated g/C Ratio		0.12			0.79	0.79
Clearance Time (s)		4.8			6.1	6.1
Vehicle Extension (s)		3.0			3.0	3.0
Lane Grp Cap (vph)		199			2864	1281
v/s Ratio Prot					c0.61	
v/s Ratio Perm		c0.08				0.08
v/c Ratio		0.67			0.77	0.10
Uniform Delay, d1		54.4			7.2	3.1
Progression Factor		1.00			0.62	0.35
Incremental Delay, d2		8.7			1.5	0.1
Delay (s)		63.0			6.0	1.2
Level of Service		E			A	A
Approach Delay (s)	63.0			0.0	5.7	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	8	0	0	0	28	0	1018	9	0	0	0
Future Volume (vph)	102	8	0	0	0	28	0	1018	9	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8				4.8		6.1	6.1			
Lane Util. Factor		1.00				1.00		0.95	1.00			
Frt		1.00				0.86		1.00	0.85			
Flt Protected		0.96				1.00		1.00	1.00			
Satd. Flow (prot)		1787				1730		3486	1560			
Flt Permitted		0.96				1.00		1.00	1.00			
Satd. Flow (perm)		1787				1730		3486	1560			
Peak-hour factor, PHF	0.76	0.76	0.76	0.60	0.60	0.60	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	11	0	0	0	47	0	1107	10	0	0	0
RTOR Reduction (vph)	0	119	0	0	0	43	0	0	2	0	0	0
Lane Group Flow (vph)	0	26	0	0	0	4	0	1107	8	0	0	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	9%	9%	9%	2%	2%	2%
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases	4					8			2			
Actuated Green, G (s)		9.9				9.9		109.2	109.2			
Effective Green, g (s)		9.9				9.9		109.2	109.2			
Actuated g/C Ratio		0.08				0.08		0.84	0.84			
Clearance Time (s)		4.8				4.8		6.1	6.1			
Vehicle Extension (s)		5.0				5.0		3.0	3.0			
Lane Grp Cap (vph)		136				131		2928	1310			
v/s Ratio Prot								c0.32				
v/s Ratio Perm		0.01				0.00			0.01			
v/c Ratio		0.19				0.03		0.38	0.01			
Uniform Delay, d1		56.3				55.6		2.4	1.7			
Progression Factor		0.80				1.00		1.00	1.00			
Incremental Delay, d2		1.0				0.2		0.4	0.0			
Delay (s)		45.8				55.8		2.8	1.7			
Level of Service		D				E		A	A			
Approach Delay (s)		45.8			55.8			2.8			0.0	
Approach LOS		D			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	166	0	0	1196	267
Future Volume (vph)	0	166	0	0	1196	267
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8			6.1	6.1
Lane Util. Factor		1.00			0.95	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1713			3725	1667
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1713			3725	1667
Peak-hour factor, PHF	0.86	0.86	0.92	0.92	0.86	0.86
Adj. Flow (vph)	0	193	0	0	1391	310
RTOR Reduction (vph)	0	0	0	0	0	73
Lane Group Flow (vph)	0	193	0	0	1391	237
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type		Perm			NA	Perm
Protected Phases					6	
Permitted Phases		4				6
Actuated Green, G (s)		19.9			99.2	99.2
Effective Green, g (s)		19.9			99.2	99.2
Actuated g/C Ratio		0.15			0.76	0.76
Clearance Time (s)		4.8			6.1	6.1
Vehicle Extension (s)		3.0			3.0	3.0
Lane Grp Cap (vph)		262			2842	1272
v/s Ratio Prot					c0.37	
v/s Ratio Perm		c0.11				0.14
v/c Ratio		0.74			0.49	0.19
Uniform Delay, d1		52.5			5.8	4.3
Progression Factor		1.00			0.74	1.87
Incremental Delay, d2		10.3			0.6	0.3
Delay (s)		62.8			4.9	8.3
Level of Service		E			A	A
Approach Delay (s)	62.8			0.0	5.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	29	0	0	0	14	0	2218	27	0	0	0
Future Volume (vph)	112	29	0	0	0	14	0	2218	27	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8				4.8		6.1	6.1			
Lane Util. Factor		1.00				1.00		0.95	1.00			
Frt		1.00				0.86		1.00	0.85			
Flt Protected		0.96				1.00		1.00	1.00			
Satd. Flow (prot)		1904				1730		3762	1683			
Flt Permitted		0.96				1.00		1.00	1.00			
Satd. Flow (perm)		1904				1730		3762	1683			
Peak-hour factor, PHF	0.82	0.82	0.82	0.70	0.70	0.70	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	137	35	0	0	0	20	0	2335	28	0	0	0
RTOR Reduction (vph)	0	23	0	0	0	17	0	0	6	0	0	0
Lane Group Flow (vph)	0	149	0	0	0	3	0	2335	22	0	0	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases	4					8			2			
Actuated Green, G (s)		17.3				17.3		101.8	101.8			
Effective Green, g (s)		17.3				17.3		101.8	101.8			
Actuated g/C Ratio		0.13				0.13		0.78	0.78			
Clearance Time (s)		4.8				4.8		6.1	6.1			
Vehicle Extension (s)		5.0				5.0		3.0	3.0			
Lane Grp Cap (vph)		253				230		2945	1317			
v/s Ratio Prot								c0.62				
v/s Ratio Perm		0.08				0.00			0.01			
v/c Ratio		0.59				0.01		0.79	0.02			
Uniform Delay, d1		53.0				48.9		8.1	3.1			
Progression Factor		0.94				1.00		1.00	1.00			
Incremental Delay, d2		4.9				0.0		2.3	0.0			
Delay (s)		54.8				49.0		10.4	3.1			
Level of Service		D				D		B	A			
Approach Delay (s)		54.8			49.0			10.3			0.0	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	79
Average Queue (ft)	48
95th Queue (ft)	65
Link Distance (ft)	12
Upstream Blk Time (%)	70
Queuing Penalty (veh)	90
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB	NB
Directions Served	L	T
Maximum Queue (ft)	181	37
Average Queue (ft)	75	1
95th Queue (ft)	169	27
Link Distance (ft)		1471
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	250	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB	SB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	224	209	169	49
Average Queue (ft)	114	73	66	12
95th Queue (ft)	195	150	139	38
Link Distance (ft)	2693	279	279	279
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	66	35	111	131	15
Average Queue (ft)	33	13	18	21	1
95th Queue (ft)	55	31	69	77	8
Link Distance (ft)	4	354	2482	2482	
Upstream Blk Time (%)	23				
Queuing Penalty (veh)	26				
Storage Bay Dist (ft)					475
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB
Directions Served	L
Maximum Queue (ft)	178
Average Queue (ft)	34
95th Queue (ft)	117
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 116

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	48
Average Queue (ft)	37
95th Queue (ft)	54
Link Distance (ft)	12
Upstream Blk Time (%)	26
Queuing Penalty (veh)	28
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB
Directions Served	L
Maximum Queue (ft)	70
Average Queue (ft)	12
95th Queue (ft)	43
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB	SB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	235	121	113	66
Average Queue (ft)	125	44	37	23
95th Queue (ft)	209	95	92	54
Link Distance (ft)	2693	279	279	279
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	50	43	285	731	30
Average Queue (ft)	39	8	108	135	3
95th Queue (ft)	48	27	242	494	18
Link Distance (ft)	4	354	2482	2482	
Upstream Blk Time (%)	60			0	
Queuing Penalty (veh)	85			0	
Storage Bay Dist (ft)					475
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB	SB
Directions Served	L	T
Maximum Queue (ft)	169	19
Average Queue (ft)	81	1
95th Queue (ft)	158	10
Link Distance (ft)		529
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 113

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	131	0	0	0	0	2136
Future Vol, veh/h	131	0	0	0	0	2136
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	95	95
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	142	0	0	0	0	2248

Major/Minor	Minor1		Major2	
Conflicting Flow All	1124	-	-	-
Stage 1	0	-	-	-
Stage 2	1124	-	-	-
Critical Hdwy	6.84	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-
Follow-up Hdwy	3.52	-	-	-
Pot Cap-1 Maneuver	199	0	0	-
Stage 1	-	0	0	-
Stage 2	272	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	199	-	-	-
Mov Cap-2 Maneuver	199	-	-	-
Stage 1	-	-	-	-
Stage 2	272	-	-	-

Approach	WB	SB
HCM Control Delay, s	58.7	0
HCM LOS	F	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	199	-
HCM Lane V/C Ratio	0.716	-
HCM Control Delay (s)	58.7	-
HCM Lane LOS	F	-
HCM 95th %tile Q(veh)	4.6	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑↑	↱
Traffic Vol, veh/h	0	129	0	0	2122	145
Future Vol, veh/h	0	129	0	0	2122	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	92	92	95	95
Heavy Vehicles, %	8	8	2	2	5	5
Mvmt Flow	0	136	0	0	2234	153

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	1117	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	7.06	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.38	-	-
Pot Cap-1 Maneuver	0	192	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	192	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	59.4	0
HCM LOS	F	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	192	-	-
HCM Lane V/C Ratio	0.707	-	-
HCM Control Delay (s)	59.4	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	4.4	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	104	8	0	0	0	28	0	1033	9	0	0	0
Future Vol, veh/h	104	8	0	0	0	28	0	1033	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	475	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1085325568		-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	60	60	60	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	0	0	0	9	9	9	2	2	2
Mvmt Flow	137	11	0	0	0	47	0	1123	10	0	0	0

Major/Minor	Minor2		Minor1			Major1			
Conflicting Flow All	562	1133	-	-	-	562	-	0	0
Stage 1	0	0	-	-	-	-	-	-	-
Stage 2	562	1133	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	-	-	-	6.9	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	-	-	-	3.3	-	-	-
Pot Cap-1 Maneuver	399	194	0	0	0	475	0	-	-
Stage 1	-	-	0	0	0	-	0	-	-
Stage 2	467	266	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	360	194	-	-	-	475	-	-	-
Mov Cap-2 Maneuver	360	194	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	421	266	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	23.5	13.4	0
HCM LOS	C	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	339	475
HCM Lane V/C Ratio	-	-	0.435	0.098
HCM Control Delay (s)	-	-	23.5	13.4
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	2.1	0.3

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↑↑
Traffic Vol, veh/h	99	0	0	0	0	1386
Future Vol, veh/h	99	0	0	0	0	1386
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	92	92	86	86
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	141	0	0	0	0	1612

Major/Minor	Minor1		Major2	
Conflicting Flow All	806	-	-	-
Stage 1	0	-	-	-
Stage 2	806	-	-	-
Critical Hdwy	6.8	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-
Follow-up Hdwy	3.5	-	-	-
Pot Cap-1 Maneuver	324	0	0	-
Stage 1	-	0	0	-
Stage 2	405	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	324	-	-	-
Mov Cap-2 Maneuver	324	-	-	-
Stage 1	-	-	-	-
Stage 2	405	-	-	-

Approach	WB	SB
HCM Control Delay, s	24.4	0
HCM LOS	C	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	324	-
HCM Lane V/C Ratio	0.437	-
HCM Control Delay (s)	24.4	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	2.1	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑↑	↱
Traffic Vol, veh/h	0	169	0	0	1214	271
Future Vol, veh/h	0	169	0	0	1214	271
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	92	92	86	86
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	0	197	0	0	1412	315

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	706	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.92	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.31	-	-
Pot Cap-1 Maneuver	0	381	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	381	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	24.1	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	381	-	-
HCM Lane V/C Ratio	0.516	-	-
HCM Control Delay (s)	24.1	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	2.8	-	-

Intersection	
Int Delay, s/veh	41.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰				↱		↑↑	↱			
Traffic Vol, veh/h	114	29	0	0	0	14	0	2251	27	0	0	0
Future Vol, veh/h	114	29	0	0	0	14	0	2251	27	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	475	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1085325568		-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	70	70	70	95	95	95	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	139	35	0	0	0	20	0	2369	28	0	0	0

Major/Minor	Minor2		Minor1			Major1			
Conflicting Flow All	1185	2397	-	-	-	1185	-	0	0
Stage 1	0	0	-	-	-	-	-	-	-
Stage 2	1185	2397	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	-	-	-	6.9	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	-	-	-	3.3	-	-	-
Pot Cap-1 Maneuver	146	~ 34	0	0	0	185	0	-	-
Stage 1	-	-	0	0	0	-	0	-	-
Stage 2	202	65	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	~ 130	~ 34	-	-	-	185	-	-	-
Mov Cap-2 Maneuver	~ 130	~ 34	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	180	65	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	$ 616.1	26.8	0
HCM LOS	F	D	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	83	185
HCM Lane V/C Ratio	-	-	2.101	0.108
HCM Control Delay (s)	-	-	$ 616.1	26.8
HCM Lane LOS	-	-	F	D
HCM 95th %tile Q(veh)	-	-	15.6	0.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	79
Average Queue (ft)	47
95th Queue (ft)	63
Link Distance (ft)	12
Upstream Blk Time (%)	66
Queuing Penalty (veh)	87
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB	NB
Directions Served	L	T
Maximum Queue (ft)	224	44
Average Queue (ft)	69	2
95th Queue (ft)	170	32
Link Distance (ft)		1471
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	250	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	1	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB
Directions Served	R	T
Maximum Queue (ft)	188	4
Average Queue (ft)	84	0
95th Queue (ft)	163	3
Link Distance (ft)	2710	294
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB
Directions Served	LT	R
Maximum Queue (ft)	68	47
Average Queue (ft)	36	12
95th Queue (ft)	56	34
Link Distance (ft)	4	354
Upstream Blk Time (%)	15	
Queuing Penalty (veh)	17	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB
Directions Served	L
Maximum Queue (ft)	80
Average Queue (ft)	14
95th Queue (ft)	52
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 105

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	48
Average Queue (ft)	36
95th Queue (ft)	54
Link Distance (ft)	12
Upstream Blk Time (%)	23
Queuing Penalty (veh)	24
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB
Directions Served	L
Maximum Queue (ft)	43
Average Queue (ft)	9
95th Queue (ft)	32
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	596	104	100
Average Queue (ft)	196	36	32
95th Queue (ft)	848	173	159
Link Distance (ft)	2710	294	294
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		1	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB
Directions Served	LT	R	T
Maximum Queue (ft)	54	39	513
Average Queue (ft)	40	11	35
95th Queue (ft)	50	34	528
Link Distance (ft)	4	354	2497
Upstream Blk Time (%)	87		0
Queuing Penalty (veh)	125		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	377	350	325
Average Queue (ft)	248	154	79
95th Queue (ft)	526	527	351
Link Distance (ft)		529	529
Upstream Blk Time (%)		14	0
Queuing Penalty (veh)		98	1
Storage Bay Dist (ft)	300		
Storage Blk Time (%)	30	1	
Queuing Penalty (veh)	189	1	

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	10	12
Average Queue (ft)	1	1
95th Queue (ft)	10	9
Link Distance (ft)	614	614
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 439

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	129	0	0	2122	145
Future Volume (vph)	0	129	0	0	2122	145
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8			6.1	6.1
Lane Util. Factor		1.00			0.95	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1602			3619	1619
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1602			3619	1619
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	136	0	0	2234	153
RTOR Reduction (vph)	0	0	0	0	0	26
Lane Group Flow (vph)	0	136	0	0	2234	127
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%
Turn Type		Perm			NA	Perm
Protected Phases					6	
Permitted Phases		4				6
Actuated Green, G (s)		16.4			102.7	102.7
Effective Green, g (s)		16.4			102.7	102.7
Actuated g/C Ratio		0.13			0.79	0.79
Clearance Time (s)		4.8			6.1	6.1
Vehicle Extension (s)		3.0			3.0	3.0
Lane Grp Cap (vph)		202			2859	1279
v/s Ratio Prot					c0.62	
v/s Ratio Perm		c0.08				0.08
v/c Ratio		0.67			0.78	0.10
Uniform Delay, d1		54.2			7.5	3.1
Progression Factor		1.00			0.63	0.35
Incremental Delay, d2		8.5			1.6	0.1
Delay (s)		62.8			6.3	1.2
Level of Service		E			A	A
Approach Delay (s)	62.8			0.0	6.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	8	0	0	0	28	0	1033	9	0	0	0
Future Volume (vph)	104	8	0	0	0	28	0	1033	9	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8				4.8		6.1	6.1			
Lane Util. Factor		1.00				1.00		0.95	1.00			
Frt		1.00				0.86		1.00	0.85			
Flt Protected		0.96				1.00		1.00	1.00			
Satd. Flow (prot)		1786				1730		3486	1560			
Flt Permitted		0.96				1.00		1.00	1.00			
Satd. Flow (perm)		1786				1730		3486	1560			
Peak-hour factor, PHF	0.76	0.76	0.76	0.60	0.60	0.60	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	11	0	0	0	47	0	1123	10	0	0	0
RTOR Reduction (vph)	0	115	0	0	0	43	0	0	2	0	0	0
Lane Group Flow (vph)	0	33	0	0	0	4	0	1123	8	0	0	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	9%	9%	9%	2%	2%	2%
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases	4					8			2			
Actuated Green, G (s)		10.3				10.3		108.8	108.8			
Effective Green, g (s)		10.3				10.3		108.8	108.8			
Actuated g/C Ratio		0.08				0.08		0.84	0.84			
Clearance Time (s)		4.8				4.8		6.1	6.1			
Vehicle Extension (s)		5.0				5.0		3.0	3.0			
Lane Grp Cap (vph)		141				137		2917	1305			
v/s Ratio Prot								c0.32				
v/s Ratio Perm		0.02				0.00			0.01			
v/c Ratio		0.23				0.03		0.38	0.01			
Uniform Delay, d1		56.1				55.2		2.6	1.7			
Progression Factor		0.80				1.00		1.00	1.00			
Incremental Delay, d2		1.2				0.2		0.4	0.0			
Delay (s)		46.1				55.4		2.9	1.7			
Level of Service		D				E		A	A			
Approach Delay (s)		46.1			55.4			2.9			0.0	
Approach LOS		D			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	169	0	0	1214	271
Future Volume (vph)	0	169	0	0	1214	271
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8			6.1	6.1
Lane Util. Factor		1.00			0.95	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1713			3725	1667
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1713			3725	1667
Peak-hour factor, PHF	0.86	0.86	0.92	0.92	0.86	0.86
Adj. Flow (vph)	0	197	0	0	1412	315
RTOR Reduction (vph)	0	0	0	0	0	75
Lane Group Flow (vph)	0	197	0	0	1412	240
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type		Perm			NA	Perm
Protected Phases					6	
Permitted Phases		4				6
Actuated Green, G (s)		20.2			98.9	98.9
Effective Green, g (s)		20.2			98.9	98.9
Actuated g/C Ratio		0.16			0.76	0.76
Clearance Time (s)		4.8			6.1	6.1
Vehicle Extension (s)		3.0			3.0	3.0
Lane Grp Cap (vph)		266			2833	1268
v/s Ratio Prot					c0.38	
v/s Ratio Perm		c0.12				0.14
v/c Ratio		0.74			0.50	0.19
Uniform Delay, d1		52.4			6.0	4.3
Progression Factor		1.00			0.75	1.89
Incremental Delay, d2		10.6			0.6	0.3
Delay (s)		63.0			5.1	8.5
Level of Service		E			A	A
Approach Delay (s)	63.0			0.0	5.7	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	29	0	0	0	14	0	2251	27	0	0	0
Future Volume (vph)	114	29	0	0	0	14	0	2251	27	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8				4.8		6.1	6.1			
Lane Util. Factor		1.00				1.00		0.95	1.00			
Frt		1.00				0.86		1.00	0.85			
Flt Protected		0.96				1.00		1.00	1.00			
Satd. Flow (prot)		1904				1730		3762	1683			
Flt Permitted		0.96				1.00		1.00	1.00			
Satd. Flow (perm)		1904				1730		3762	1683			
Peak-hour factor, PHF	0.82	0.82	0.82	0.70	0.70	0.70	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	139	35	0	0	0	20	0	2369	28	0	0	0
RTOR Reduction (vph)	0	23	0	0	0	17	0	0	6	0	0	0
Lane Group Flow (vph)	0	151	0	0	0	3	0	2369	22	0	0	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases	4					8			2			
Actuated Green, G (s)		17.4				17.4		101.7	101.7			
Effective Green, g (s)		17.4				17.4		101.7	101.7			
Actuated g/C Ratio		0.13				0.13		0.78	0.78			
Clearance Time (s)		4.8				4.8		6.1	6.1			
Vehicle Extension (s)		5.0				5.0		3.0	3.0			
Lane Grp Cap (vph)		254				231		2943	1316			
v/s Ratio Prot								c0.63				
v/s Ratio Perm		0.08				0.00			0.01			
v/c Ratio		0.60				0.01		0.80	0.02			
Uniform Delay, d1		53.0				48.8		8.3	3.1			
Progression Factor		0.93				1.00		1.00	1.00			
Incremental Delay, d2		4.9				0.0		2.5	0.0			
Delay (s)		54.5				48.9		10.8	3.1			
Level of Service		D				D		B	A			
Approach Delay (s)		54.5			48.9			10.7			0.0	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB	SB
Directions Served	L	T
Maximum Queue (ft)	75	141
Average Queue (ft)	47	5
95th Queue (ft)	65	101
Link Distance (ft)	12	1466
Upstream Blk Time (%)	68	
Queuing Penalty (veh)	89	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB	NB
Directions Served	L	T
Maximum Queue (ft)	147	11
Average Queue (ft)	56	0
95th Queue (ft)	127	8
Link Distance (ft)		1471
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	250	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB	SB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	216	165	161	51
Average Queue (ft)	106	69	64	13
95th Queue (ft)	185	135	134	39
Link Distance (ft)	2693	279	279	279
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	68	39	96	132	5
Average Queue (ft)	34	12	11	19	0
95th Queue (ft)	57	32	52	79	4
Link Distance (ft)	4	354	2482	2482	
Upstream Blk Time (%)	21				
Queuing Penalty (veh)	24				
Storage Bay Dist (ft)					475
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB
Directions Served	L
Maximum Queue (ft)	182
Average Queue (ft)	32
95th Queue (ft)	109
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 113

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	48
Average Queue (ft)	36
95th Queue (ft)	55
Link Distance (ft)	12
Upstream Blk Time (%)	25
Queuing Penalty (veh)	27
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB
Directions Served	L
Maximum Queue (ft)	59
Average Queue (ft)	10
95th Queue (ft)	38
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB	SB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	237	120	116	60
Average Queue (ft)	126	43	38	21
95th Queue (ft)	215	93	90	51
Link Distance (ft)	2693	279	279	279
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	48	39	253	259	20
Average Queue (ft)	39	8	100	113	2
95th Queue (ft)	47	29	206	222	13
Link Distance (ft)	4	354	2482	2482	
Upstream Blk Time (%)	57				
Queuing Penalty (veh)	83				
Storage Bay Dist (ft)					475
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB	SB
Directions Served	L	T
Maximum Queue (ft)	164	31
Average Queue (ft)	75	1
95th Queue (ft)	146	23
Link Distance (ft)		529
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 109

Intersection	
Int Delay, s/veh	7.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	169	0	0	0	0	2177
Future Vol, veh/h	169	0	0	0	0	2177
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	95	95
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	184	0	0	0	0	2292

Major/Minor	Minor1		Major2	
Conflicting Flow All	1146	-	-	-
Stage 1	0	-	-	-
Stage 2	1146	-	-	-
Critical Hdwy	6.84	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-
Follow-up Hdwy	3.52	-	-	-
Pot Cap-1 Maneuver	193	0	0	-
Stage 1	-	0	0	-
Stage 2	265	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	193	-	-	-
Mov Cap-2 Maneuver	193	-	-	-
Stage 1	-	-	-	-
Stage 2	265	-	-	-

Approach	WB	SB
HCM Control Delay, s	102.8	0
HCM LOS	F	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	193	-
HCM Lane V/C Ratio	0.952	-
HCM Control Delay (s)	102.8	-
HCM Lane LOS	F	-
HCM 95th %tile Q(veh)	7.7	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑↑	↱
Traffic Vol, veh/h	0	131	0	0	2207	148
Future Vol, veh/h	0	131	0	0	2207	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	92	92	95	95
Heavy Vehicles, %	8	8	2	2	5	5
Mvmt Flow	0	138	0	0	2323	156

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	1162	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	7.06	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.38	-	-
Pot Cap-1 Maneuver	0	179	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	179	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	71.6	0
HCM LOS	F	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	179	-	-
HCM Lane V/C Ratio	0.77	-	-
HCM Control Delay (s)	71.6	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	5.1	-	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	159	8	0	0	0	28	0	1057	9	0	0	0
Future Vol, veh/h	159	8	0	0	0	28	0	1057	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	475	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1085	325	568 -
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	60	60	60	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	0	0	0	9	9	9	2	2	2
Mvmt Flow	209	11	0	0	0	47	0	1149	10	0	0	0

Major/Minor	Minor2		Minor1			Major1			
Conflicting Flow All	575	1159	-	-	-	575	-	0	0
Stage 1	0	0	-	-	-	-	-	-	-
Stage 2	575	1159	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	-	-	-	6.9	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	-	-	-	3.3	-	-	-
Pot Cap-1 Maneuver	391	187	0	0	0	466	0	-	-
Stage 1	-	-	0	0	0	-	0	-	-
Stage 2	458	258	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	352	187	-	-	-	466	-	-	-
Mov Cap-2 Maneuver	352	187	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	412	258	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	33.4	13.6	0
HCM LOS	D	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	338	466
HCM Lane V/C Ratio	-	-	0.65	0.1
HCM Control Delay (s)	-	-	33.4	13.6
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	4.3	0.3

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑↑↑	
Traffic Vol, veh/h	0	113	0	0	2242	104
Future Vol, veh/h	0	113	0	0	2242	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	95	95
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	0	123	0	0	2360	109

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	1235	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	7.14	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.92	-	-
Pot Cap-1 Maneuver	0	144	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	144	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	100.3	0
HCM LOS	F	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	144	-	-
HCM Lane V/C Ratio	0.853	-	-
HCM Control Delay (s)	100.3	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	5.6	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↑↑
Traffic Vol, veh/h	148	0	0	0	0	1407
Future Vol, veh/h	148	0	0	0	0	1407
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	92	92	86	86
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	211	0	0	0	0	1636

Major/Minor	Minor1		Major2	
Conflicting Flow All	818	-	-	-
Stage 1	0	-	-	-
Stage 2	818	-	-	-
Critical Hdwy	6.8	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-
Follow-up Hdwy	3.5	-	-	-
Pot Cap-1 Maneuver	318	0	0	-
Stage 1	-	0	0	-
Stage 2	399	0	0	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	318	-	-	-
Mov Cap-2 Maneuver	318	-	-	-
Stage 1	-	-	-	-
Stage 2	399	-	-	-

Approach	WB	SB
HCM Control Delay, s	36.2	0
HCM LOS	E	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	318	-
HCM Lane V/C Ratio	0.665	-
HCM Control Delay (s)	36.2	-
HCM Lane LOS	E	-
HCM 95th %tile Q(veh)	4.5	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑↑	↱
Traffic Vol, veh/h	0	172	0	0	1264	272
Future Vol, veh/h	0	172	0	0	1264	272
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	92	92	86	86
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	0	200	0	0	1470	316

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	735	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.92	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.31	-	-
Pot Cap-1 Maneuver	0	364	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	364	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	26.3	0
HCM LOS	D	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	364	-	-
HCM Lane V/C Ratio	0.549	-	-
HCM Control Delay (s)	26.3	-	-
HCM Lane LOS	D	-	-
HCM 95th %tile Q(veh)	3.2	-	-

Intersection	
Int Delay, s/veh	61.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰				↱		↑↑	↱			
Traffic Vol, veh/h	142	29	0	0	0	14	0	2286	27	0	0	0
Future Vol, veh/h	142	29	0	0	0	14	0	2286	27	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	475	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1085325568		-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	70	70	70	95	95	95	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	2	2	2
Mvmt Flow	173	35	0	0	0	20	0	2406	28	0	0	0

Major/Minor	Minor2		Minor1			Major1			
Conflicting Flow All	1203	2434	-	-	-	1203	-	0	0
Stage 1	0	0	-	-	-	-	-	-	-
Stage 2	1203	2434	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	-	-	-	6.9	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	-	-	-	3.3	-	-	-
Pot Cap-1 Maneuver	~ 141	~ 32	0	0	0	180	0	-	-
Stage 1	-	-	0	0	0	-	0	-	-
Stage 2	197	62	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	~ 125	~ 32	-	-	-	180	-	-	-
Mov Cap-2 Maneuver	~ 125	~ 32	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	175	62	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	$ 780.4	27.5	0
HCM LOS	F	D	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	84	180
HCM Lane V/C Ratio	-	-	2.483	0.111
HCM Control Delay (s)	-	-	$ 780.4	27.5
HCM Lane LOS	-	-	F	D
HCM 95th %tile Q(veh)	-	-	19.6	0.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑↑↑	
Traffic Vol, veh/h	0	58	0	0	1478	77
Future Vol, veh/h	0	58	0	0	1478	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	175
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	63	0	0	1719	90

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	905	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	7.14	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.92	-	-
Pot Cap-1 Maneuver	0	240	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	240	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	25.3	0
HCM LOS	D	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	240	-	-
HCM Lane V/C Ratio	0.263	-	-
HCM Control Delay (s)	25.3	-	-
HCM Lane LOS	D	-	-
HCM 95th %tile Q(veh)	1	-	-

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	78
Average Queue (ft)	50
95th Queue (ft)	64
Link Distance (ft)	12
Upstream Blk Time (%)	82
Queuing Penalty (veh)	139
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB	NB
Directions Served	L	T
Maximum Queue (ft)	287	169
Average Queue (ft)	137	10
95th Queue (ft)	277	85
Link Distance (ft)		1471
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	250	
Storage Blk Time (%)	5	0
Queuing Penalty (veh)	29	0

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	377
Average Queue (ft)	133
95th Queue (ft)	375
Link Distance (ft)	2710
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB
Directions Served	LT	R
Maximum Queue (ft)	73	51
Average Queue (ft)	39	15
95th Queue (ft)	58	37
Link Distance (ft)	4	354
Upstream Blk Time (%)	20	
Queuing Penalty (veh)	34	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB
Directions Served	L
Maximum Queue (ft)	111
Average Queue (ft)	24
95th Queue (ft)	71
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement	EB
Directions Served	R
Maximum Queue (ft)	128
Average Queue (ft)	50
95th Queue (ft)	97
Link Distance (ft)	249
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 202

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	48
Average Queue (ft)	42
95th Queue (ft)	57
Link Distance (ft)	12
Upstream Blk Time (%)	45
Queuing Penalty (veh)	71
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB	NB
Directions Served	L	T
Maximum Queue (ft)	160	46
Average Queue (ft)	37	4
95th Queue (ft)	118	52
Link Distance (ft)		1471
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	250	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	1694	292	307
Average Queue (ft)	627	136	77
95th Queue (ft)	1952	359	273
Link Distance (ft)	2710	294	294
Upstream Blk Time (%)		23	0
Queuing Penalty (veh)		116	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB
Directions Served	LT	R	T
Maximum Queue (ft)	62	39	4
Average Queue (ft)	41	9	0
95th Queue (ft)	53	28	3
Link Distance (ft)	4	354	2497
Upstream Blk Time (%)	93		
Queuing Penalty (veh)	159		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	500	576	542
Average Queue (ft)	400	390	135
95th Queue (ft)	648	775	482
Link Distance (ft)		529	529
Upstream Blk Time (%)		44	0
Queuing Penalty (veh)		314	2
Storage Bay Dist (ft)	300		
Storage Blk Time (%)	74	3	
Queuing Penalty (veh)	471	5	

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement	EB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	178	248	238
Average Queue (ft)	72	74	66
95th Queue (ft)	200	278	257
Link Distance (ft)	249	614	614
Upstream Blk Time (%)	8		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			1
Queuing Penalty (veh)			3

Zone Summary

Zone wide Queuing Penalty: 1144

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	131	0	0	2207	148
Future Volume (vph)	0	131	0	0	2207	148
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8			6.1	6.1
Lane Util. Factor		1.00			0.95	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1602			3619	1619
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1602			3619	1619
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	138	0	0	2323	156
RTOR Reduction (vph)	0	0	0	0	0	26
Lane Group Flow (vph)	0	138	0	0	2323	130
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%
Turn Type		Perm			NA	Perm
Protected Phases					6	
Permitted Phases		4				6
Actuated Green, G (s)		16.5			102.6	102.6
Effective Green, g (s)		16.5			102.6	102.6
Actuated g/C Ratio		0.13			0.79	0.79
Clearance Time (s)		4.8			6.1	6.1
Vehicle Extension (s)		3.0			3.0	3.0
Lane Grp Cap (vph)		203			2856	1277
v/s Ratio Prot					c0.64	
v/s Ratio Perm		c0.09				0.08
v/c Ratio		0.68			0.81	0.10
Uniform Delay, d1		54.2			8.1	3.1
Progression Factor		1.00			0.67	0.32
Incremental Delay, d2		8.7			2.0	0.1
Delay (s)		63.0			7.4	1.1
Level of Service		E			A	A
Approach Delay (s)	63.0			0.0	7.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	8	0	0	0	28	0	1057	9	0	0	0
Future Volume (vph)	159	8	0	0	0	28	0	1057	9	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8				4.8		6.1	6.1			
Lane Util. Factor		1.00				1.00		0.95	1.00			
Frt		1.00				0.86		1.00	0.85			
Flt Protected		0.95				1.00		1.00	1.00			
Satd. Flow (prot)		1784				1730		3486	1560			
Flt Permitted		0.95				1.00		1.00	1.00			
Satd. Flow (perm)		1784				1730		3486	1560			
Peak-hour factor, PHF	0.76	0.76	0.76	0.60	0.60	0.60	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	209	11	0	0	0	47	0	1149	10	0	0	0
RTOR Reduction (vph)	0	104	0	0	0	42	0	0	2	0	0	0
Lane Group Flow (vph)	0	116	0	0	0	5	0	1149	8	0	0	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	9%	9%	9%	2%	2%	2%
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases	4					8			2			
Actuated Green, G (s)		15.2				15.2		103.9	103.9			
Effective Green, g (s)		15.2				15.2		103.9	103.9			
Actuated g/C Ratio		0.12				0.12		0.80	0.80			
Clearance Time (s)		4.8				4.8		6.1	6.1			
Vehicle Extension (s)		5.0				5.0		3.0	3.0			
Lane Grp Cap (vph)		208				202		2786	1246			
v/s Ratio Prot								c0.33				
v/s Ratio Perm		0.06				0.00			0.01			
v/c Ratio		0.56				0.03		0.41	0.01			
Uniform Delay, d1		54.2				50.9		3.9	2.6			
Progression Factor		0.78				1.00		1.00	1.00			
Incremental Delay, d2		3.5				0.1		0.5	0.0			
Delay (s)		45.7				51.0		4.4	2.6			
Level of Service		D				D		A	A			
Approach Delay (s)		45.7			51.0			4.3			0.0	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	172	0	0	1264	272
Future Volume (vph)	0	172	0	0	1264	272
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8			6.1	6.1
Lane Util. Factor		1.00			0.95	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1713			3725	1667
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1713			3725	1667
Peak-hour factor, PHF	0.86	0.86	0.92	0.92	0.86	0.86
Adj. Flow (vph)	0	200	0	0	1470	316
RTOR Reduction (vph)	0	0	0	0	0	76
Lane Group Flow (vph)	0	200	0	0	1470	240
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type		Perm			NA	Perm
Protected Phases					6	
Permitted Phases		4				6
Actuated Green, G (s)		20.4			98.7	98.7
Effective Green, g (s)		20.4			98.7	98.7
Actuated g/C Ratio		0.16			0.76	0.76
Clearance Time (s)		4.8			6.1	6.1
Vehicle Extension (s)		3.0			3.0	3.0
Lane Grp Cap (vph)		268			2828	1265
v/s Ratio Prot					c0.39	
v/s Ratio Perm		c0.12				0.14
v/c Ratio		0.75			0.52	0.19
Uniform Delay, d1		52.3			6.2	4.4
Progression Factor		1.00			0.77	1.76
Incremental Delay, d2		10.8			0.7	0.3
Delay (s)		63.1			5.5	8.0
Level of Service		E			A	A
Approach Delay (s)	63.1			0.0	5.9	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	29	0	0	0	14	0	2286	27	0	0	0
Future Volume (vph)	142	29	0	0	0	14	0	2286	27	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		4.8				4.8		6.1	6.1			
Lane Util. Factor		1.00				1.00		0.95	1.00			
Frt		1.00				0.86		1.00	0.85			
Flt Protected		0.96				1.00		1.00	1.00			
Satd. Flow (prot)		1901				1730		3762	1683			
Flt Permitted		0.96				1.00		1.00	1.00			
Satd. Flow (perm)		1901				1730		3762	1683			
Peak-hour factor, PHF	0.82	0.82	0.82	0.70	0.70	0.70	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	173	35	0	0	0	20	0	2406	28	0	0	0
RTOR Reduction (vph)	0	22	0	0	0	17	0	0	7	0	0	0
Lane Group Flow (vph)	0	186	0	0	0	3	0	2406	21	0	0	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases	4					8			2			
Actuated Green, G (s)		19.7				19.7		99.4	99.4			
Effective Green, g (s)		19.7				19.7		99.4	99.4			
Actuated g/C Ratio		0.15				0.15		0.76	0.76			
Clearance Time (s)		4.8				4.8		6.1	6.1			
Vehicle Extension (s)		5.0				5.0		3.0	3.0			
Lane Grp Cap (vph)		288				262		2876	1286			
v/s Ratio Prot								c0.64				
v/s Ratio Perm		0.10				0.00			0.01			
v/c Ratio		0.65				0.01		0.84	0.02			
Uniform Delay, d1		51.9				46.9		10.0	3.6			
Progression Factor		0.93				1.00		1.00	1.00			
Incremental Delay, d2		5.8				0.0		3.1	0.0			
Delay (s)		54.3				46.9		13.1	3.7			
Level of Service		D				D		B	A			
Approach Delay (s)		54.3			46.9			13.0			0.0	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	83
Average Queue (ft)	51
95th Queue (ft)	67
Link Distance (ft)	12
Upstream Blk Time (%)	83
Queuing Penalty (veh)	141
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	326	302	134
Average Queue (ft)	170	51	15
95th Queue (ft)	375	272	147
Link Distance (ft)		1471	1471
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250		
Storage Blk Time (%)	21		
Queuing Penalty (veh)	114		

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB	SB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	216	192	198	48
Average Queue (ft)	109	101	96	16
95th Queue (ft)	193	172	174	43
Link Distance (ft)	2693	279	279	279
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	73	43	123	153	18
Average Queue (ft)	39	14	18	23	1
95th Queue (ft)	61	36	78	93	7
Link Distance (ft)	4	354	2482	2482	
Upstream Blk Time (%)	23				
Queuing Penalty (veh)	40				
Storage Bay Dist (ft)					475
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB	SB
Directions Served	L	T
Maximum Queue (ft)	186	47
Average Queue (ft)	40	2
95th Queue (ft)	119	30
Link Distance (ft)		529
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement	EB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	240	12	6
Average Queue (ft)	109	0	0
95th Queue (ft)	223	8	4
Link Distance (ft)	249	614	614
Upstream Blk Time (%)	3		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 295

Intersection: 10: SB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	WB
Directions Served	L
Maximum Queue (ft)	48
Average Queue (ft)	41
95th Queue (ft)	56
Link Distance (ft)	12
Upstream Blk Time (%)	36
Queuing Penalty (veh)	58
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: NB Lapeer Road (M-24) & NB-to-SB X/O, N. of Waldon

Movement	NB
Directions Served	L
Maximum Queue (ft)	118
Average Queue (ft)	24
95th Queue (ft)	76
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: SB Lapeer Road (M-24) & Waldon Road

Movement	EB	SB	SB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	242	149	138	75
Average Queue (ft)	130	52	49	23
95th Queue (ft)	210	112	110	54
Link Distance (ft)	2693	279	279	279
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: NB Lapeer Road (M-24) & SB-to-NB X/O/Eagle Ridge Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	53	47	315	362	28
Average Queue (ft)	40	9	128	147	3
95th Queue (ft)	48	32	271	293	17
Link Distance (ft)	4	354	2482	2482	
Upstream Blk Time (%)	61				
Queuing Penalty (veh)	105				
Storage Bay Dist (ft)					475
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 31: SB Lapeer Road (M-24) & SB-to-NB X/O

Movement	SB	SB
Directions Served	L	T
Maximum Queue (ft)	233	18
Average Queue (ft)	101	1
95th Queue (ft)	195	11
Link Distance (ft)		529
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	300	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

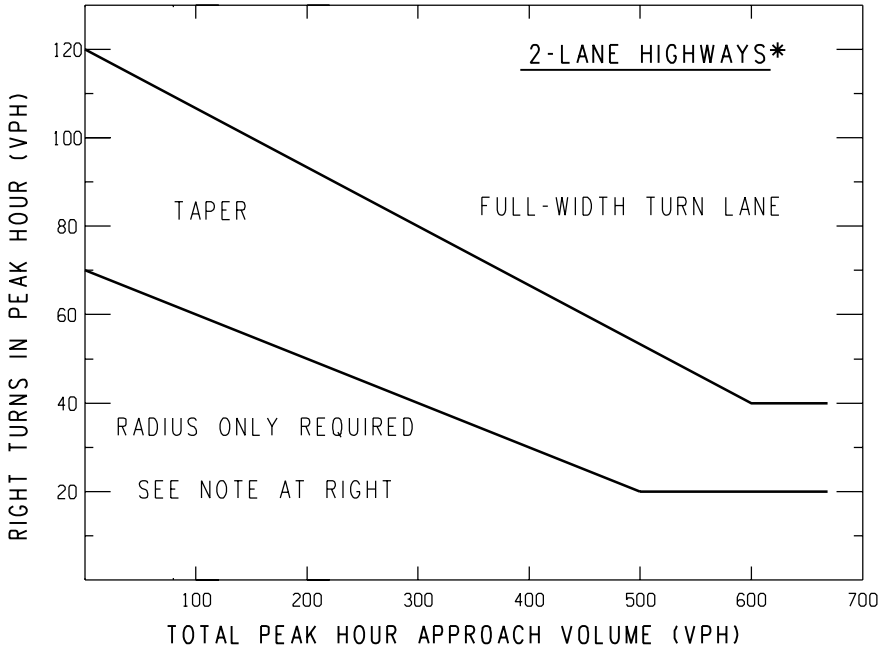
Intersection: 40: SB Lapeer Road (M-24) & Site Drive

Movement	EB
Directions Served	R
Maximum Queue (ft)	69
Average Queue (ft)	30
95th Queue (ft)	59
Link Distance (ft)	249
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

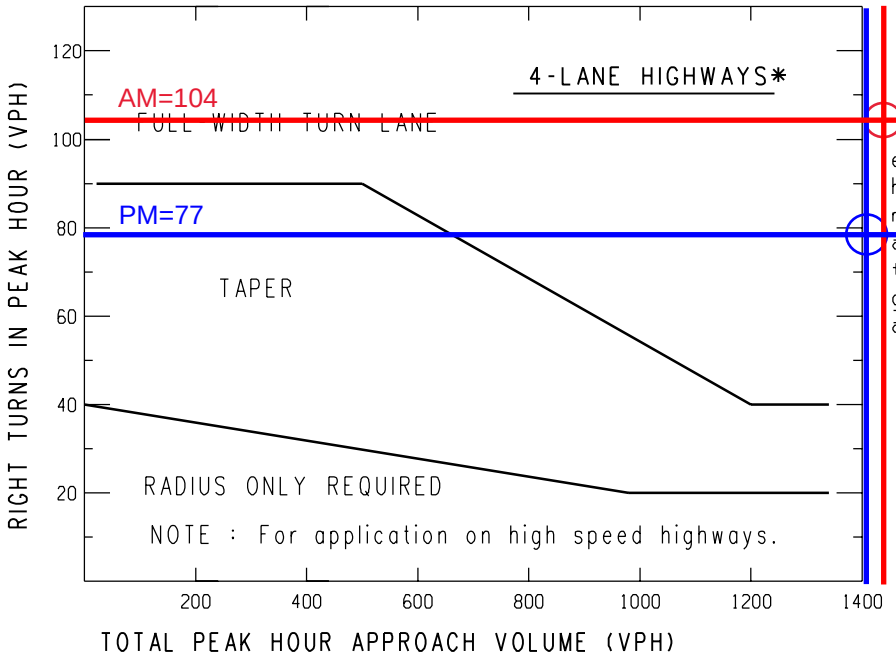
Zone wide Queuing Penalty: 163

SB Lapeer Road (M-24) & Site Drive



NOTE:
For posted speeds at or under 45 mph, peak hour right turns greater than 40 vph, and total peak hour approach less than 300 vph, adjust right turn volumes.

Adjust peak hour right turns = Peak hour right turns - 20



If a center left-turn lane exists(i.e. 3 or 5 lane highway), subtract the number of left turns in approach volume from the total approach volume to get an adjusted total approach volume.

RT LANE Recommended

AM=2,346
PM=1,555

Sample Problem:
The Design Speed is 55 mph. The Peak Hour Approach Volume is 300 vph. The Number of Right Turns in the Peak Hour is 100 vph. Determine if a right turn lane is recommended.

Solution:
Figure indicates that the intersection of 300 vph and 100 vph is located above the upper trend line; thus,a right-turn lane may be recommended.

MDOT Michigan Department of Transportation TRAFFIC AND SAFETY NOTE	TRAFFIC VOLUME GUIDELINES FOR RIGHT-TURN LANES AND TAPERS		
DRAWN BY: MTS	08/05/2004	604A	SHEET 2 OF 2
CHECKED BY: JAT	PLAN DATE:		
FILE: K:/DGN/ts notes/Note604A tsn.dgn		REV. 08/05/2004	

Summary of Warrants

Spot Number:	Existing Conditions		
Major Street:	SB Lapeer Road (M-24)	Minor Street:	NB-to-SB X/O
Intersection:	SB Lapeer Road (M-24) at NB-to-SB X/O		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	NO
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	1967	104	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	2027	119	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1226	63	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1331	63	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1403	74	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	1465	108	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	1370	116	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	1365	98	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**3**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**NO**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

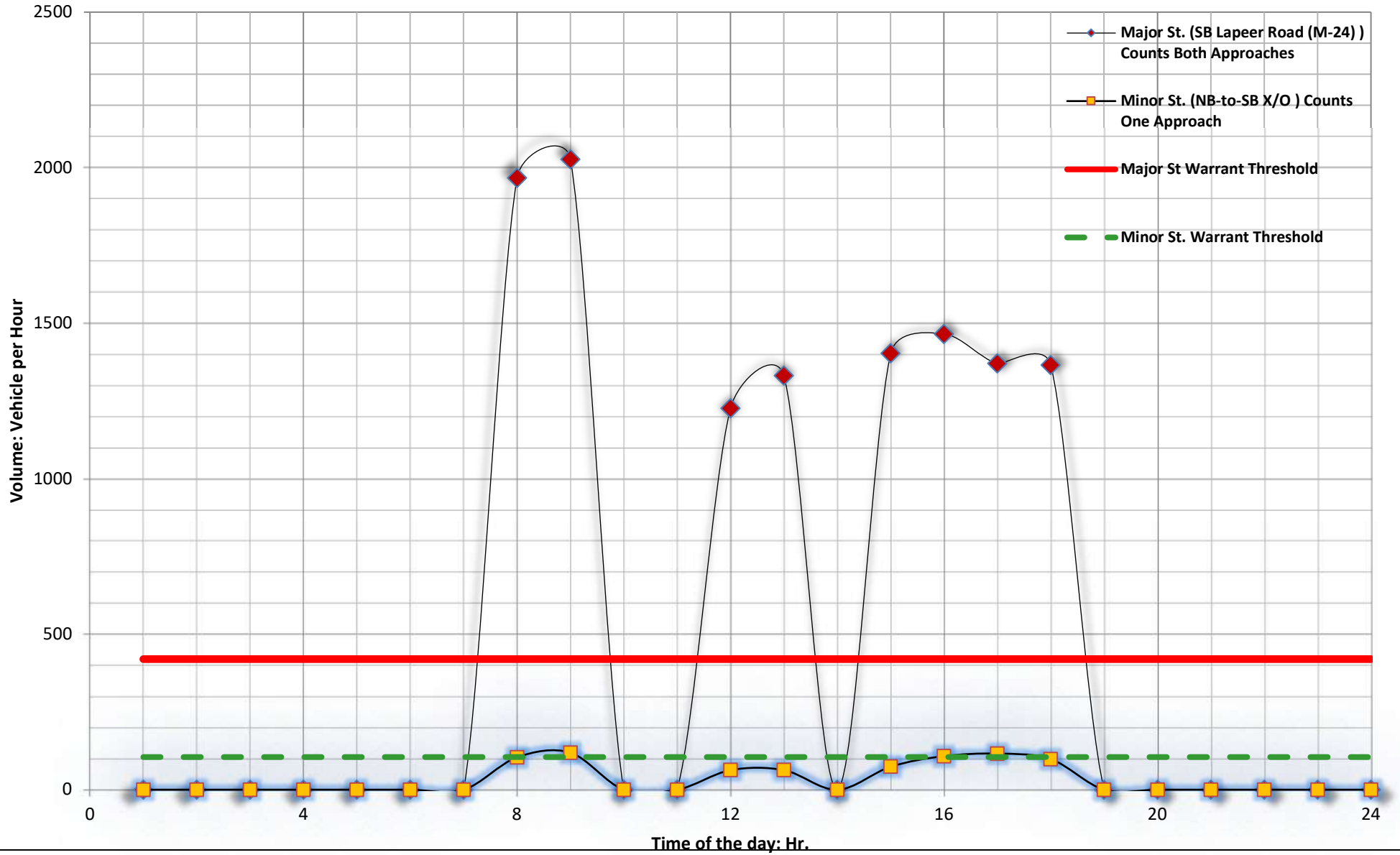


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Existing Conditions**

SB Lapeer Road (M-24) @ NB-to-SB X/O

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **3**

Does this intersection meet Warrant 1A for signal installation? **NO**

Data Collection Date: **10/13/2022**

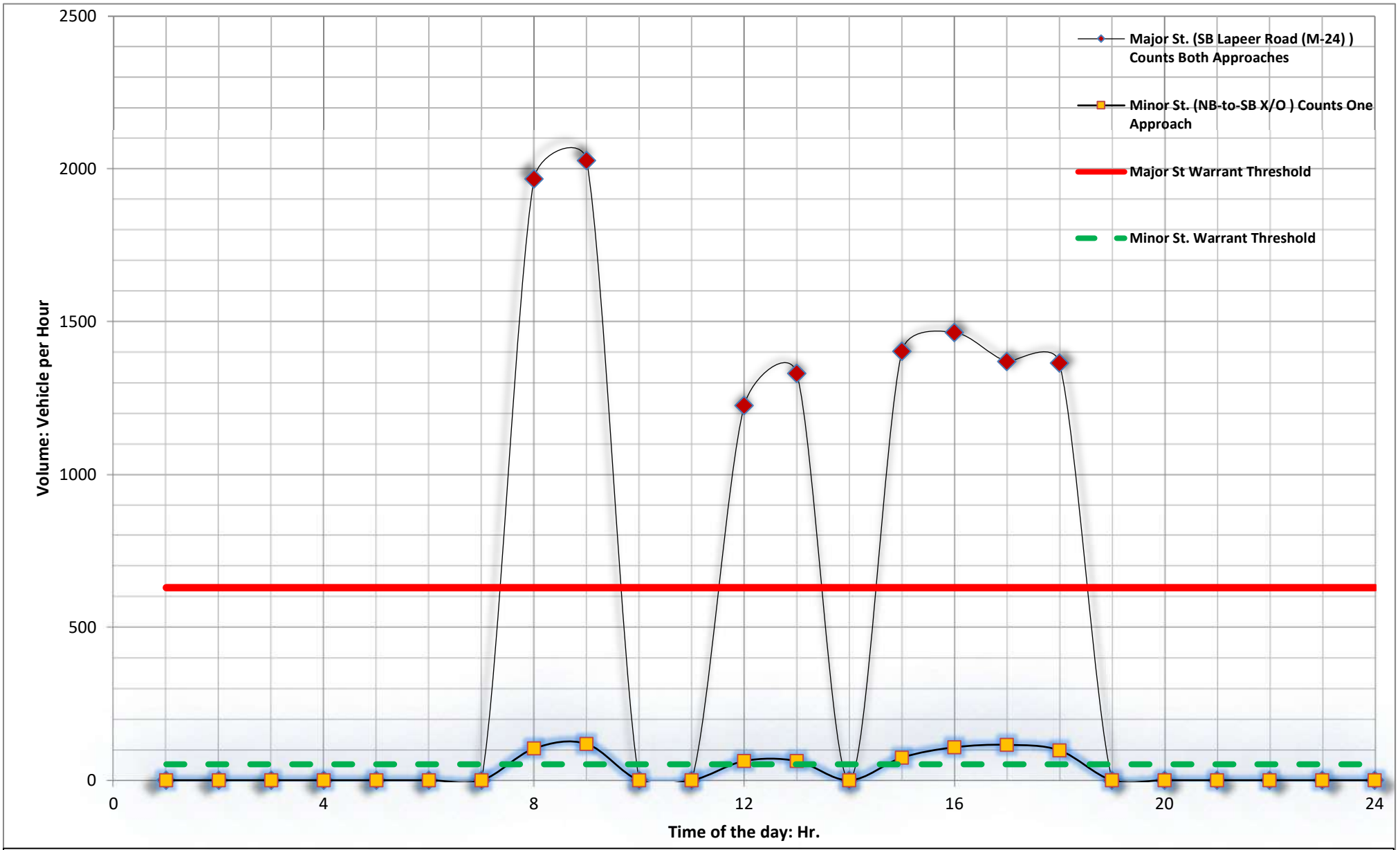


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Existing Conditions**

SB Lapeer Road (M-24) @ NB-to-SB X/O

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

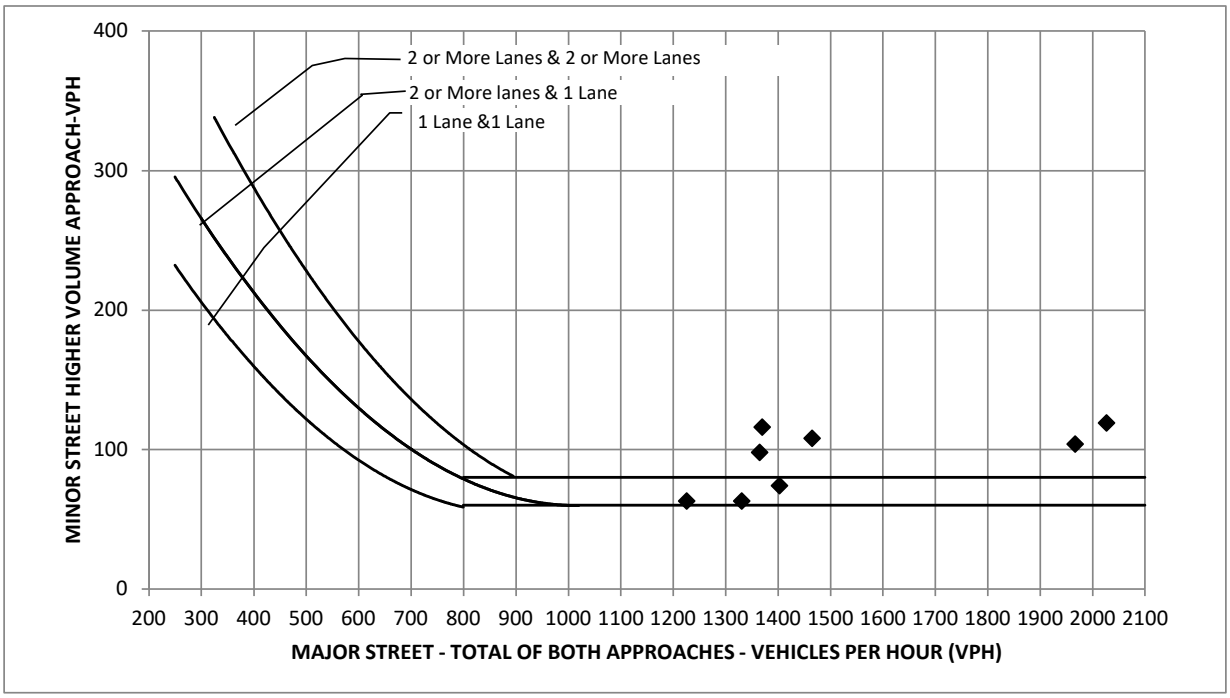
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Existing Conditions		
Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

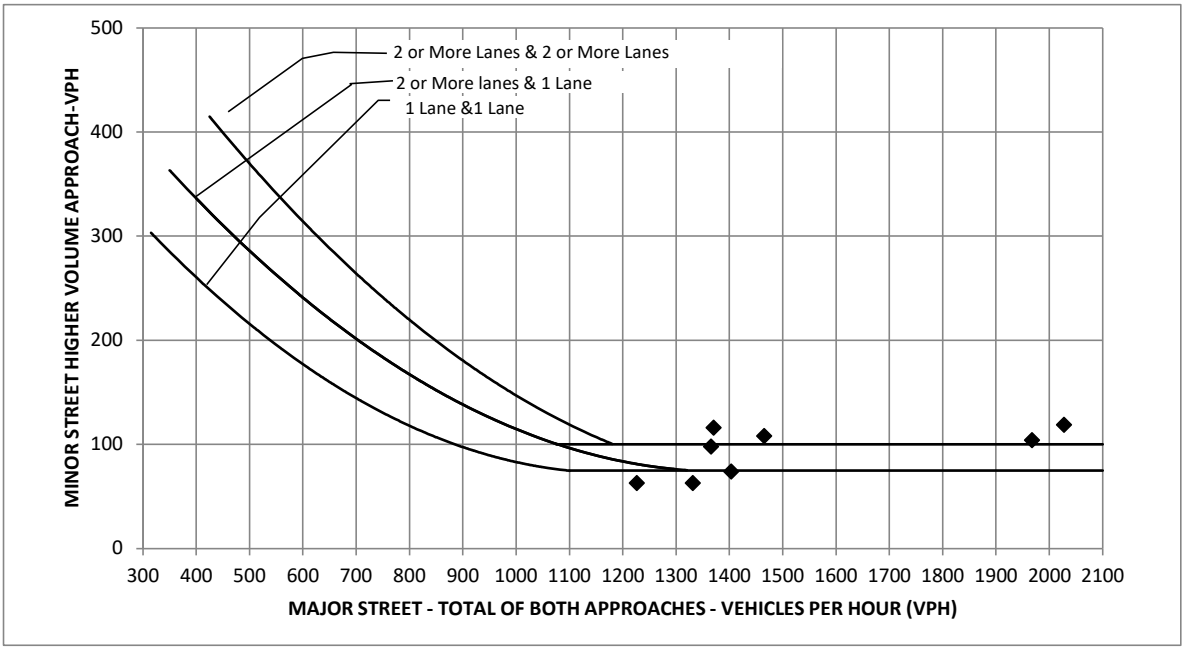


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Existing Conditions		
Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**5**
Is Warrant (70%) Met?	**YES**

Summary of Warrants

Spot Number:	Existing Conditions		
Major Street:	SB Lapeer Road (M-24)	Minor Street:	Waldon Road
Intersection:	SB Lapeer Road (M-24) at Waldon Road		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	YES
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	2069	162	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	2135	131	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1286	116	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1399	132	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1453	144	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	1588	128	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	1498	159	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	1455	166	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**8**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**YES**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

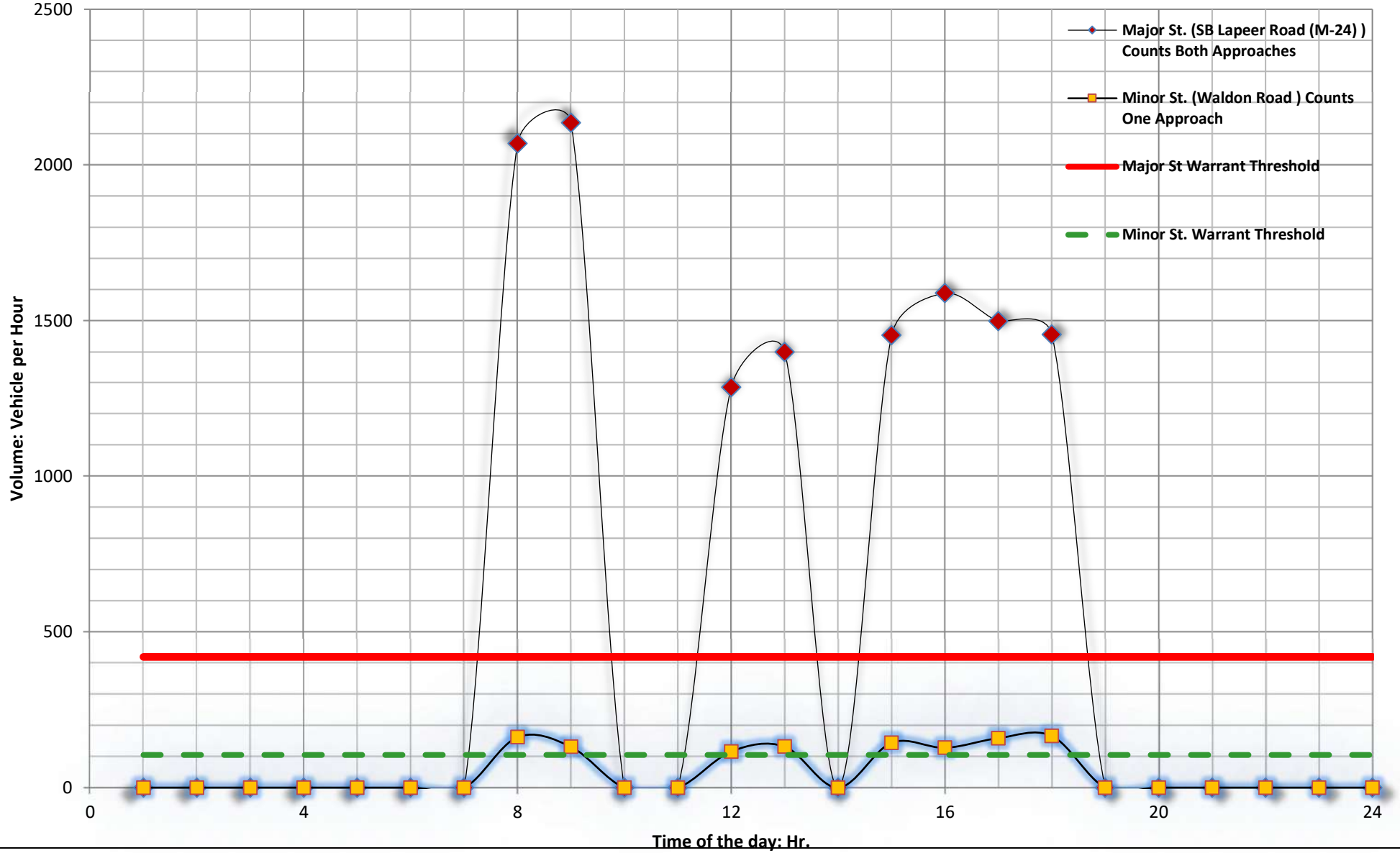


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Existing Conditions**

SB Lapeer Road (M-24) @ Waldon Road

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

Does this intersection meet Warrant 1A for signal installation? **YES**

Data Collection Date: **10/13/2022**

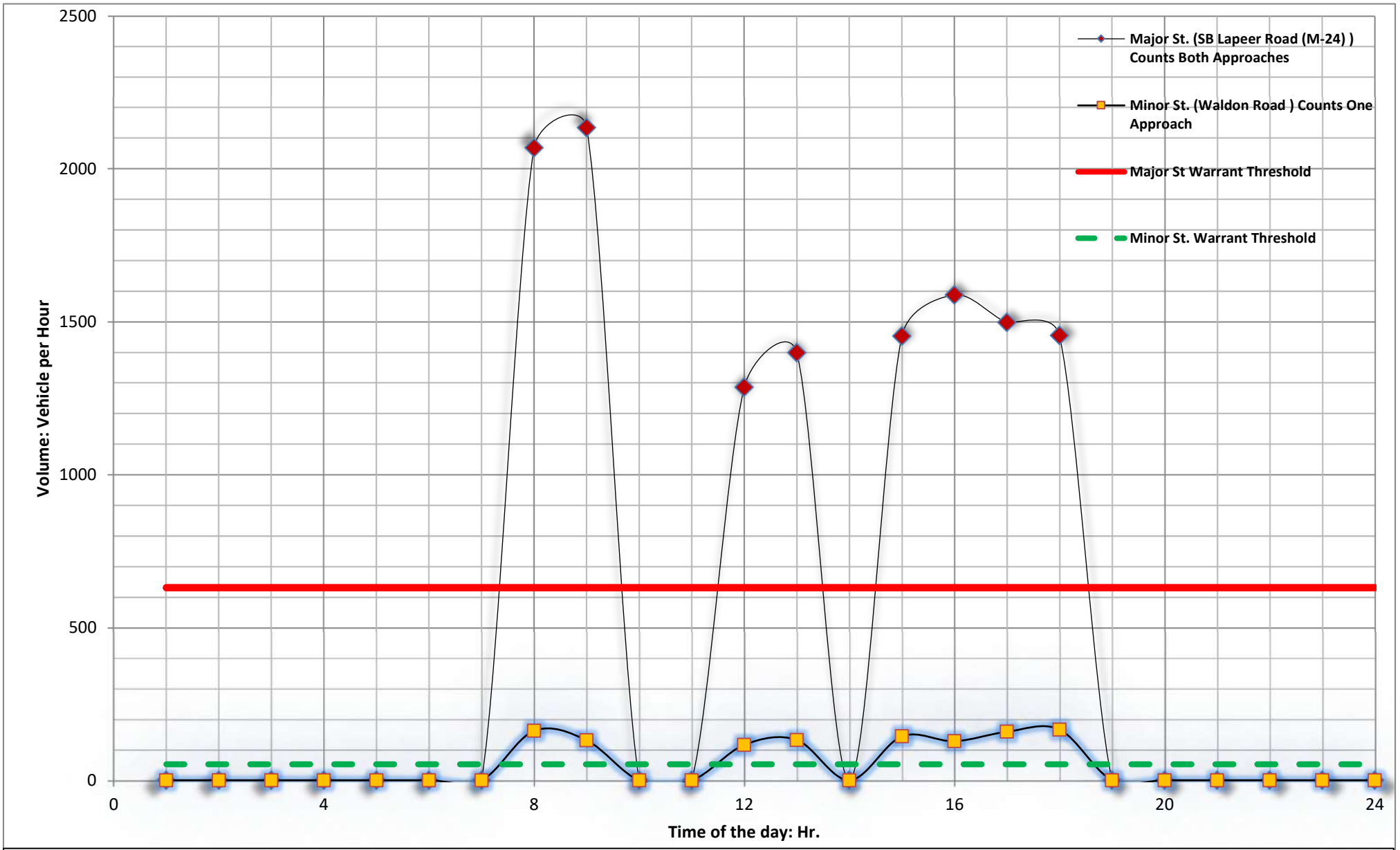


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Existing Conditions**

SB Lapeer Road (M-24) @ Waldon Road

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

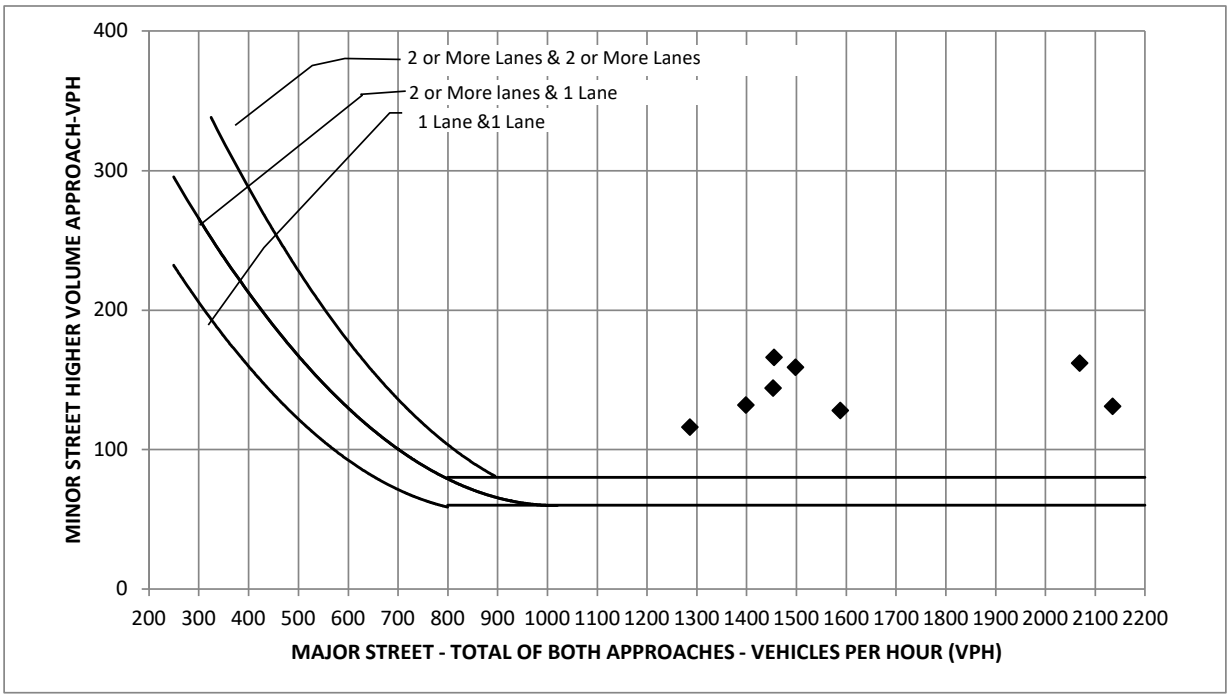
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Existing Conditions		
Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

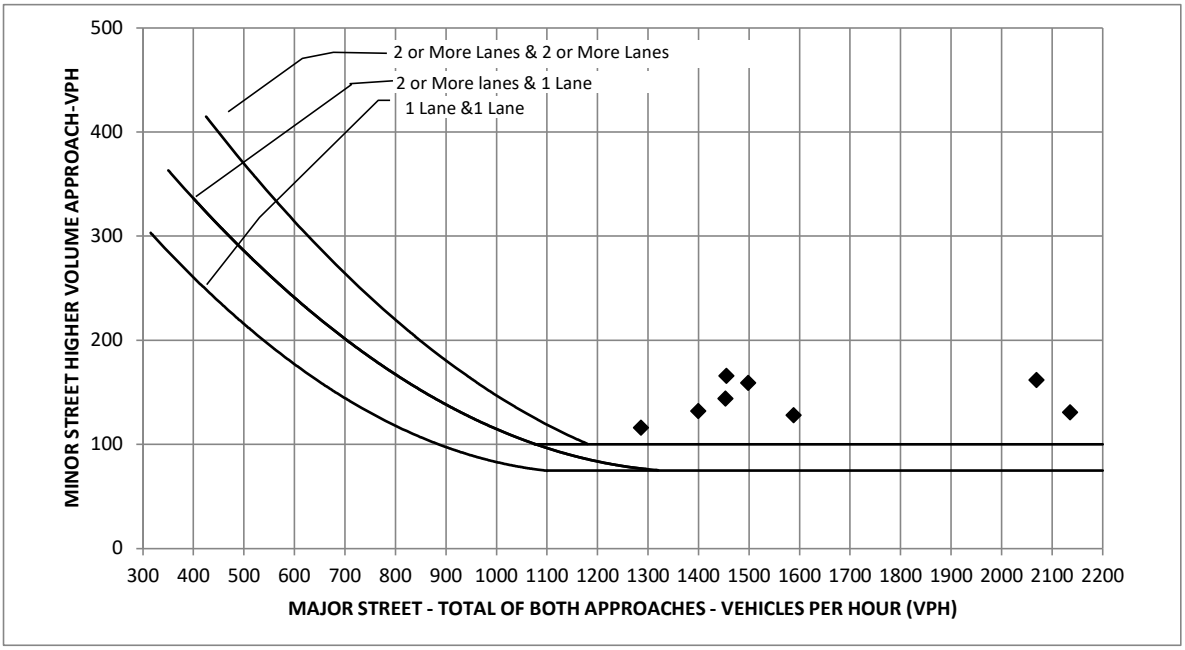


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Existing Conditions		
Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Summary of Warrants

Spot Number:	Existing Conditions		
Major Street:	NB Lapeer Road (M-24)	Minor Street:	SB-to-NB XO
Intersection:	NB Lapeer Road (M-24) at SB-to-NB XO		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	YES
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	1005	122	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	1018	110	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1165	106	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1191	111	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1685	119	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	2033	111	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	2075	138	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	2218	141	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**8**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**YES**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

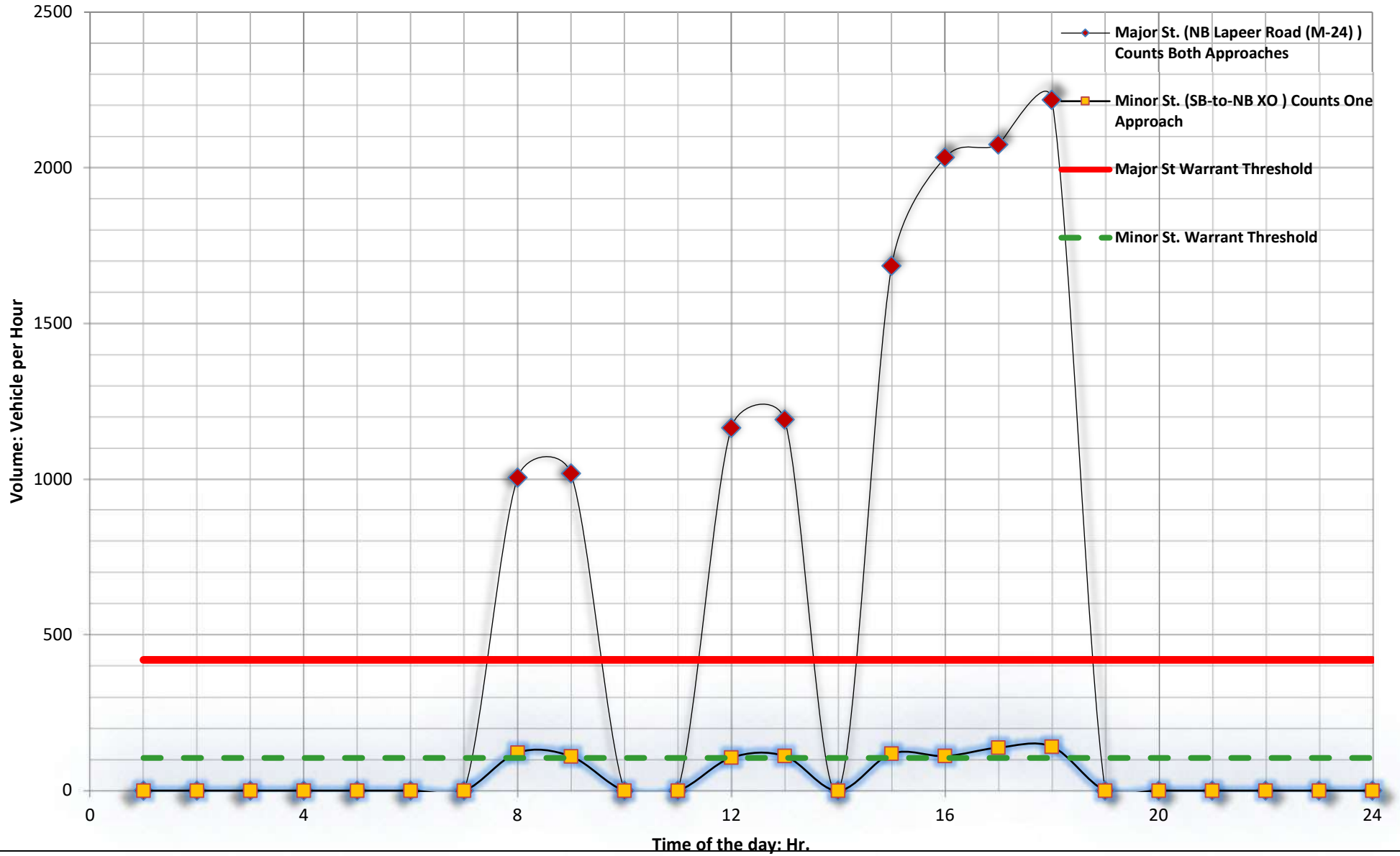


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Existing Conditions**

NB Lapeer Road (M-24) @ SB-to-NB XO

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

Does this intersection meet Warrant 1A for signal installation? **YES**

Data Collection Date: **10/13/2022**

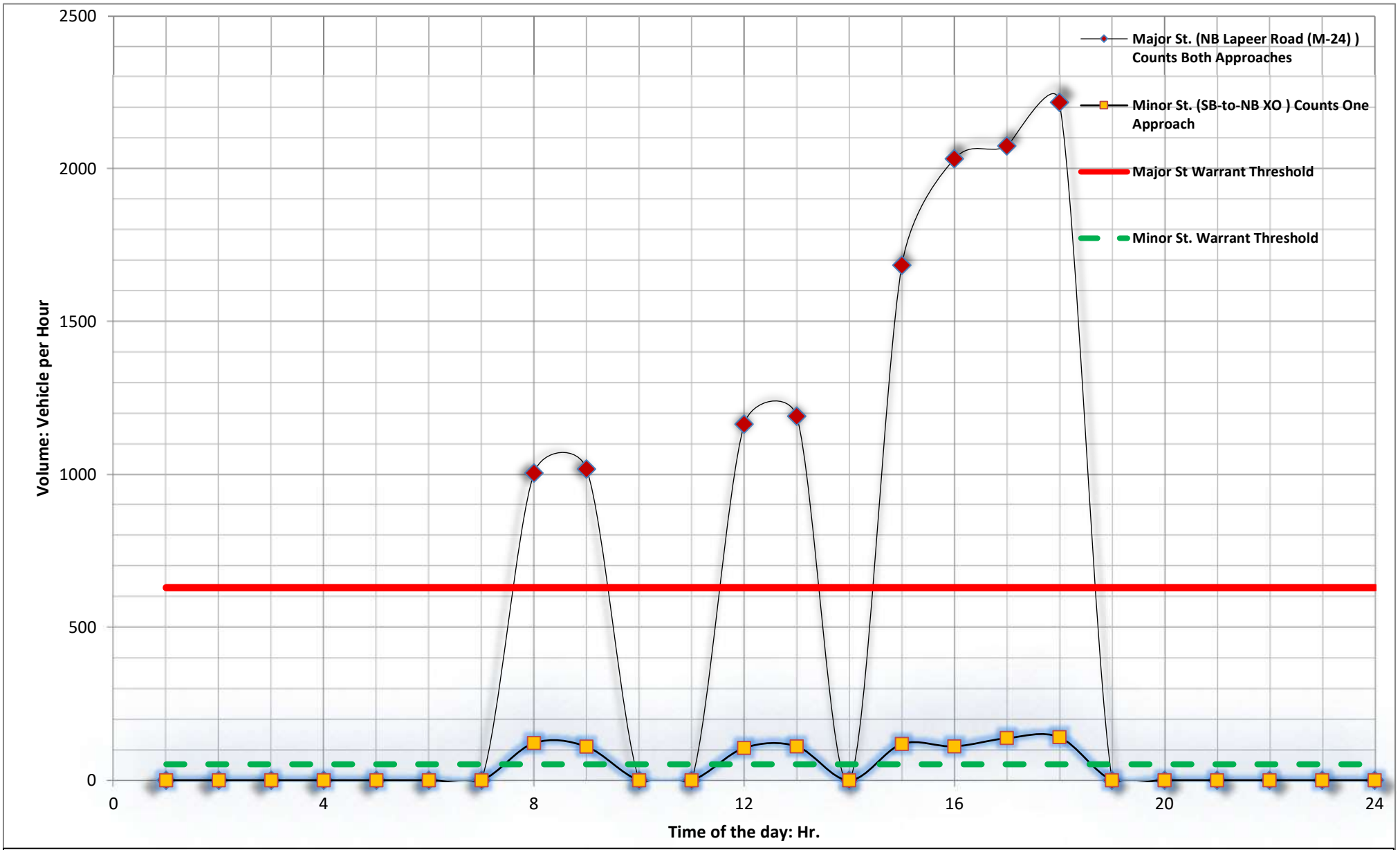


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Existing Conditions**

NB Lapeer Road (M-24) @ SB-to-NB XO

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

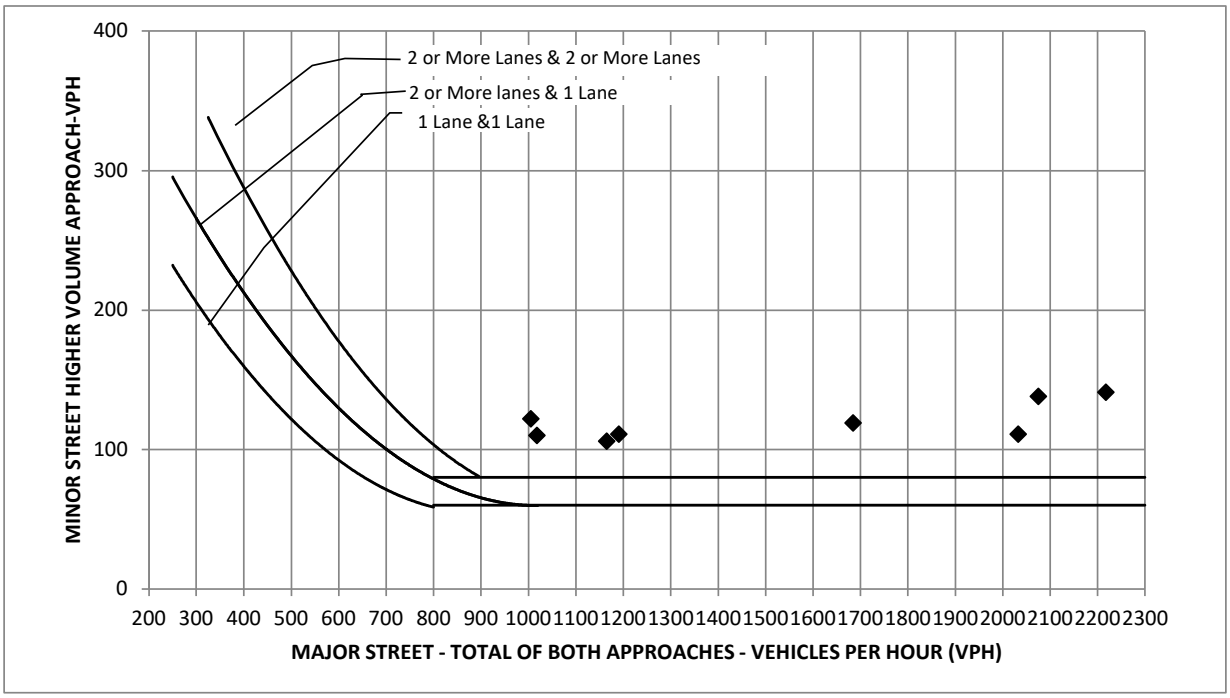
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Existing Conditions		
Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

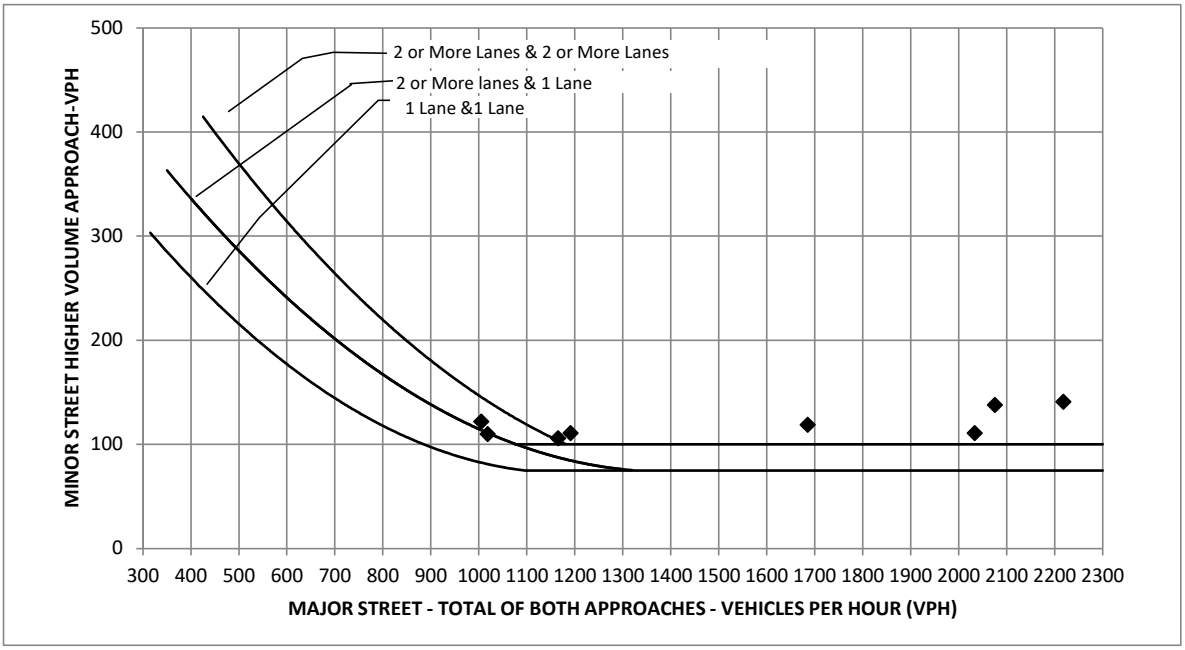


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Existing Conditions		
Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Summary of Warrants

Spot Number:	Background Conditions		
Major Street:	SB Lapeer Road (M-24)	Minor Street:	NB-to-SB X/O
Intersection:	SB Lapeer Road (M-24) at NB-to-SB X/O		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	NO
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	1997	106	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	2058	121	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1244	64	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1351	64	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1424	75	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	1487	110	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	1391	118	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	1386	99	420	105	**NO**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**4**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**NO**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

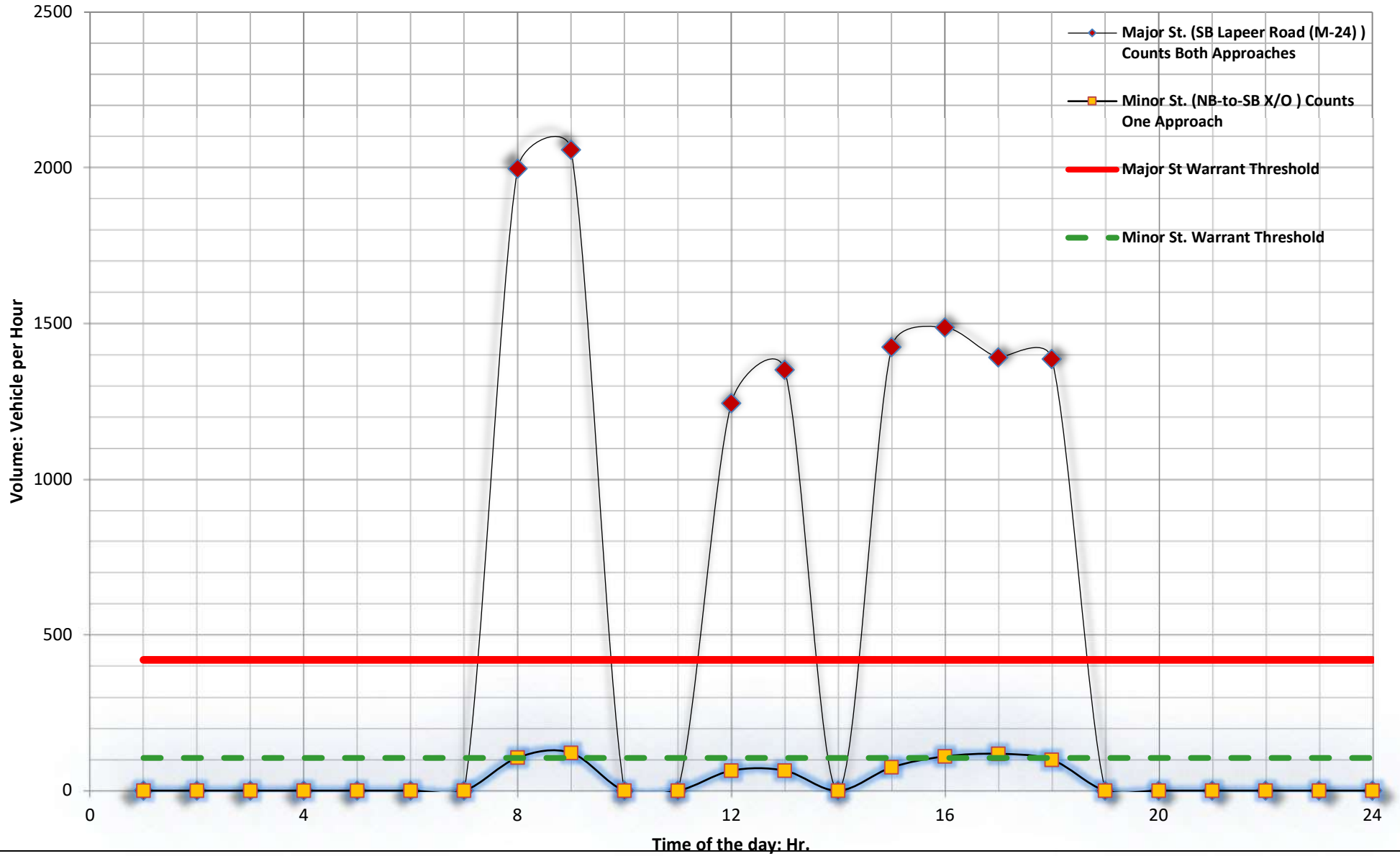


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Background Conditions**

SB Lapeer Road (M-24) @ NB-to-SB X/O

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **4**

Does this intersection meet Warrant 1A for signal installation? **NO**

Data Collection Date: **10/13/2022**

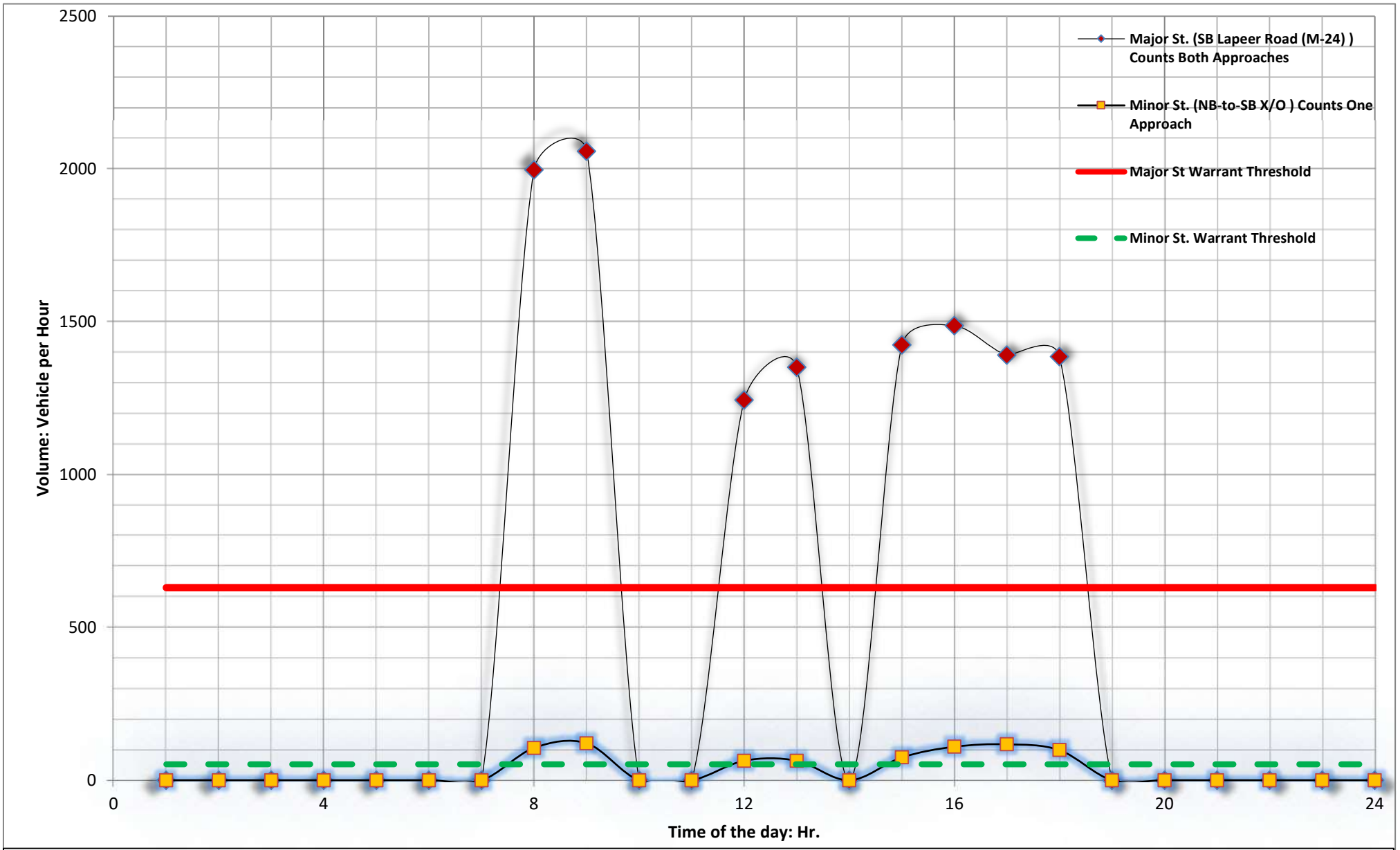


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Background Conditions**

SB Lapeer Road (M-24) @ NB-to-SB X/O

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

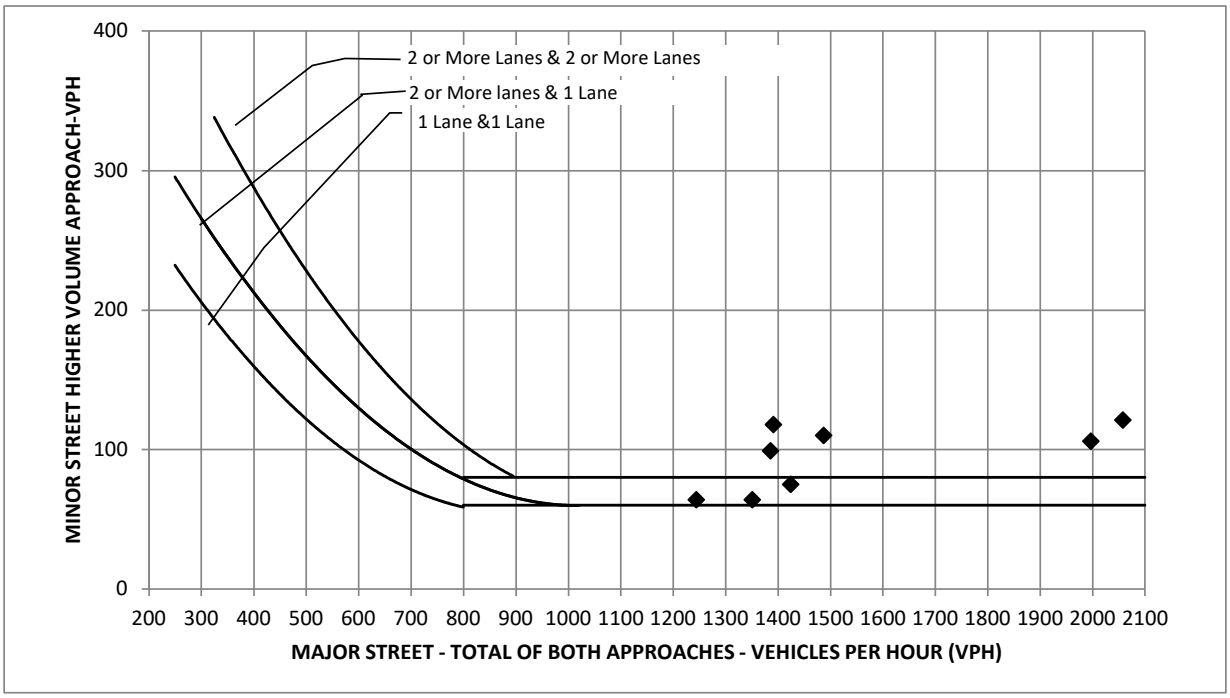
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Background Conditions		
Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

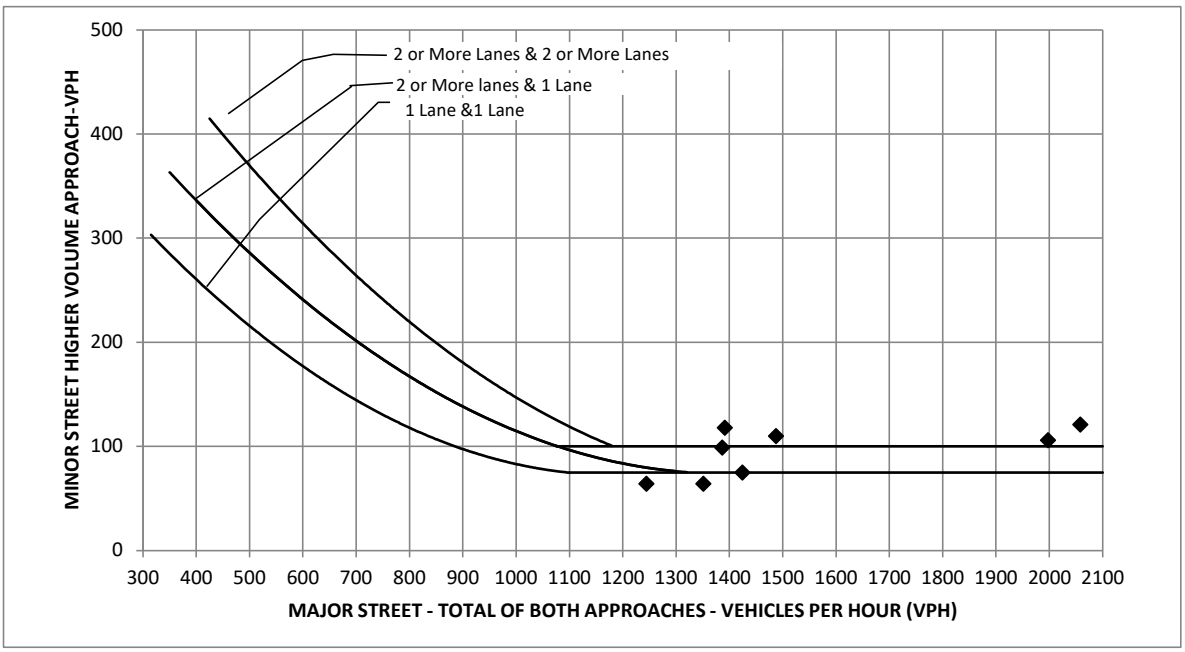


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Background Conditions		
Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**5**
Is Warrant (70%) Met?	**YES**

Summary of Warrants

Spot Number:	Background Conditions		
Major Street:	SB Lapeer Road (M-24)	Minor Street:	Waldon Road
Intersection:	SB Lapeer Road (M-24) at Waldon Road		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	YES
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	2100	164	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	2167	133	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1305	118	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1420	134	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1475	146	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	1612	130	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	1521	161	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	1477	169	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**8**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**YES**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

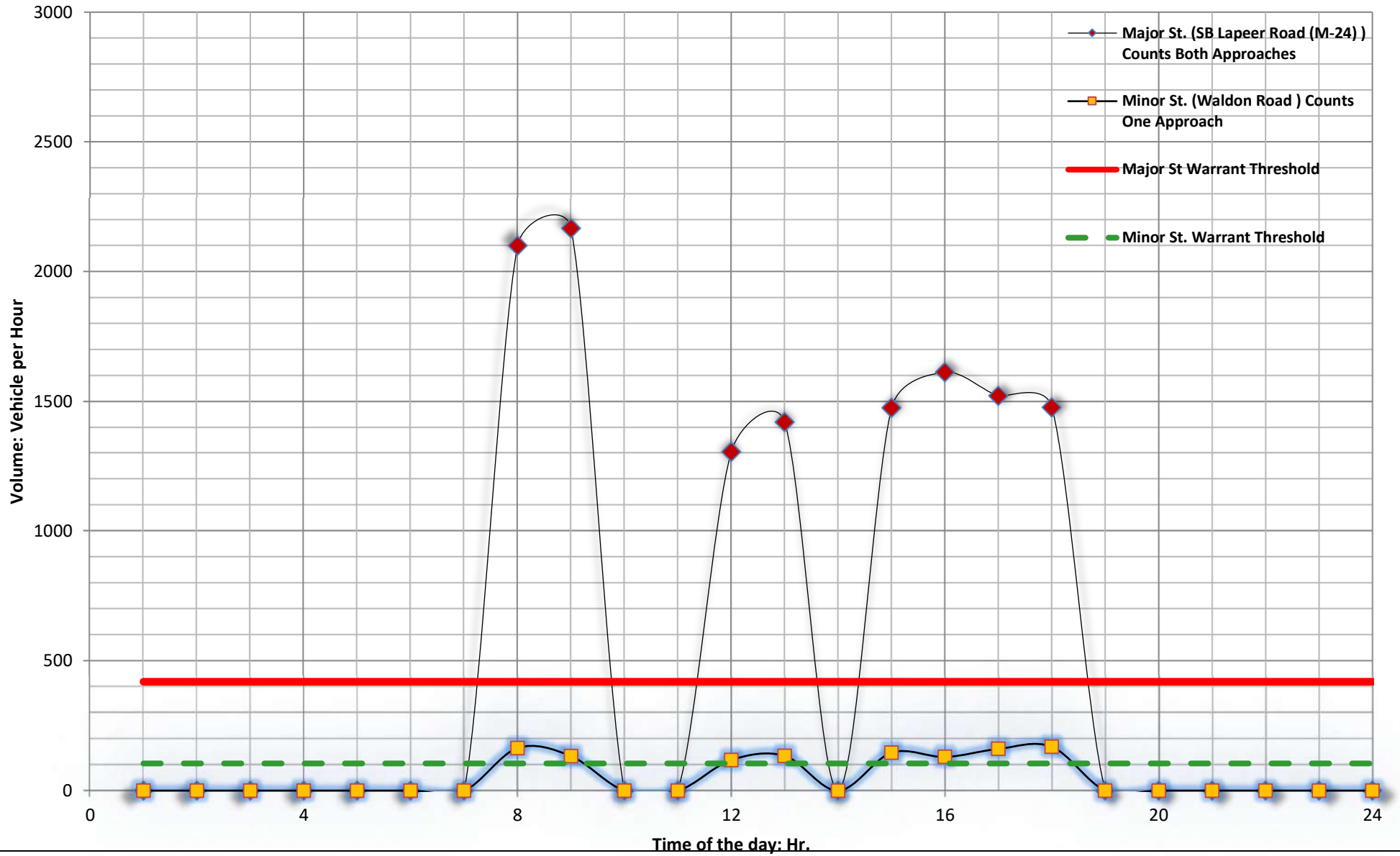


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Background Conditions**

SB Lapeer Road (M-24) @ Waldon Road

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

Does this intersection meet Warrant 1A for signal installation? **YES**

Data Collection Date: **10/13/2022**

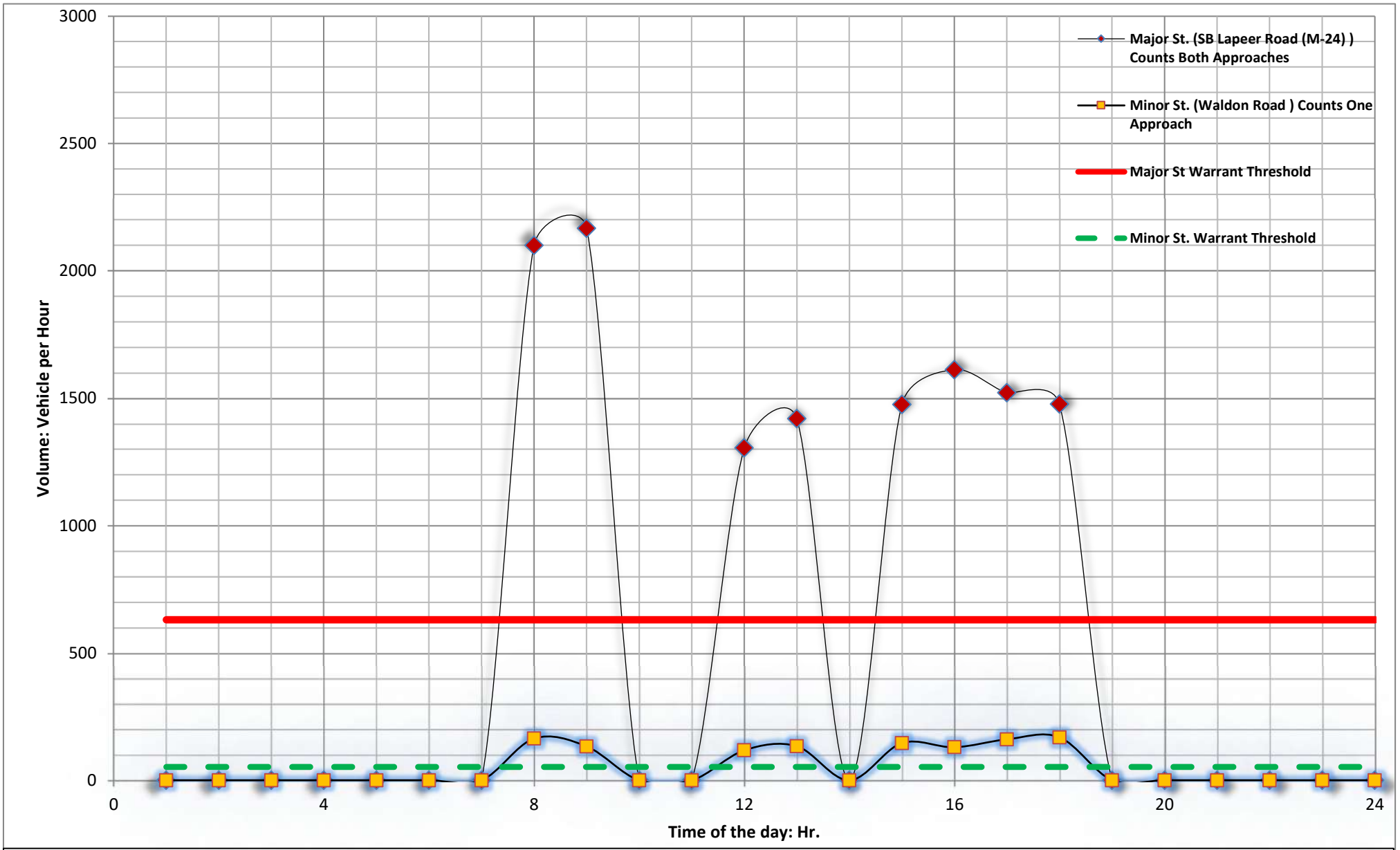


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Background Conditions**

SB Lapeer Road (M-24) @ Waldon Road

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

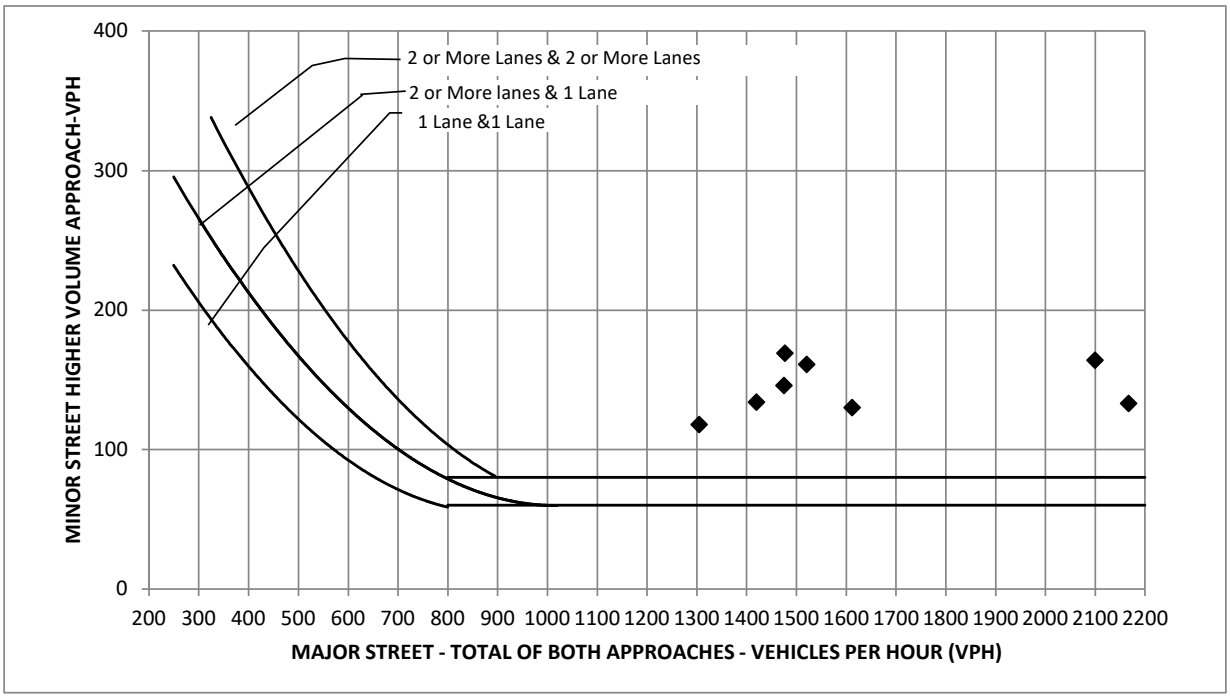
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Background Conditions		
Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

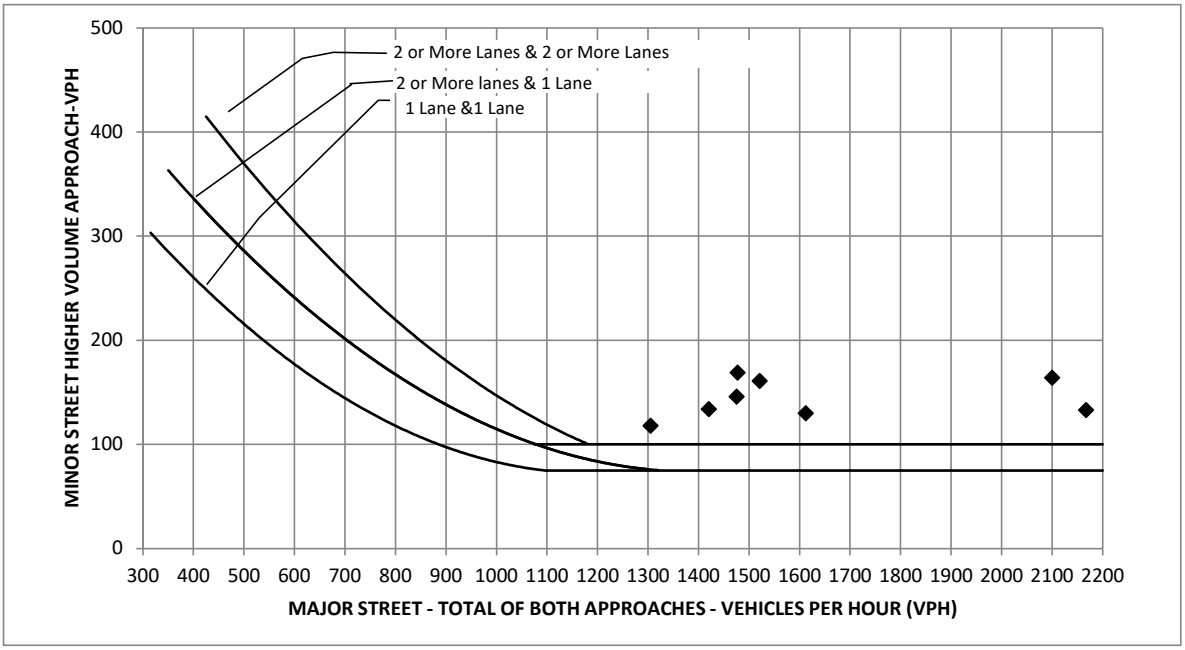


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Background Conditions		
Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Summary of Warrants

Spot Number:	Background Conditions		
Major Street:	NB Lapeer Road (M-24)	Minor Street:	SB-to-NB XO
Intersection:	NB Lapeer Road (M-24) at SB-to-NB XO		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	YES
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	1020	124	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	1033	112	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1183	108	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1209	113	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1710	121	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	2064	113	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	2106	140	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	2251	143	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**8**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**YES**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

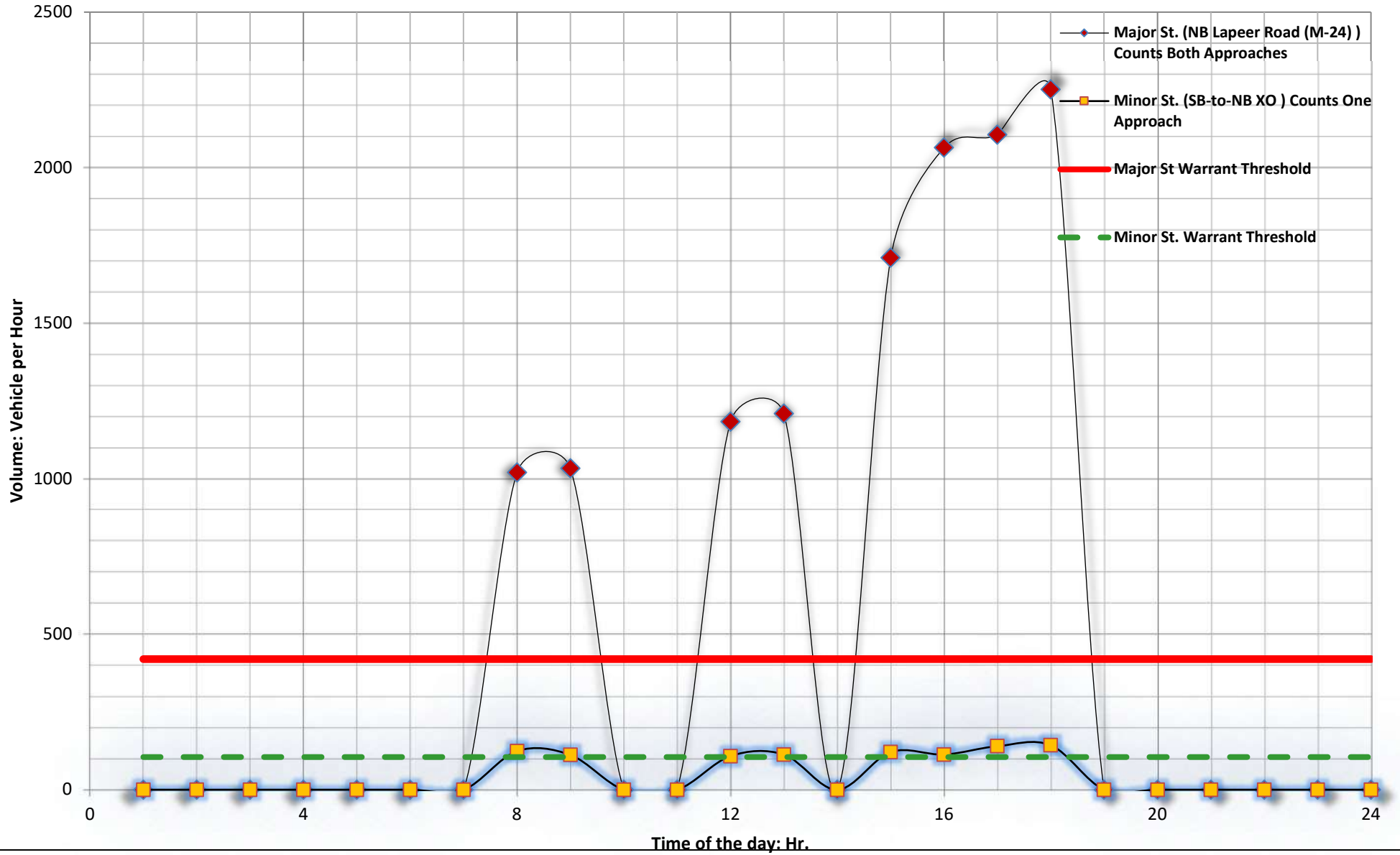


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Background Conditions**

NB Lapeer Road (M-24) @ SB-to-NB XO

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

Does this intersection meet Warrant 1A for signal installation? **YES**

Data Collection Date: **10/13/2022**

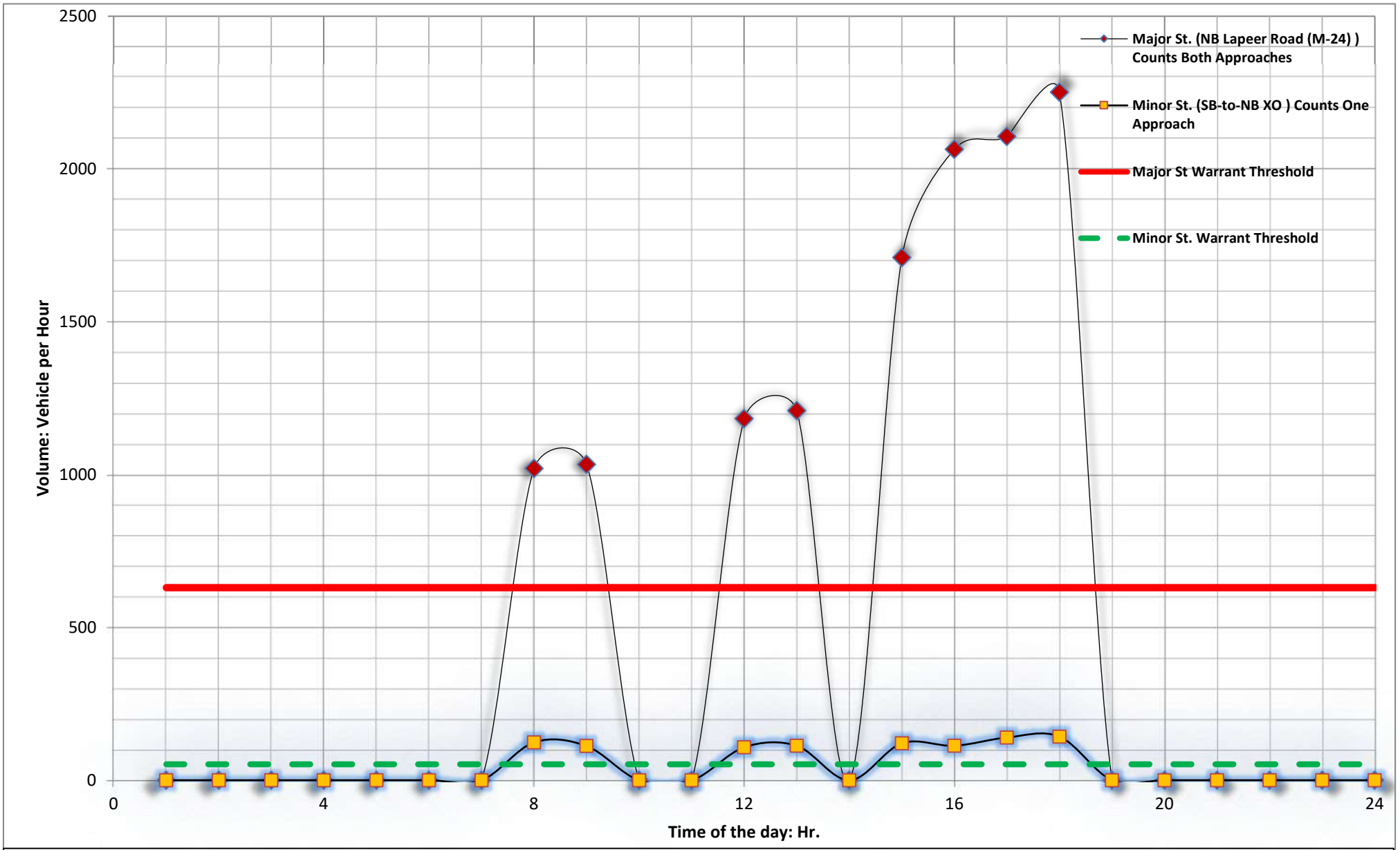


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Background Conditions**

NB Lapeer Road (M-24) @ SB-to-NB XO

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

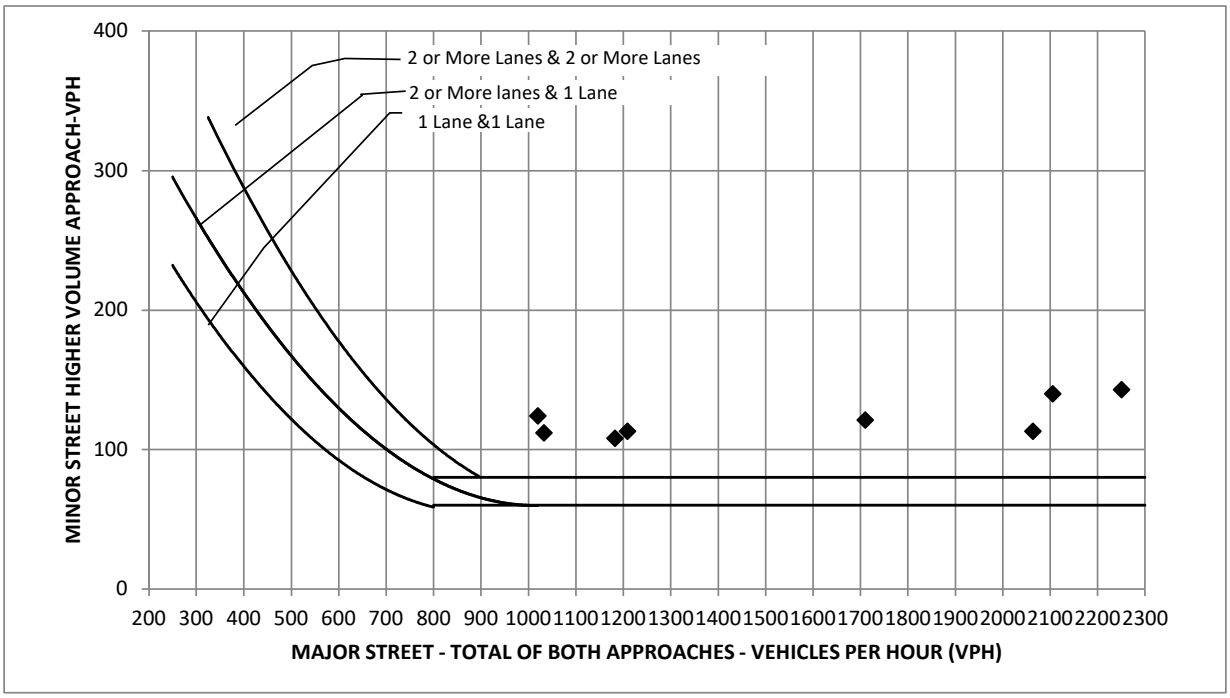
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Background Conditions		
Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

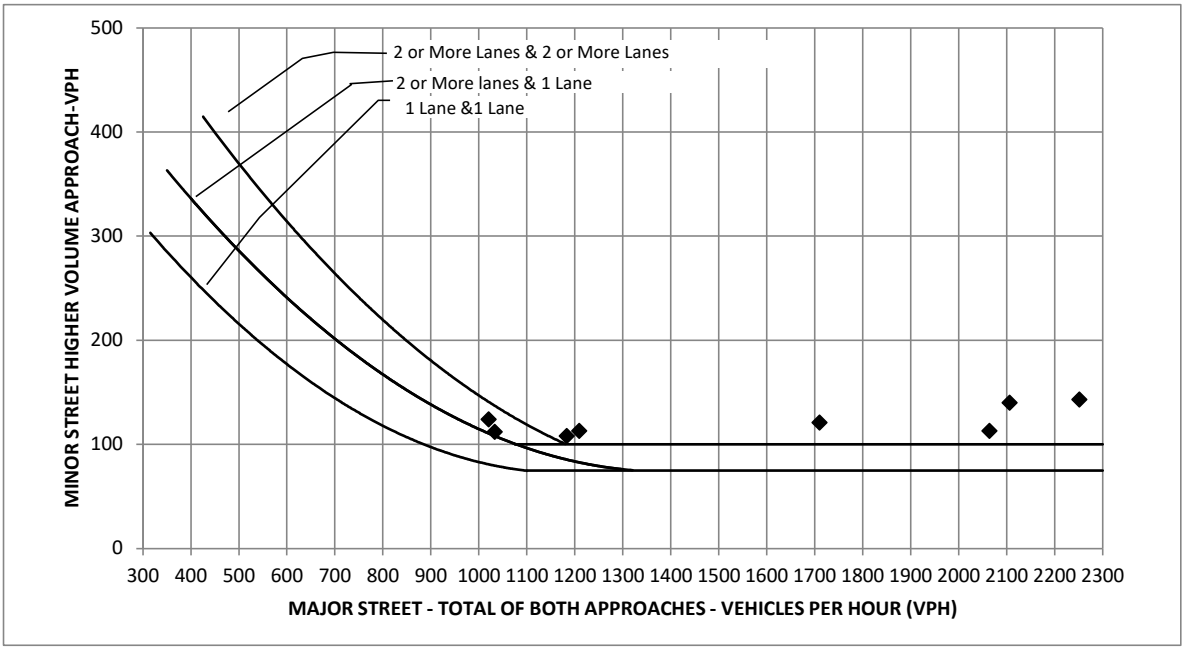


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Background Conditions		
Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Summary of Warrants

Spot Number:	Future Conditions		
Major Street:	SB Lapeer Road (M-24)	Minor Street:	NB-to-SB X/O
Intersection:	SB Lapeer Road (M-24) at NB-to-SB X/O		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	YES
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	2036	144	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	2100	162	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1273	108	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1383	107	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1440	111	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	1503	149	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	1408	160	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	1404	139	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**8**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**YES**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

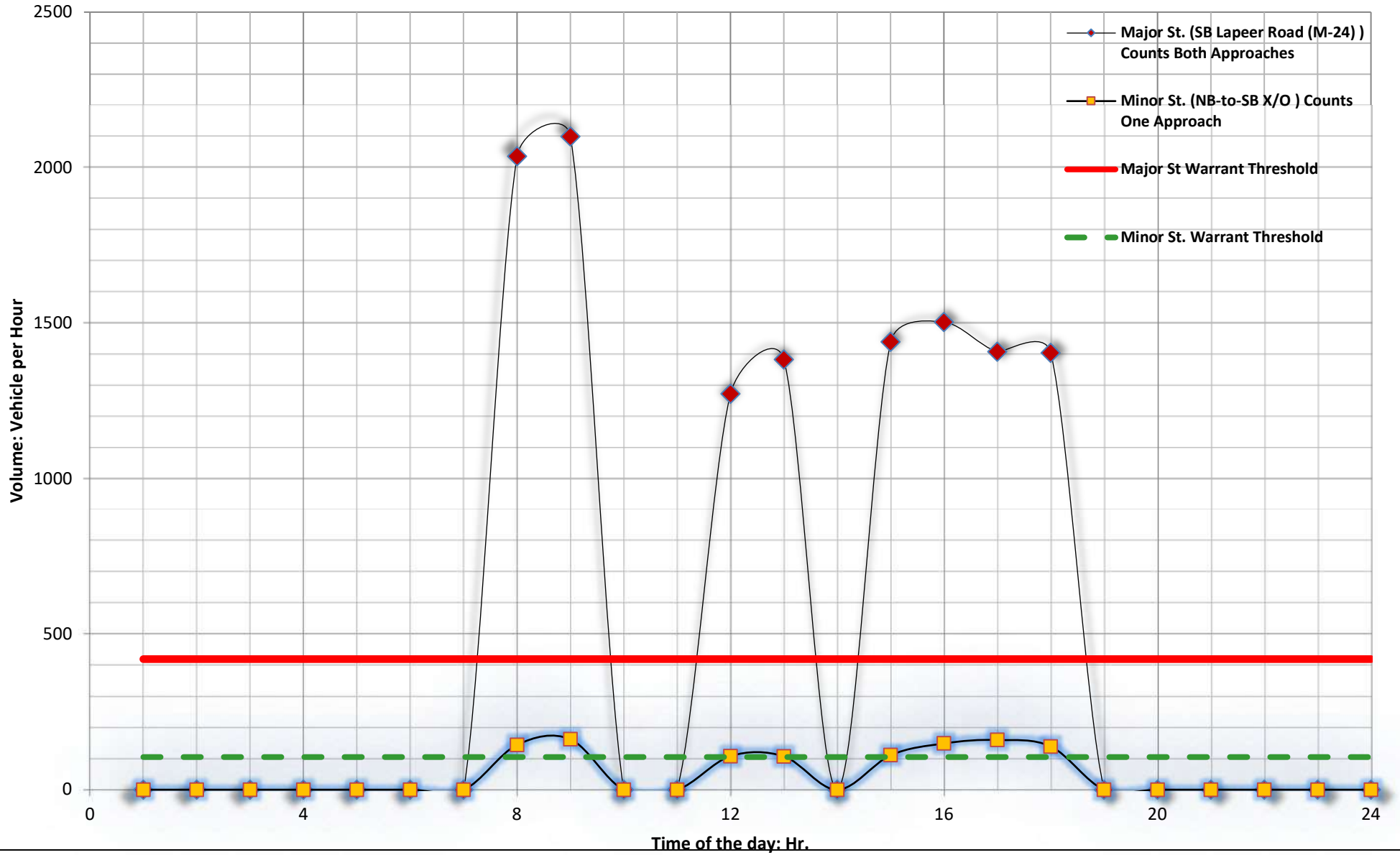


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Future Conditions**

SB Lapeer Road (M-24) @ NB-to-SB X/O

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

Does this intersection meet Warrant 1A for signal installation? **YES**

Data Collection Date: **10/13/2022**

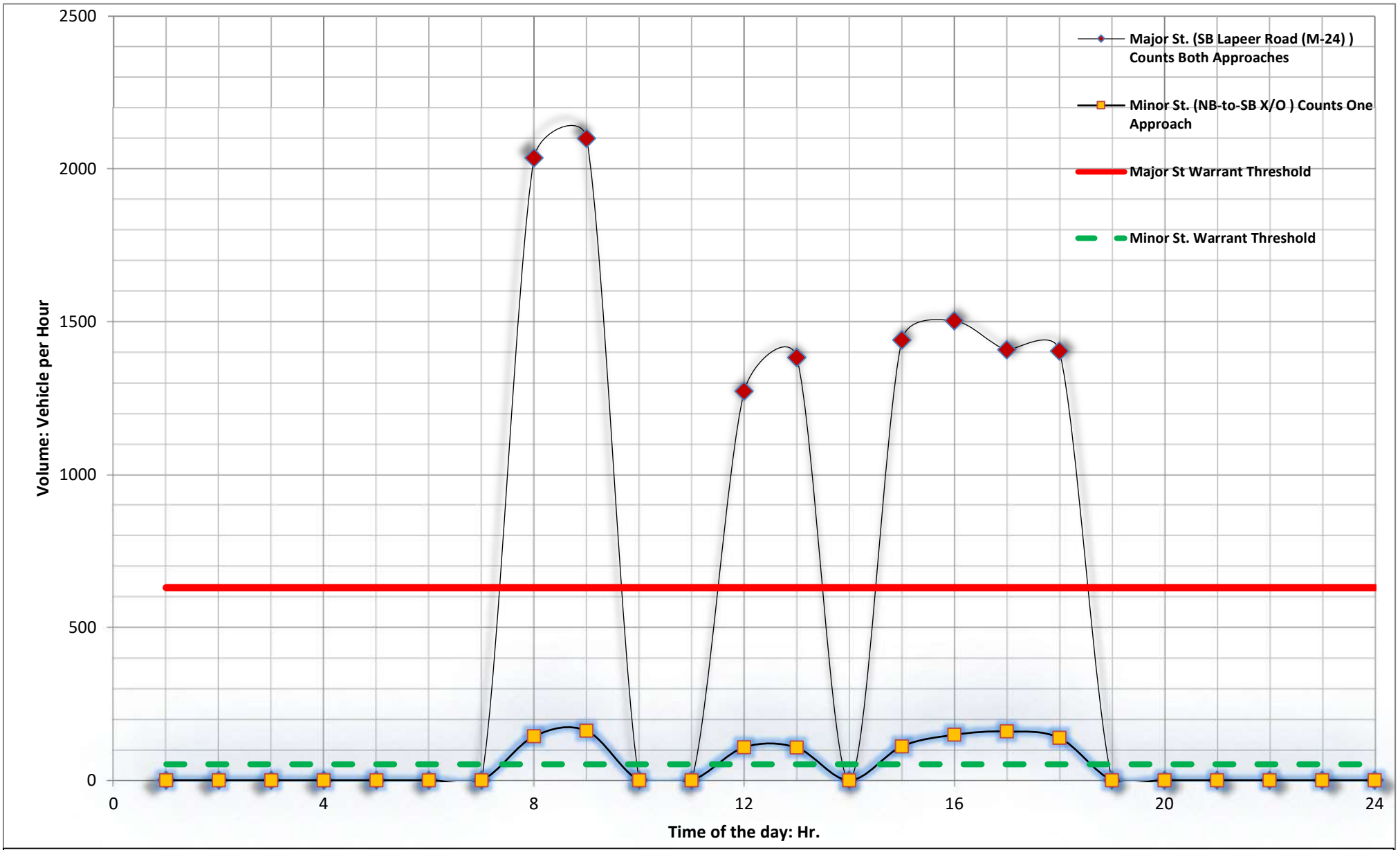


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Future Conditions**

SB Lapeer Road (M-24) @ NB-to-SB X/O

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

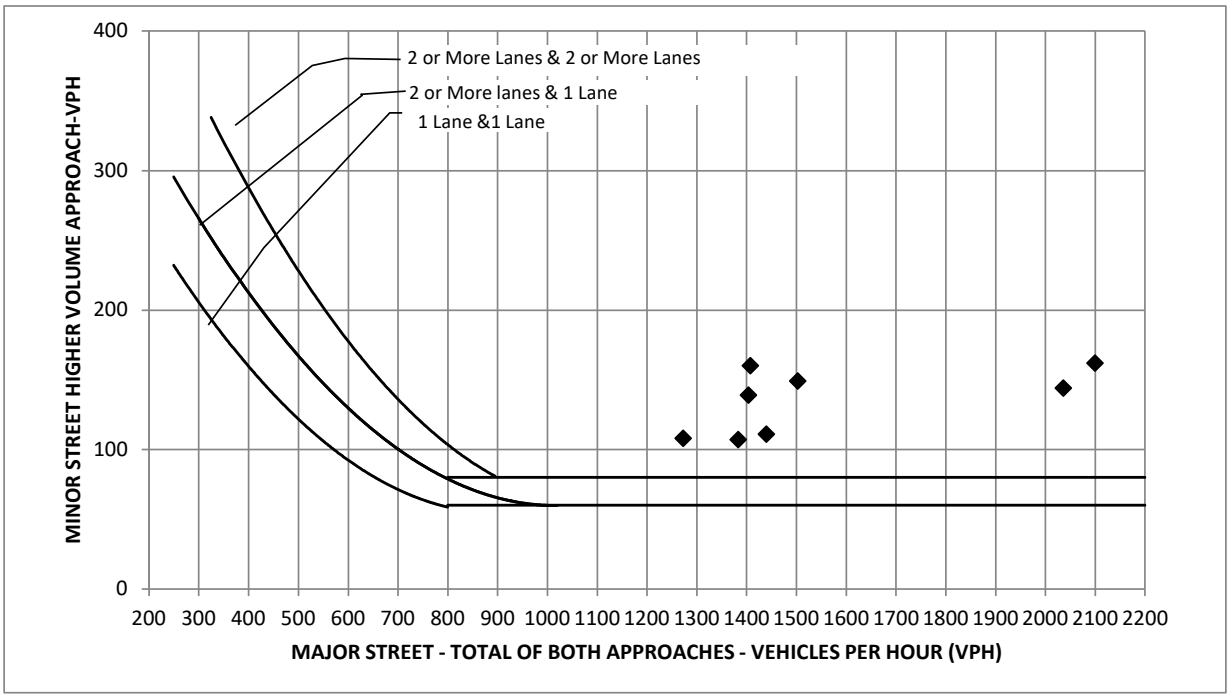
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Future Conditions		
Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

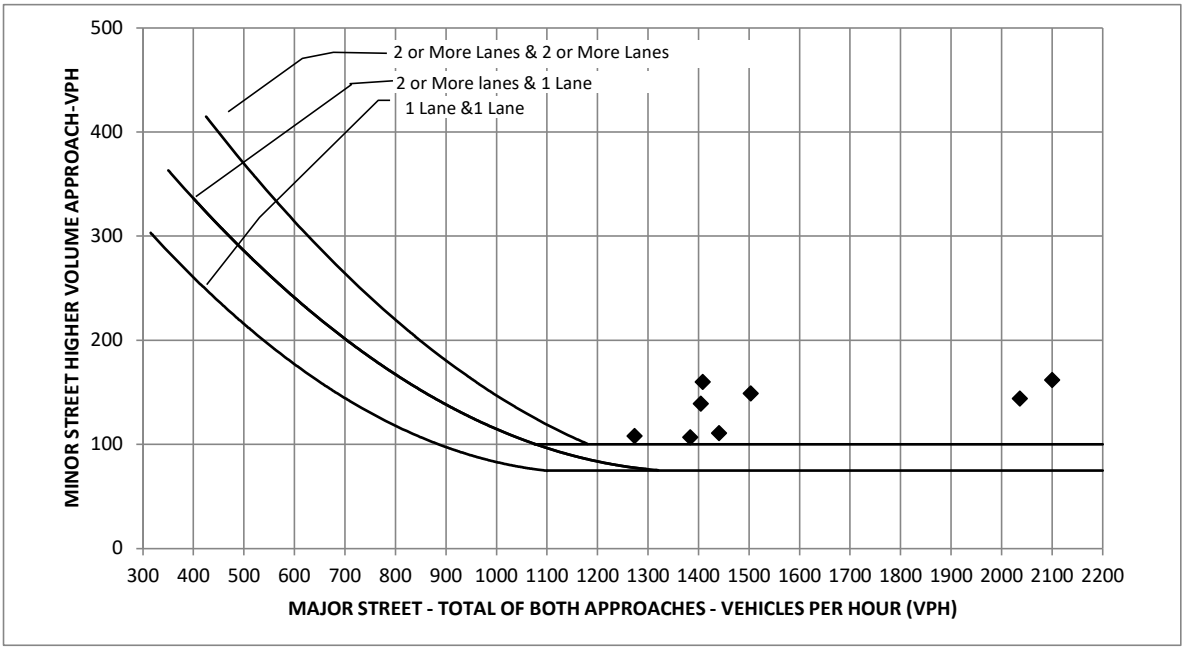


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Future Conditions		
Intersection:	SB Lapeer Road (M-24) @ NB-to-SB X/O		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Summary of Warrants

Spot Number:	Future Conditions		
Major Street:	SB Lapeer Road (M-24)	Minor Street:	Waldon Road
Intersection:	SB Lapeer Road (M-24) at Waldon Road		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	YES
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	2180	165	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	2250	134	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1364	119	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1482	135	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1525	146	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	1660	131	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	1565	163	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	1524	171	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**8**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**YES**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

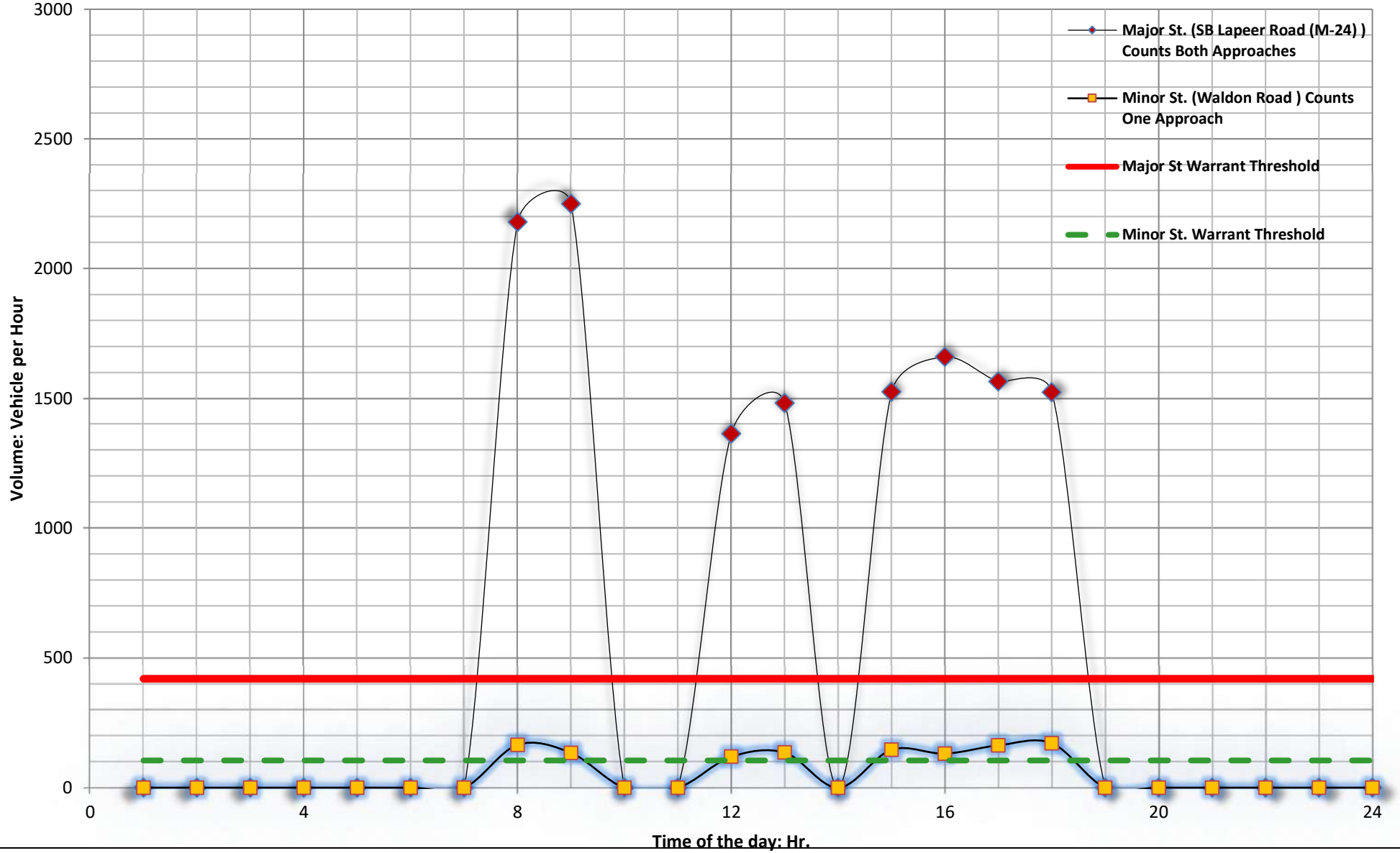


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Future Conditions**

SB Lapeer Road (M-24) @ Waldon Road

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

Does this intersection meet Warrant 1A for signal installation? **YES**

Data Collection Date: **10/13/2022**

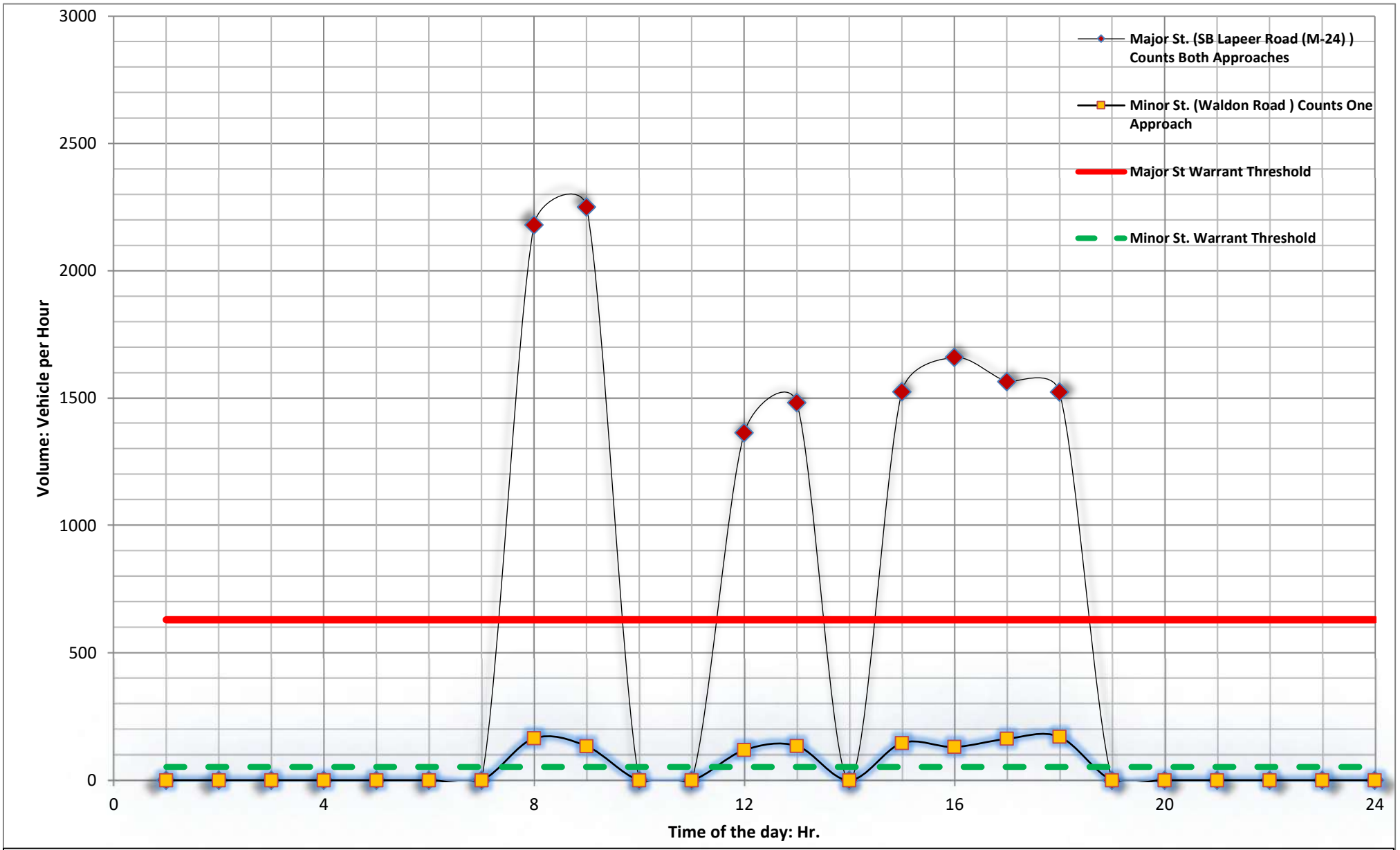


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Future Conditions**

SB Lapeer Road (M-24) @ Waldon Road

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

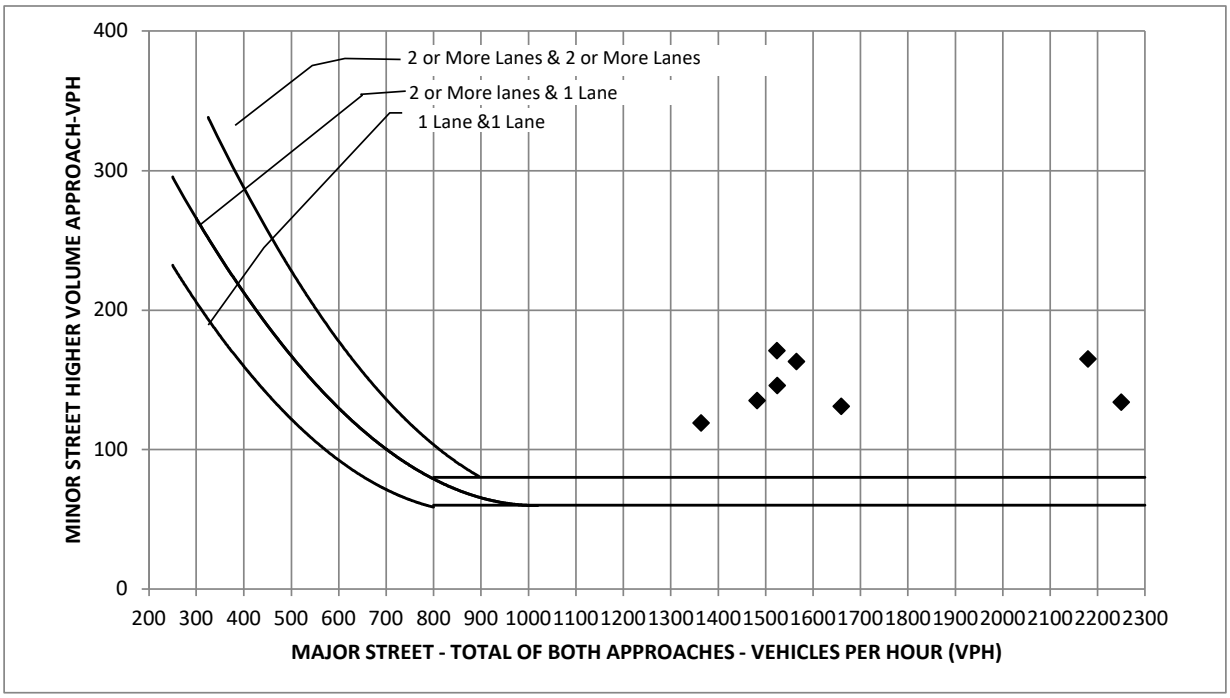
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Future Conditions		
Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

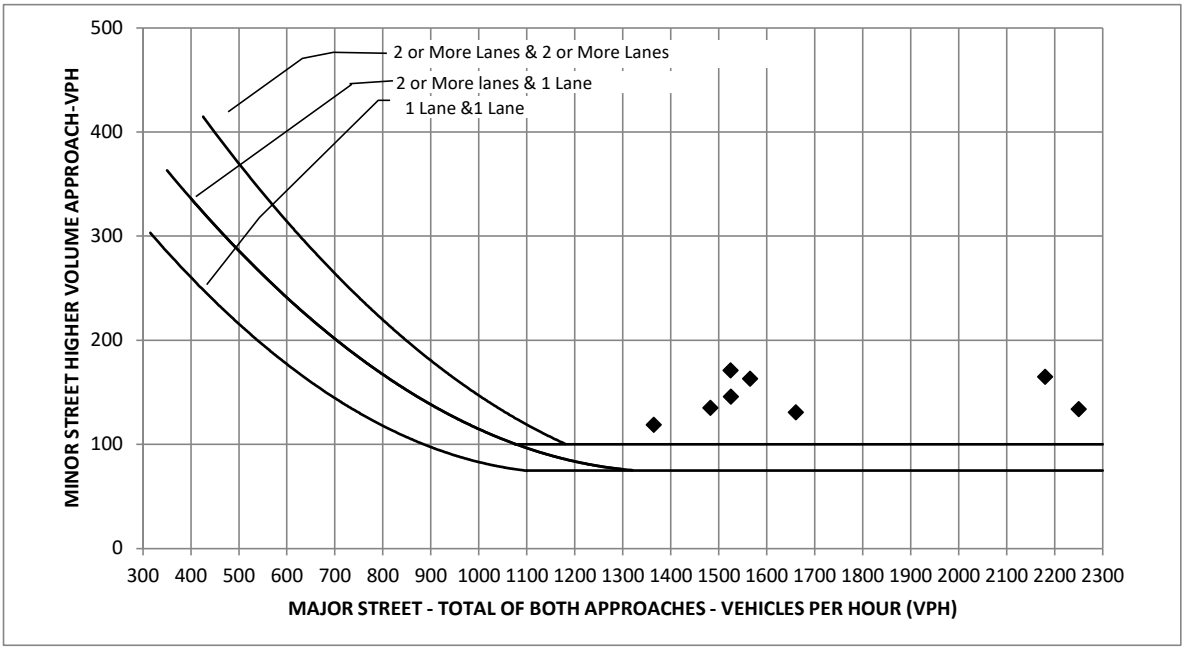


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Future Conditions		
Intersection:	SB Lapeer Road (M-24) @ Waldon Road		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Summary of Warrants

Spot Number:	Future Conditions		
Major Street:	NB Lapeer Road (M-24)	Minor Street:	SB-to-NB XO
Intersection:	NB Lapeer Road (M-24) at SB-to-NB XO		
City/Twp:	Orion Township		
Date Performed:	11/4/2022	Performed By:	F&V
Date Volumes Collected:	10/13/2022		

Warrant	Condition	Is Warrant Met
Data Validation Error		**NO**
WARRANT 1: Eight-Hour Vehicular Volume		**YES**
	Condition A	YES
	Condition B	YES
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(70%)	**YES**
WARRANT 3: Peak-Hour Vehicular Volume	(70%)	**YES**
	Condition A	**N/A**
	Condition B	**YES**
WARRANT 4: Pedestrian Volume	(70%)	**NO**
	Four Hour	N/A
	Peak Hour	N/A
(Threshold)	HAWK	NO
(Threshold)	RRFB	NO
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: if answer 4 is Yes, then what is the of the population isolated community?**
NO	**: Have other remedial measures been tried?**

USE 70% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	**N-S**	E-W											
00:01 - 01:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
01:00 - 02:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
02:00 - 03:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
03:00 - 04:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
04:00 - 05:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
05:00 - 06:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
06:00 - 07:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
07:00 - 08:00	1044	173	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
08:00 - 09:00	1069	165	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
09:00 - 10:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
10:00 - 11:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
11:00 - 12:00	1223	143	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
12:00 - 13:00	1251	149	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
13:00 - 14:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
14:00 - 15:00	1737	151	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
15:00 - 16:00	2115	142	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
16:00 - 17:00	2154	164	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
17:00 - 18:00	2310	168	420	105	**YES**	630	53	**YES**	N/A	N/A	N/A	N/A	**N/A**
18:00 - 19:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
19:00 - 20:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
20:00 - 21:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
21:00 - 22:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
22:00 - 23:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**
23:00 - 00:00	0	0	420	105	**NO**	630	53	**NO**	N/A	N/A	N/A	N/A	**N/A**

Number of Hours that met the warrant 1A =	**8**
Number of Hours that met the warrant 1B =	**8**
Number of Hours that met the warrant 1 A & B =	**0**

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	**YES**
B. Is the Interruption of Continuous Traffic Met? (Condition B)	**YES**
C. Combination of Warrants A and B Criteria Met?	**N/A**

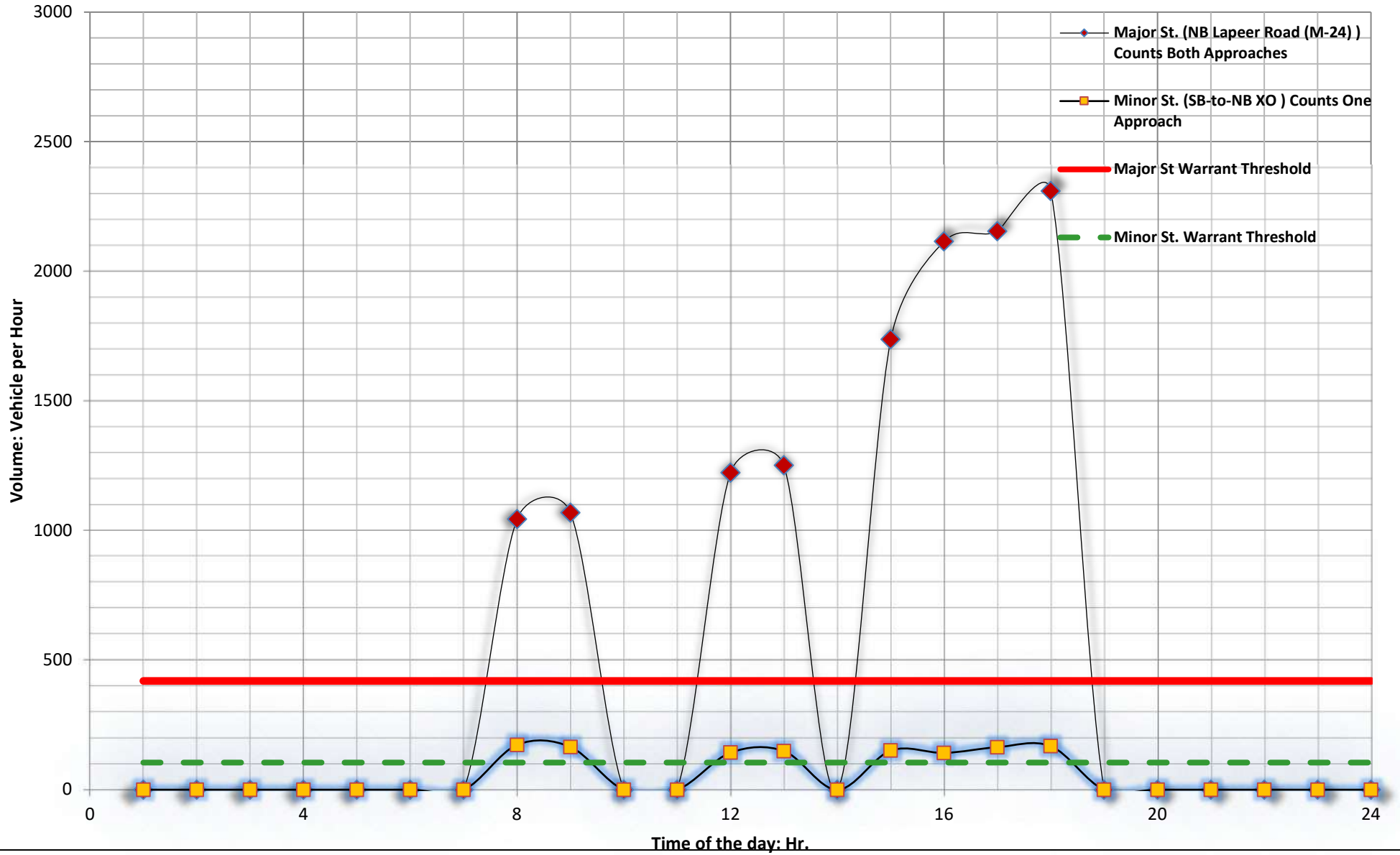


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Future Conditions**

NB Lapeer Road (M-24) @ SB-to-NB XO

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

Does this intersection meet Warrant 1A for signal installation? **YES**

Data Collection Date: **10/13/2022**

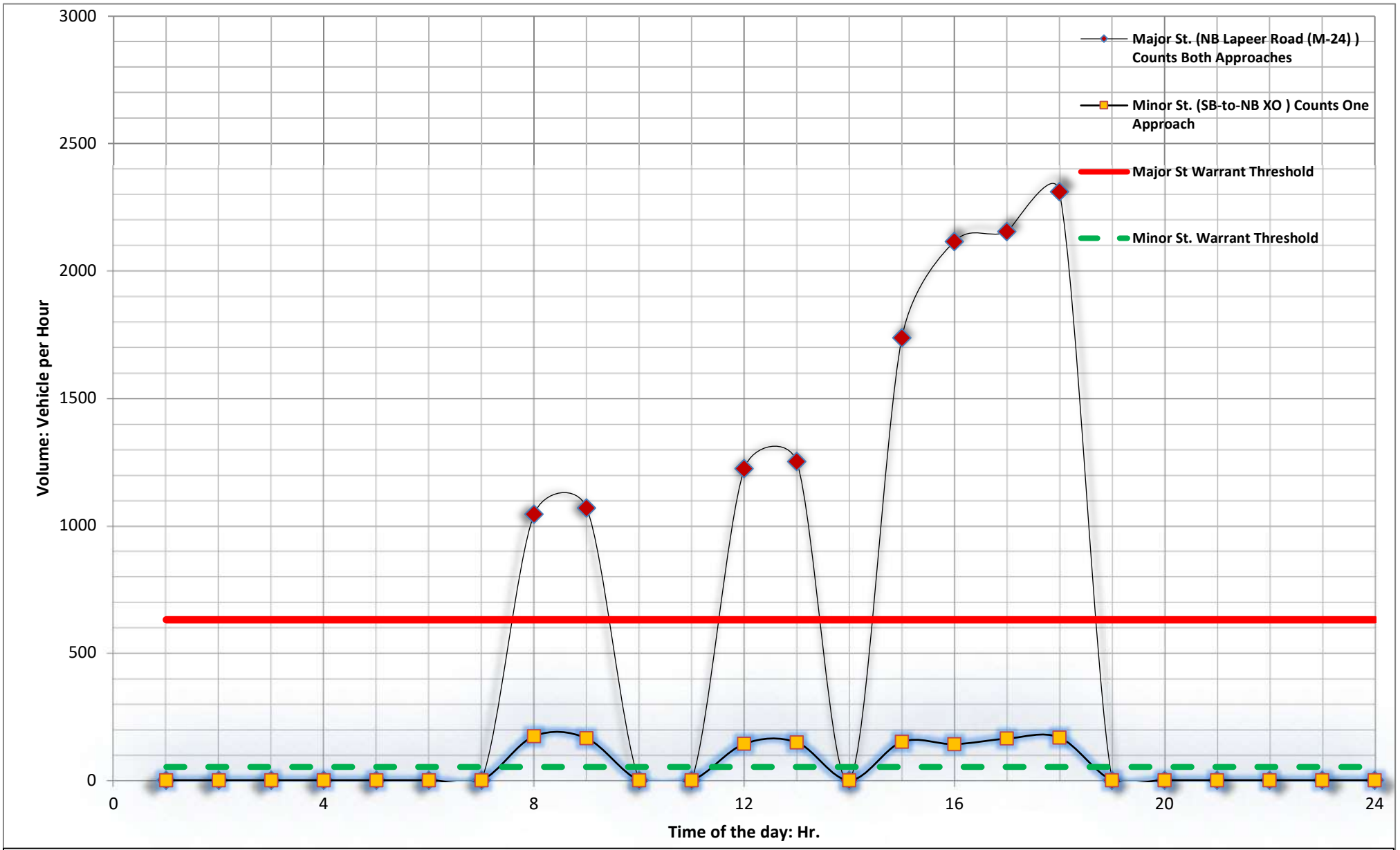


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **YES**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number: **Future Conditions**

NB Lapeer Road (M-24) @ SB-to-NB XO

NO. OF LANES ON MAJOR ST.? **2**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **8**

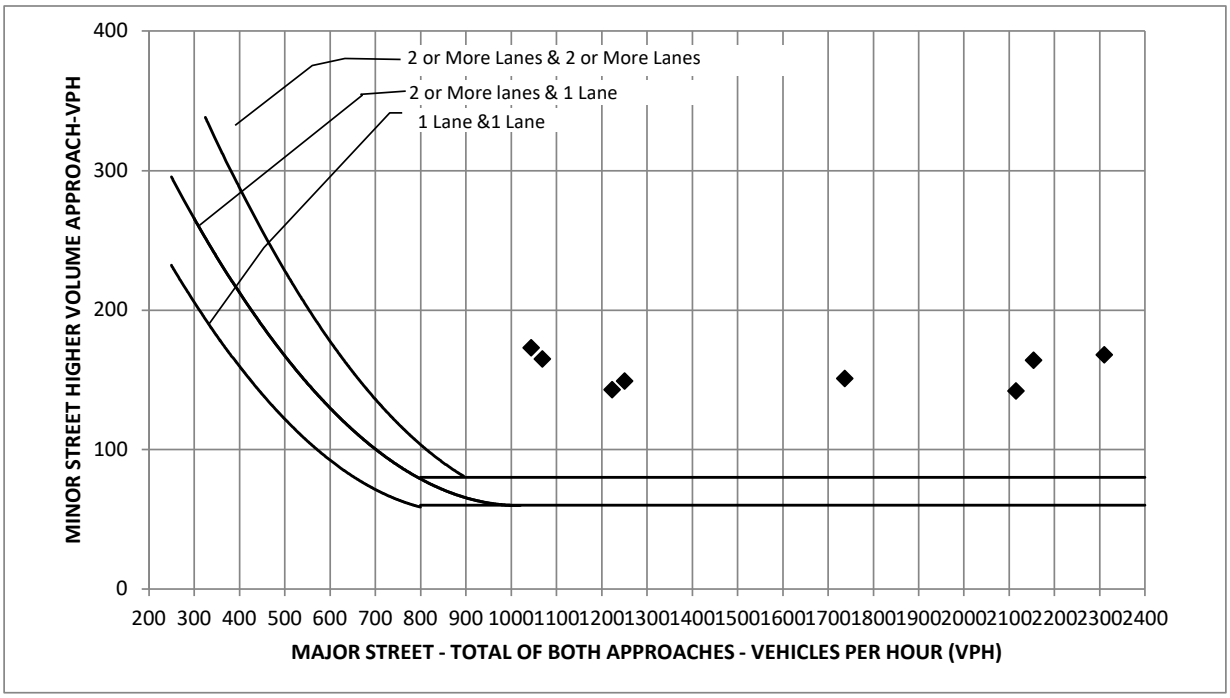
Does this intersection meet Warrant 1B for signal installation? **YES**

Data Collection Date: **10/13/2022**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	Future Conditions		
Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**

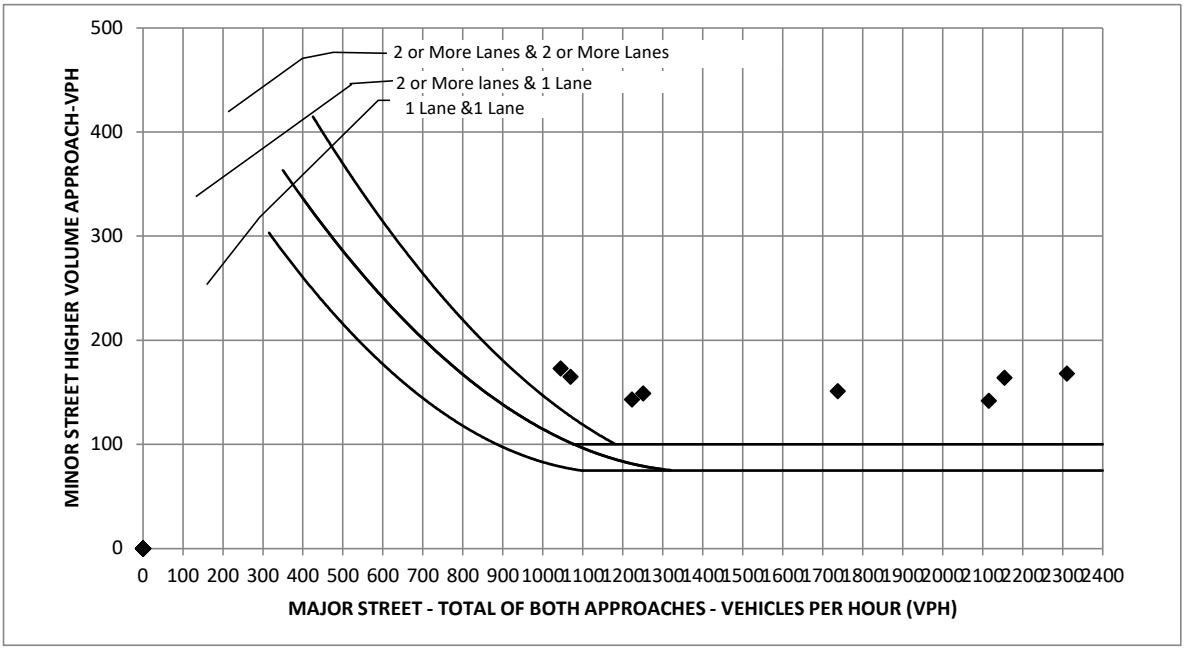


How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(70%): Peak-Hour Vehicular Volume

Spot Number:	Future Conditions		
Intersection:	NB Lapeer Road (M-24) @ SB-to-NB XO		
Date	11/4/2022	by	F&V

2	**: No. of Lanes on Major St.**
1	**: No. of Lanes on Minor St.**
55	**: Speed limit or 85th Percentile? (MPH)**
NO	**: Is the intersection within an Isolated community?**
0	**: What is the of the population isolated community?**



How Many Hours Are Met	**8**
Is Warrant (70%) Met?	**YES**

Biggby Drive-Thru Stacking Space
95th Percentile Probability - Drive Through Queue Length (# of Vehicles)

Volume = 50 vph
service rate = 60 veh/hr
$\lambda =$ 0.833333

	1	2	3	4	5	6	7	8	9
λ^x	No Veh in Cycle	X	X!	P = (e^(-λ))(λ^x)/X!	ΣP	P* # Cycle containing Volume in 1	Σ Cycles in 6	Volume in Cycle (1*6)	Σ volume
1.0000	0	0	1	43.46%	43.46%	26	26	0	0
0.8333	1	1	1	36.22%	79.68%	22	48	22	22
0.6944	2	2	2	15.09%	94.77%	9	11	18	40
0.5787	3	3	6	4.19%	98.96%	3	14	8	47
0.4823	4	4	24	0.87%	99.83%	1	14	2	49
0.4019	5	5	120	0.15%	99.98%	0	14	0	50
0.3349	6	6	720	0.02%	100.00%	0	14	0	50
0.2791	7	7	5040	0.00%	100.00%	0	14	0	50
0.2326	8	8	40320	0.00%	100.00%	0	14	0	50
0.1938	9	9	362880	0.00%	100.00%	0	14	0	50
0.1615	10	10	3628800	0.00%	100.00%	0	14	0	50
0.1346	11	11	39916800	0.00%	100.00%	0	14	0	50

DETROIT RIVERSIDE CAPITAL

RECEIVED
December 14, 2022
Orion Township
Planning & Zoning

December 13th, 2022

Tammy Girling

Director - Planning & Zoning

2525 Joslyn Road, Lake Orion, MI 48360

RE: Hudson Square 2nd Submission – Planning & Engineering Review Letter Response

Dear Ms. Girling,

This letter is in response to the review letters received from Giffels Webster and OHM Advisors regarding the Hudson Square PUD Application (Case #: PC-2022-39). Per the recommendations of the letter, DRC has modified our PUD drawings to reflect the following updates:

- Fire truck turn-around area near the Northwest quadrant of the site revised to meet IFC requirements. Compliance has been confirmed by Orion Township Fire Marshall.
- Stream relocation plan and storm detention features added to all plan sheets
- Site grading revised to meet Township requirements
- Sheet index updated on C-1

In addition, DRC has the following comments in response to review letters topics:

- DRC is open to the addition of a safety path link within the public right-of-way to the proposed public amenity, provided acceptable grades could be achieved. DRC will explore further during final PUD.
- The proposed density of the residential component of Hudson square is 6 units per acre
- Conceptual renderings of the proposed residential dwellings are included with submission 2. Further spec details of façade materials will be provided at Final PUD.
- Hudson Square will comply with ordinance section 14.02, which states that any noise associated with an extended hour use shall not exceed 60 decibels when measured at the property line.
- Residential dwellings will dispose of trash through personal 96-gallon trash bins stored in the garage of each residence. Residents will be responsible to bring trash bins to curb for weekly pickup.
- With respect to the comment in Section 27.06.D.1.a, DRC asks GW to consider if the proposed structures “front” the internal road vs. front Lapeer Rd.

Thank you for your attention to this matter. We look forward to a continued effort working with the Township and third-party consultants to achieve an acceptable project.

All the best,

Michael Wayne

Partner at Detroit Riverside Capital

DETROIT RIVERSIDE CAPITAL

Hudson Square PUD Proposal - Conceptual Renderings

DETROIT
RIVERSIDE
CAPITAL

Hudson Square PUD Proposal - Conceptual Renderings

Planning & Zoning Director Girling asked if there were any revisions or anything different than what was submitted a reviewed. Ms. D'Agostini replied that there was not anything different than what was originally submitted.

Chairman Reynolds stated that the elevations start to meet the intent of the ordinance. He thought before the issue was just the elongated 100-plus foot facades without relief or pilaster and no introduction to entrance points and thought that there had been some additional windows. It is an industrial building, but they are trying to have a nice architectural face to them.

Roll call vote was as follows: Gross, yes; St. Henry, yes; Urbanowski, yes; Walker, yes; Gingell, yes; Brackon, yes; Reynolds, yes. **Motion carried 7-0**

C. PC-22-39, Hudson Square Planned Unit Development (PUD) Concept Plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021).

Chairman Reynolds stated that this was a recently postponed case. They were waiting for a review of the traffic study, so he was going to go ahead and lead right into that.

Engineer Landis read through his review date stamped December 2, 2022.

Chairman Reynolds asked the applicant if there was anything they wanted to add.

Mr. Michael Wayne 3250 Auburn Rd., Auburn Hills, MI presented. He stated that he knew that traffic was going to be the main brunt of their discussion. There were a couple of items that the Planning Commission asked them to look at, and they have done that. They have some representations of that. They did have their traffic consultant Julie Kroll with them.

Mr. Wayne said that the last time they were in front of them they had a very positive reception from the public. The overwhelming majority of the comments were positive and as they illustrated the last time, they also got some really good feedback from the public town square Facebook. He added that they feel the positive energy for this project which is unique to this project compared to some in the past. They also heard positive feedback from the Planning Commissioners, and they appreciated that. The project is much improved from previous plans, and they appreciated their tenacity and listening to the Planning Commissioner's comments. They had an outcry and support for Sweet Amy's, Biggby Coffee, and they presented a much more appealing project than what they have seen in the past.

Mr. Wayne stated since the last meeting they have taken some comments that they got from the OHM review letter and disseminated those through their civil set. Some of those included revisions to the turnaround area in order to ensure that meets the ordinance, they have done that, and he had more detail on that. They also showed the stream location and certain stormwater detention features have all been added to the sheet which was not in the previous copies. They have revised grading to meet the Township requirements, and they updated sheet index numbers on C1. These are ready to be reviewed they have not been yet.

Mr. Wayne said that in the turnaround, it was discussed a couple of times, and they immediately got to work on it, they knew it was an important one. The solution they came up with is to extend that drive by about 10 feet to the west which does provide sufficient space for the firetruck turnaround. The Fire Marshal's email stated that in his view it is compliant with the requirements of the IFC. They are pleased to get that taken care of, but Chairman Reynolds shared that his concern with that solution was the impact on the buffers onto the west. What the aerial photo depicts is that this area is already extremely wooded today so everything to the

west is very tree covered. They will have to impact part of that area to build that driveway but their site design philosophy in this area would be to maximize the preservation of what exists in its natural habitat and supplement that with the additional landscape in the buffer areas. On the north side, for example, they have about 30 feet to do tremendous amounts of landscaping. He understood it was a very sensitive area, so they are willing to do whatever was necessary to provide adequate buffering in that area. The natural existing conditions are already helping them out.

Mr. Wayne said regarding stream rerouting, there were some questions during the last meeting in terms of what the previous plan was under the previous conditionally rezoning approval for the stream relocation. He showed the Planning Commission the currently approved and permitted stream relocation path, and it mirrors exactly the proposed relocation path. This path is permitted today they would modify the permit to utilize the new site plan but the activities that the permit permits are the same activities that they would have to perform and construct the stream relocation. They don't have concerns about the feasibility of it because that has already been approved. He looked forward to additional feedback.

Ms. Julie Kroll with Fleis & VandenBrink and an Orion Township resident at 4122 Rohr Rd. presented.

Ms. Kroll stated that she was very familiar with this intersection. She is also a parent of two children that attend Lake Orion High School. She does drive through this area frequently. She wanted to go through the OHM comments that were provided, there were very few. Their conclusion is that this traffic study is in substantial compliance with Township ordinances and Engineering Standards. It was really just three comments on here. The first one is in regard to traffic signal potential at the northbound to southbound crossover location. All of the intersections that they have evaluated their existing warrants a signal. They have a meeting scheduled with MDOT for Monday the 12th which was the first available that they could get with MDOT to talk about this. They have reviewed the traffic study and they have provided some comments, and questions about the signal criteria. She drove through the intersection earlier this week and MDOT had tubes out there and were collecting data. One of their questions for MDOT is whether they are doing their own study to determine whether it is actually warranted. She just saw them at the Waldon and Lapeer and not at the crossovers.

Ms. Kroll said that the second comment was providing some traffic volumes. Certainly, they can get those they are provided by Oakland County and can provide that as backup information for OHM.

Ms. Kroll stated that the last comment was regarding the traffic signals again and if one is necessary. Again, it meets all the warranting criteria and that would just be up to MDOT whether they want to actually install them. That is something that meets the criteria right now. They looked at the crash data out there they saw crashes were really a result of vehicles that cross over the southbound, backs up past the intersection with Waldon, and people trying to get all the way across those lanes, get in the turn lane and turn around. That is what a lot of what the crash history was there were really at that operation. Their recommendation if they were to phase it in would be to start with the crossover to create those gaps in the northbound traffic for Lapeer that would clear out their queues for the southbound. Then the next step if they still need it, and to add it at the intersection if they still need it to add it at the north side. They will have that discussion with MDOT on Monday. It was the soonest they could get them on the books.

Chairman Reynolds asked if the Planning Commissioners had any thoughts, concerns, or questions for their consultants.

Vice-Chairman Gross said he found it interesting that approximately a half mile south of this intersection there is a traffic signal that is at no intersection whatsoever. It is used primarily for truck turnaround. He didn't know how much traffic that truck turnaround gets but there is a traffic signal at Lapeer Rd. that is not at an intersection for a subdivision, apartment complex, or anything. It would be nice if that signal could be moved up where it could be in line with existing traffic considerations. It is obvious that there is, as the study has indicated, a problem there that needs to be resolved. He thought that the concept of the proposal is nice, but it needs clarification on that particular item.

Chairman Reynolds said he likes the project in concept and proposal, and he thought it is going to bring a lot of nice amenities to Orion Township. He thought they all saw the writing on the wall of the traffic being an issue, and he understood it was an existing issue. He thought that his issue here is that they are not only saying traffic is an issue they are recognizing it as an issue within a PUD. One of those items, a recognizable benefit under their PUD ordinance does it improve traffic patterns and access management. Right now, whether they are going from okay to worse, or bad to worse, or good to okay it is still not improving. He was struggling with that. He understood that their hands might be tied with what MDOT might be willing to do. It is a bad situation now, but part of the development is increasing that issue and some of that is because they have a restaurant and a drive-through. Is there discussion of any contribution towards or any community benefit? That is the next item on his list would be the community benefit and why they should allow a PUD on this parcel. Whether it is nice or not, it comes down to him what is the recognizable community benefit, and traffic is one of those. Yes, they have high-quality architecture but what other things outside of the project are going to be the recognizable community benefit, not an internal benefit but a community benefit. He still felt that they still needed to get some more discussions here, especially MDOT. Unfortunately, they should not be considering a drive-through restaurant on this corner because of its current state.

Mr. Wayne said the trip generation volume, they were required to use the standard drive-through traffic volumes which are more than the traffic volumes they had for Biggby Coffee. The actual use will be Biggby, their volumes are lower but because someday it could be a different drive-through, the ordinance requires those higher volumes. The restaurant is not open for breakfast except on the weekends for brunch, however, you can see from the study that trip generation is very significant in the A.M. contributable to the restaurant. It is for the same reason; in case it ever became a breakfast restaurant those be in there. Those are in the study and the results of the study are based on those extra levels of conserveness. The reality is the user is determined and they know what that user is going to be. In the immediate future, volumes will be less in reality than what the study is forced to show.

Mr. Wayne said in terms of contribution he thought it was challenging for them to discuss that in detail specifically without understanding what the scope of the mitigation will be. They can't sit up there and say that they know today the amount of money they would be able to contribute but they acknowledge that the contribution would serve the public benefit of delivering a signal to the intersection and they want to be a part of that. They also acknowledge that there have been hundreds of developments long before them that contributed to creating this problem. They don't feel that supporting the entire cost of the improvement is prudent or deserved given their impact but want to be contributors to the solution. He would say their willingness is to provide a solution through signalization and they would be willing to contribute to the cost of that. The specific details in terms of amounts would have to be determined once the scope of the work is determined.

Secretary St. Henry asked if there was ever a signal at that intersection in the past before they redid Lapeer Rd. Chairman Reynolds replied no because his mother got in an accident there when he was four. Secretary St. Henry said that it was really unfortunate that MDOT when they

got rid of all of the traffic signals on Lapeer Rd. in 2015-2016 to improve the flow, they didn't take into consideration some of these open pieces of property that could have been in play. Because they are going to have to go back to having multiple signals along Lapeer Rd. backing up the traffic again. He is not saying that it is not warranted given the issues that residents have on Lapeer Rd. and getting out and the general traffic flow which they know is not great, although it is much better than it was in the past. He wished MDOT would have looked at the big picture down the road of what the issues would become arising based on potential developments like this. They are going to have signal issues and backup issues just like they have had for the last 40 years until 2015-2016 when they improved that.

Engineer Landis stated that just because signal warrants are showing to be met doesn't necessarily mean that MDOT is going to be in agreement with stopping traffic on M24 to allow those turning movements. They may decide that those backups will occur, and they don't want to stop traffic on M24. Secretary St. Henry said he would love to hear from MDOT at some point somehow on their thoughts on that.

Chairman Reynolds said he didn't want to deny a project based on an unknown variable. He would like to get some more information and get some responses and feedback from MDOT. He did think that some of the other issues that are in the project could be resolved in future steps but before they can say, yes. It is concept and eligibility he would say no right now in that category without saying what else could they potentially do. His opinion is that they need still some more information and he thought that MDOT needed to come to the table to further discuss before they proceed.

Commissioner Walker said he thought that the most cogent comment made was by Commissioner Gross with regard to that signal 100-200 yards south on Lapeer. Why is it there? He doesn't know enough about MDOT. He asked Engineer Landis if MDOT would think about moving an existing signal. Engineer Landis said he doesn't know enough about that existing signal to say one way or another but was something that they could look at.

Commissioner Walker said he is still a big Sweet Amy's fan, but he is also a big fan of the rest of the residents of the Township too. The traffic pattern presently on M24 north or south is dreadful, it is a nightmare. Hopefully, they get their kids back and forth to school easily. Because Sweet Amy's is not open, he was forced to dine at McDonald's this afternoon. He pulled into McDonald's, and he ordered, and an EMS siren was racing by and the lady at McDonald's said that was the third siren this afternoon traffic out there is dreadful. This was at 3:00 P.M., it was not rush hour. He really wants to help this project go through other than the traffic he has no problems, he thought that they could work out everything else to his satisfaction. He was hoping by today that MDOT would have done something but wasn't sure what anyone can make them do.

Mr. Wayne asked what specifically is that that they want from MDOT. Chairman Reynolds said since they're the decision maker or influencer in this discussion he thought they needed them a part of it. To him when they say why a PUD and does it check the boxes of improved, but unfortunately traffic is a big one. Until they have a little more information to say because of their proposal, it is pushing it to the detrimental component to where now, yes, they are going to make an improvement, he thought they could discuss. Maybe as a developer, there is a contribution or a shared cost of that. Not only are they having a great development but also, they are mitigating issues that they have presently. To be clear they understand it is not good now but to him whether any direction in the negative for any PUD is not something they look favorably on. They are saying it is to keep it neutral or contribute positively, yes, they know there is more traffic. That is one piece right here when they say just from the baseline eligibility one "C" in their ordinance that is a big item there that he can't say yes to yet. He liked a lot of

the things in this project. That is why he doesn't want to just say no, he would like to gather some more information and have MDOT say okay, they have come to some sort of betterment of the situation versus they are just adding to it, and it is just going to go from bad to worse.

Commissioner Brackon said he would like to know from MDOT whether the addition of the signal would help safety but increase the traffic or make the traffic flow worse. Are they parallel and are they antagonistic to each other when they are talking about safety and accidents versus more traffic backing up? He would think that if they added the traffic light and add more additional traffic it may be safer because the cars are probably going slower, and any accidents that may occur are going to be of a slower velocity. He would like to know from MDOT, whether they are inverse or parallel. Mr. Wayne said that his understanding is that the crash data that was explored in the traffic study that Ms. Kroll eluted to is related to the lack of a clear path to get across Lapeer Rd. to get to the turnaround. The introduction of the light would create the gaps that would allow the traffic to get onto Lapeer Rd. to get to the turnaround which would therefore improve the safety of the intersection. The other thing is people feel a lot more anxious when they are sitting at a stop sign than they do when they are at a stoplight, at least with the stoplight they know that it is going to end, and they are going to get to go. When that stop sign backs up it is much more unpredictable, and people get anxious. Even if people are waiting longer at a signalized intersection, it is perceived better and it has a higher conicoid level of service as MDOT indicates it as. It might take longer in terms of time, but it is a better level of service given that it uses signalization.

Chairman Reynolds said that when M24 was redone it created those pause moments for people to pull out. This might be one of those areas that never really happen because of the gaps in the lights. At least where it was more frequent of lights, they do notice those gaps before versus playing frogger with your car.

Mr. Wayne said as it relates to checking the C box, if their project goes away tomorrow there is zero chance that a light is going there. Just their project being here and going through this process is going to be the squeaky wheel that hopefully gets fixed by MDOT. It was something that was mentioned in the past. He thought apparently just the potential that it could solve the problem and that is what their study does indicate is that the signalization does improve the level of service dramatically even with their project built. Just the potential to improve it is a positive but because the outcome can be controlled by anyone here, he didn't know if that could control the ultimate outcome of their application for this PUD. He understood from Ms. Kroll that MDOT can't simply deny site access, they can't say that they can't put a curb cut there at all. They are required in some way to allow them to do that it just is a question of what mitigation they require both with the light or with curb cut. MDOT from his understanding can't say we deny you as a project. They are not going to get that outcome, what they might get is an outcome where MDOT says that they understand that signal warrants are met but in the effort of the overall traffic system they think it makes the most sense to leave these unsignalized and they approve this curb cut location. The Planning Commission needs to consider that reality and what the outcome would be. The perfect scenario is that MDOT acknowledges the issue, they agree with it, they prioritize it getting fixed, they fund it and they get a light. He thought that all of them would agree that would be ideal. The realistic alternative scenario with MDOT is what he just outlined, and he thought the question for the Planning Commission to consider is what happens in that scenario. Depending on the answer to that question, he could suggest that it may not change the outcome to wait for information from MDOT.

Chairman Reynolds stated that he is encouraging a postponement versus just a flat-out denial. He thought that they were open to understanding what the inverse or the receptacle might be of this versus just saying sorry it makes it worse.

Secretary St. Henry said that no matter what goes on down on M24 in terms of developments and they have some others that are in play, these traffic issues are going to be there and nothing is going to improve it substantially. He did agree with the applicant that perhaps up to this point MDOT is not necessarily taken that intersection seriously because there has been nothing there. Now that there is a legitimate development that the Township thinks favorably of maybe that will be the squeaky wheel to take a really close look at this and determine if they are going to put a light in there or not. Anything that anybody can do to get MDOT to take that seriously whether it is the Township or a developer, whoever, let's move forward and see what happens. Mr. Wayne said he thinks that the concept of signalization is the ultimate result here.

Moved by Chairman Reynolds, seconded by Vice-Chairman Gross, that the Planning Commission **postpone** action on PC-22-39, Planned Unit Development Concept and Eligibility plan, 3030 S. Lapeer Rd., (Sidwell #09-26-101-021) for plans date stamped received October 20, 2022, for the following reasons: that they would like to see response and feedback from MDOT regarding the traffic study and would like additional information on what mitigation measures they may propose; any revised submittals that be resubmitted be rereviewed by their professional consultants; and the postponement is for a period of no greater than 6-months.

Discussion on the motion:

> Vice-Chairman Gross said that they have obligation to protect the health, safety, and welfare of this community. He thought that traffic is involved and necessary to protect the health, safety, and welfare of the community and the residents of the community, and even residents not in this community.
>
> Secretary St. Henry stated if a light is needed anywhere on Lapeer Rd. in that stretch it is right there. It has been an issue like that for 25 years with the road reconstruction a while back, it is better. If they put in developments like this there are going to be other ones that are going in. If there is any place that there should be a signal it should be at Waldon & Lapeer Rd.
>
> Mr. Wayne said he didn't think that they could consider the traffic impact on this site from 100% of it as incremental. He thought that was how they view this, the idea that any additions are worse, he thought that might be a tainted way of looking at it. He thought that they really had to consider what is it already approved for, what the existing zoning allows for in terms of traffic creation and that is the amount of traffic that this site "already allowed to create the zoning ordinance". The PUD traffic volumes shouldn't be measured from zero to what it is and considering all of that incrementally bad they have to consider what is already allocated in terms of volume for this site. He would like to call attention to the previously approved plan which had 26,000 square feet of office space, and 175 parking spaces. While they didn't have a drive through there were tremendously more cars, and that one didn't even have a traffic study and was approved. He thought that if they really question what the incremental difference is between their volumes and what could be built there according to the current zoning, he thought they would be challenged to find a big difference.
>
> Mr. Scott Gabriel 941 Joslyn Rd. said he was a trucker and pulls a 70-foot trailer. That is the only turnaround on Lapeer Rd. since they made all those improvements, most of the turnarounds are very shallow, you can't pull a truck around through them. If you are going to make that turn you have got to use that turnaround and they need that light for the time to make that big swing, that is why it is there. He added that he thought this thing should go through, it is well thought out, it is nice, and the actual drive-through might actually take away traffic from the other infamous coffee drive-through. He has no

interest; he doesn't know these people but thought it was a good thing and his points are valid, and the fact that it was already approved for a higher volume. Most people that live there, he would say, that 50% of people now don't get up at 8 A.M. and jump on the road in the morning, that is not America anymore, they are telecommuting. If it is set for peak volume, he didn't think they will ever get to that. He asked if this was going to put more traffic on Joslyn. Are they going to come off Waldon and go onto Joslyn? If so, is there any time or trigger that would make Joslyn widen?

Roll call vote was as follows: Walker, yes; St. Henry, yes; Gross, yes; Gingell, yes; Brackon, yes; Urbanowski, yes; Reynolds, yes. **Motion carried 7-0**

9. PUBLIC COMMENTS
None.

10. COMMUNICATIONS
None.

11. PLANNERS REPORTS
None.

12. COMMITTEE REPORTS
None.

13. PUBLIC HEARINGS
None.

14. CHAIRMAN'S COMMENTS
Chairman Reynolds stated that congratulations to Trustee Donni Steele on her new role and therefore their fellow Planning Commissioner Kim Urbanowski has been appointed to the Treasurer position at the Township. They look forward to putting their monies into her hand and her dedication to their community is greatly appreciated.

15. COMMISSIONERS' COMMENTS
Commissioner Gingell, Commissioner Walker, Secretary St. Henry, and Vice-Chairman Gross, congratulated Commissioner Urbanowski.

Commissioner Urbanowski thanked them all for their kind comments. She is looking forward to learning from Donni which she already started today and will be in the office tomorrow to try to glean as much from her as she can before she leaves. She is up for the challenge she has been diving deep into Township things for the last year in anticipation of doing this. She wanted to also acknowledge that it was December 7th.

Commissioner Brackon said good luck and congrats.

16. ADJOURNMENT
Moved by Chairman Reynolds, seconded by Commissioner Gingell, to adjourn the meeting at 8:20 p.m. **Motion carried.**

Roll call vote was as follows: Urbanowski, yes; Gingell, yes; Walker, yes; Brackon, yes; St. Henry, yes; Reynolds, yes. **Motion carried 6-0. (Gross absent)**

C. PC-22-39, Hudson Square Planned Unit Development (PUD) Concept Plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021).

Chairman Reynolds asked for the consultants to read through their reviews.

Planner Pietsch read through his review date stamped received November 11, 2022.

Engineer Landis read through his review date stamped received November 9, 2022.

Chairman Reynolds said that the Fire Marshal did review the conceptual plans and had some concerns about some of the turnarounds.

Chairman Reynolds stated that there was a site walk completed by the Site Walk Committee from Vice-Chairman Gross. They have completed a site walk a few times on this parcel in the past. There was also a preliminary review from WRC.

Planner Gingell asked when they will have that traffic study to review. Engineer Landis replied that they should have their review completed within about a week to a week and a half.

Commissioner Walker said he wasn't sure if anyone on this dais or on the other dais is a more frequent patron of their restaurant than him. He wanted to disclose that right up front. He has no interest in their restaurant other than he really wanted them to make it happen. Anything negative he says up here has nothing to do with their restaurant or with Biggby Coffee. He did have some questions. His biggest concern is the traffic. He understands that they cannot control MDOT any more than they can. Every developer that comes before them says this, it is only going to be 26, 37, 48, more cars, whatever the number is. Southbound M24 in the morning and any time of the day now, north, and southbound M24 are hideous the traffic is terrible. That stop sign at Waldon and M24 is not sufficient. Something must be done, and he is not saying they can do it. To him, if there was a light there or a light coming out at the ingress or egress point of their development on M24 it would make him extremely happy. He thought that everybody would forget about a whole lot of other things if they could pull that off. He knew they couldn't do it, and the Township couldn't do it. That is his biggest concern. The next concern he had was water runoff, and he is not an engineer, but he is worried about the water runoff, especially with the stream configuration change. They indicated that all the water runs to the southeast quadrant of their development and then goes into a culvert that runs under M24. He asked if that was true. Mr. Wayne replied that when the Classic Car Club plans were approved it was approved that that stream would get rerouted basically into that 6-ft. culvert and that is where all the water flows naturally. There was already a permit from EGLE to relocate the stream, and they plan to copy the exact path of relocation and update the permit just to reflect the new design. The stream relocation has already been through the eyes of EGLE, and they deemed that this path is feasible.

Commissioner Walker said he was somewhat concerned about the lighting. They indicated that there are enough trees and things in the way that there is not going to be any input to the neighbors to the west. Mr. Wayne said the west portion of the site is where their residential is located and so those have modest lighting similar lighting to what a single-family home would have in terms of exterior façade lighting. The parking lot to the east would have more traditional parking lot lighting. His point was that the whole tree line on Waldon is going to remain part of

the nature preservation effort. From Waldon Rd.'s point of view, they will have the tree line completely blocking any lights in that parking lot. He added that the beauty of this site is there are some trees on property lines and in areas that are being preserved that stand 50-60 feet tall. Those trees will serve as a great natural buffer both for light and for the buildings themselves. Commissioner Walker asked if those trees are going to remain. Mr. Wayne replied yes, they haven't done a tree survey yet to tell you exactly which ones but there is a big line of trees on Waldon Rd., the intent is to preserve those trees, and then those other trees that are at the entry point and over by the wetland.

Commissioner Walker said the only other person who is a bigger tree hugger than he is, that he knows of is Mary Ann Ryan who was one of the people that spoke during public comment. She gave them their full endorsement.

Trustee Urbanowski said that Engineer Landis had said that the stream relocation will need wetland and or EGLE permits. Mr. Wayne said it was previously permitted for the conditional rezoning for the previously approved site plan. That same stream location design, basically the direction that it is moving is exactly what they copied on. The previous site plan was approved with that stream location, so they are going to take the same one and place it on this site plan.

Trustee Urbanowski asked if there were any changes because that came before the change in the Engineering Standards. Engineer Landis said that the stream relocation would not necessarily be impacted by the new standards. The new standards would be more towards promoting infiltration outside of the detention area. He didn't recall the previous site plan relocating that stream, he thought the stream was being enhanced in place, but he would have to look and see if he can find that.

Trustee Urbanowski stated that they have been here many times and she appreciated their tenacity and listening because there were three people that came up to speak tonight that had been here before for The Woodlands and they were not quite happy with that development. It sounds like they all are ok with the development now. Probably no small part to Sweet Amy's but she also thought it was the other parts too, the car club is something that people wanted before, it has been approved already and it is something she thought people were looking forward to. Then other people say the need for these apartments, which is something that they have discussed. Mary Ann's endorsements were huge, she was waiting to see what she was going to say.

Trustee Urbanowski questioned the turnaround and the Fire Department turnaround, a cult-de-sack or something. Mr. Wayne said there is a proposed turnaround area. He understood the concern of the turnaround configuration is that if cars were parked outside of that garage, it would block the firetruck from being able to pull all the way in. They do have a little space to the west so he spoke with their engineers about this previously and one concept was to extend those driveways further to the west so that it would provide a space where the car could still be parked in front of the garage without blocking part of the driveway that the firetruck would use. He didn't know if that was feasible yet because they are working through that, but the intent would be to basically configure that driveway in a way where it achieves the goal of the turnaround.

Chairman Reynolds said they are at the initial step of this process, concept, and eligibility plan. He did think that the proposal as they see it here tonight from previous proposals on the parcel or adjacent parcels is much improved from density impact and it does meet a lot of the criteria in their Master Plan from that missing housing component. He thought that was a great benefit. He stated that they heard a large outcry of support for Sweet Amy's and essentially the coffee shop. He thought that there were some positives there. He did think there are a number of

technical items that still need to be addressed. One of the things was the turnaround and talking about extending that. His concern was about some of the buffer and transitional zones between this property and the adjacent ones. Regarding the west, if they were to extend that then that essentially eliminates any natural buffer that is going to remain or any tree buffer that would be proposed, that was a concern of his. It also seemed like he is in support of the coffee shop, he thought it was great, he knew previously when they approved the conditional rezone with the asterisk of no drive-through that was in relation to traffic. His biggest concern right now would be that they ask for a 100-ft. setback to residential and it is significantly reduced here in this plan. The building is 52 feet from the driveway it looks around 30 feet. He felt that if there is indeed a hardship here because of some of the limitations of the natural features, he was in support of working with that but to just flat out just say it is 50-ft. without other measures being proposed and he thought that brings him back to the landscape discussion. It did get brought up this evening about proximity and they have had other projects here straight zoned that it is a special land use that is something they always talk about is sound, sound transfer, and traffic flow. He thought those were topics to consider in this plan. He would like to see that drive-through, he liked the orientation of the site, but can they shift some things down, can they start to make that buffer greater, if they are going to indeed decrease it? They are not speaking about what remains of the natural features of trees, they are talking about preservation. What does grading do to this? They know that they can love that tree but if they are bringing that grade up two feet that tree is never going to survive. That was a big topic for him to discuss and he would like some input on the proximity of the drive-through in relationship to the site.

Chairman Reynolds added that he knew they are talking round and round about the likelihood and the response and what the traffic study might bring them. One of their measures here about looking at a (PUD) is the detrimental impact on surrounding areas and felt that was an important piece for them to at least have a formal review on or response before they further deliberate no matter how positive they feel about this evening. It seemed like if that is something that they require of everyone else that should be some facts they have in front of them before they just say, yep, I agree, or hope that there isn't. Maybe there is something that they need to ask for in addition. Going back to the conditional rezoning of the past they said that asterisk because of the proximity to Waldon Rd. that it probably isn't going to get much better, but they also want to mitigate that risk moving forward with whatever proposed uses might be there. He was in support, but they are up there to do their due diligence.

Chairman Reynolds said he knew that there were some comments on reduced setbacks of some of the drives. The T-turnaround was another thing he wrote down. He would like to move forward no matter what condition, they must make sure the density fits. He thought that also the conditions also need to include that asterisk of making sure they are being smart with drainage and runoff on this parcel.

Chairman Reynolds said he would like some discussion on the drive-through area and the thoughts on preceding/not preceding without having their formal review of the traffic study that was submitted.

Trustee Urbanowski stated that the traffic continues to be the major issue that got brought up a lot. She thought that with all the positivity that has come from the changes she did agree that they must have the opportunity to fully review the traffic study. Also figuring out the turn-around for the firetrucks is important.

Chairman Reynolds said to be perfectly clear there are usually components and items that get to be worked through with future steps of this. He thought that where conditions come into the comment, they agree bigger picture, the final grading, and things that will come. If it is a huge make or break or it is not possible that maybe break their initial thoughts.

Secretary St. Henry said he thought that this concept development is much more appealing than what they have seen in the past. He did like the mixed-use nature of it. He thought that the four different components of this development provide benefits. The traffic is his biggest concern, it is good to see that they are not routing cars in and off Waldon. He lives off M24 and he knows what M24 is like, and they are seeing a lot of proposed developments up and down M24. It is bad, it is going to get bad plus with the other developments. Recognizing that this is a responsible well thought-out concept plan. In terms of the turnaround with the fire department, later in the process, it is his understanding that those things typically are figured out one way or another. He thought that the developer and everyone recognizes that fire access and so forth is critical to any development and felt they would figure that out. This is a much more appealing development concept than what they have seen in the past for this area.

Commissioner Walker asked if they still had the windmill. Mr. Wayne replied that the last time he was there the windmill was still there about a month ago. He jotted that down when that comment got made because if they could preserve and keep that water flowing.

Engineer Landis said regarding the stream relocation, the previous Classic Car Club site plan did show the stream relocation as included on this plan before them tonight.

Mr. Wayne said they mentioned a residential setback, does that have to do with the fact that the north property is zoned residential? Chairman Reynolds replied that the required setback to residential for a drive-through in a special land use is 100 feet. That is kind of the key criterion there. There is a 35-foot residential setback to the residential units, which is a deviation. He thought that seemed like they were scrunching that up close and without understanding other mitigation measures it is a concern. Mr. Wayne asked if that deviation from their own residential. Chairman Reynolds replied to the north adjacent property owners. Mr. Wayne asked if that parcel was zoned institution or commercial zoning, what would that setback be in that case. Chairman Reynolds believed that the setback was 50-ft. Mr. Wayne said the underline zoning is (R-2) the current use is the church, technically it is residential zoning practically speaking it is functioning as a commercial business or an institutional business he thought a 50-ft. requirement should be considered.

Mr. Wayne said they would certainly like to maximize it, the challenge they have is they are pushing from each end to try to fit all the pieces in with the necessary setbacks, and meeting all the ordinances that is a challenge every developer faces. These minor tweaks that they can make, he thought, could improve the overall orientation, and allow them to come closer to the setbacks. One specifically that he asked for feedback on is the extra 5 feet on the residential being 30 feet as opposed to 35 feet. That area behind those residences is intended to remain as natural and undisturbed as possible. Their intent was to provide a 30-ft. setback there, and their hope is that that is sufficient. Trustee Urbanowski asked if there was a deck or patio back there. Mr. Wayne said for the first-floor units the 200-ft. outdoor patios would be between the buildings.

Chairman Reynolds said it is not that he is not open to decreasing the setback it is what other measures are in place to mitigate that. They are lacking some landscaping here to just say they have just spoken to propose buffers between evergreens staggering between uses on the parcel. They are kind of saying it is going to be maintained or proposed but thought that was something that would help them come to those conclusions. At least to say that it is going to be a solid buffer or whatever it might have been.

Chairman Reynolds said just proceeding this evening without the formal review of the traffic study, in favor or not. It would have to be their next meeting, or it seems like it could be ready

by their next packet. He asked Engineer Landis if that was possible. Engineer Landis replied yes. Mr. Wayne said it will be ready and reviewed and he doesn't want to convey that he is diminishing the importance of it. It is going to say that the existing conditions warrant a traffic signal. It is going to analyze the warrant signals for that and describe how each of those is met. It is then going to look at background conditions that add to population growth for the next two years. Then it is going to look at the future conditions with their development built and will compare the signalization and the unsignalized. What it shows is that even with their project built and the addition of signalization the then traffic conditions will then be better than they are today without the site built. He would love to guarantee a light, but they don't know that yet. He thought in the Planning Commissions' eyes to consider how to manage that situation given that it is not this entity that controls that. Chairman Reynolds stated that he understood. He thought what was important to them was the traffic reviews and their process. It isn't so much about that that might change it is just the opportunity for their professional review of that. He understood and knew how to read a traffic study but at the same time, they have a process and a duty on these projects and this process. He stated that he wouldn't mark this plan substantially complete without that together. He didn't want to delay the process but at the same time, it is a pivotal piece to a (PUD).

Trustee Urbanowski agreed with Chairman Reynolds. She stated that the need to look at traffic. She agrees that they should not make any decision on it until they have all of the pieces of the puzzle. She asked what the hours of operation were for the car club and the restaurant. She asked what the capacity was for the restaurant, and how many patrons were they expecting. What is the average for a Biggby drive-through? Ms. Amy Harris replied that the restaurant seats about 100 people on the main floor, the patio seats about 30, and the mezzanine will potentially seat around 30. The hours of operation during the week for the restaurant would potentially be open 4 p.m. to 10 p.m. on Fridays 4 p.m. to 11 p.m. and Saturdays and Sundays they would be open for brunch. So probably 9 a.m. to 11 p.m. on Saturdays, and Sundays would probably be 9 a.m. to 3 p.m. or 4 p.m. Biggby, would be open from 6 a.m. till 8 p.m. most days of the week, maybe on Saturdays and Sundays a little bit earlier. Biggby would probably have a max of 20 seats in there. She added because of the road that is being developed there will not be that backup of traffic that they see on Lapeer Rd.

Dr. John Canine 1247 Lake Shore Blvd. said the current car club they have had three inside parties in seven years at the current location. The hours of operation are fully secured with cameras, and they give the car owners keys to the building, and security codes and they can come and go 24/7. He heard one of the comments about loud cars, they leave that to Joe Zimmer down at Culver's he can handle the car shows and he does a nice job with it, but they will not be having car shows like that. Chairman Reynold replied so a private-based use. Trustee Urbanowski said she wanted to get a general idea of when the traffic was going to be coming and going.

Moved by Trustee Urbanowski, seconded by Commissioner Walker, that the Planning Commission **postpones** action on PC-22-39, Planned Unit Development Concept and Eligibility plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021) for plans date stamped received October 20, 2022, for the following reasons: they still have an outstanding report on the traffic study that they need to look at and digest; and T-turnaround for the Fire Departments' approval.

Discussion on the motion:

> Secretary St. Henry asked when the applicant comes back before them after they have a chance to look at the traffic study, they will have an opportunity to make some changes to their concept plan. Chairman Reynolds replied that they are not encouraging necessarily another submittal it would be the review of what was submitted. If there are

going to be additional conditions or items that they bring forth for them to consider in addition to the submitted plans that would be the current thought. There wouldn't be time to recur and get resubmitted with time. Secretary St. Henry said that their plan is to come back quickly. Chairman Reynolds replied correct, with this plan with their reviews complete. If there were to be additional items that maybe meet or are discussion points, they could present that and they could say as presented. Secretary St. Henry said that was what he was getting at if they want to address any of these outstanding concerns no matter what it is if they think they can tweak the plan accordingly.

Mr. Wayne said he agreed with Chairman Reynolds that they would like to be back in two weeks, he will check with Tammy and Lynn just to see if they can be on that meeting. They would like to be back as soon as possible absent of another submission. If they are unable to be at the next meeting, then perhaps they would just resubmit and be on in two meetings from now with an updated plan and traffic study. Their preference is to come back as soon as they can.

Chairman Reynolds said if there are some thoughts and at least some of those items that they can clarify some additional information or as submitted he thought that would be helpful and that potentially mitigates some of the conditions that might be brought forth.

Mrs. Amy Harris said regarding the hours of the restaurant they will be closed on Mondays and Tuesdays; it will only be Wednesdays – Fridays they will open starting at 4 p.m.

Planning & Zoning Specialist Harrison asked if the Planning Commission would like to see revised plans back or not or if it is just the traffic study. Chairman Reynolds replied that they are seeking the postponement for the ability for the traffic study to come forth. They weren't asking for submitted plans, they were just asking if there were clarifications during a future presentation to address some of their concerns, they are appropriate with that, but they weren't trying to get into a whole revised plan at this point.

Roll call vote was as follows: Brackon, yes; St. Henry, yes; Urbanowski, yes; Gingell, yes; Walker, yes; Reynolds, yes. **Motion carried 6-0. (Gross absent)**

D. 2023 Planning Commission Meeting Dates

Chairman Reynolds said as always, they meet on the first and third Wednesday of each month beginning on January 4th and ending on December 20th. They want any dates potentially considered for review; they could talk about amending those if not they can adopt as presented.

Moved by Commissioner Gingell, seconded by Trustee Urbanowski, that the Planning Commission approve the 2023 PC Meeting Dates Resolution as presented and **forward it to the Board of Trustees for adoption.**

Roll call vote was as follows: Gingell, yes; Brackon, yes; St. Henry, yes; Urbanowski, yes; Walker, yes; Reynolds, yes. **Motion carried 6-0. (Gross absent)**

CHARTER TOWNSHIP OF ORION PLANNING COMMISSION MINUTES
PC-22-39, HUDSON SQUARE PLANNED UNIT DEVELOPMENT (PUD) CONCEPT PLAN
JOINT PUBLIC HEARING – WEDNESDAY, NOVEMBER 16, 2022

The Charter Township of Orion Planning Commission held a Public Hearing on Wednesday, November 16, 2022, at 7:05 p.m. at the Orion Township Municipal Complex Board Room 2323 Joslyn Road, Lake Orion, MI 48360.

PLANNING COMMISSION MEMBERS PRESENT:

Scott Reynolds, Chairman
Derek Brackon, Commissioner
Kim Urbanowski, BOT Rep to PC
Don Walker, PC Rep to ZBA
Joe St. Henry, Secretary
Jessica Gingell, Commissioner

PLANNING COMMISSION MEMBERS ABSENT:

Don Gross, Vice Chairman

CONSULTANTS PRESENT:

Jill Bahm, (Township Planner) of Giffels Webster
Eric Pietsch, (Township Planner) of Giffels Webster
Mark Landis (Township Engineer) of Orchard, Hiltz, and McCliment, Inc.
Lynn Harrison, Planning & Zoning Specialist

OTHERS PRESENT:

Amy Harris	Scott Harris	Matt Malenich
Ray Harris	Greg Moran	Amy Keyzer
Sherley Moran	Emily Glassford	David Steuer
John Slocombe	Elizabeth Glassford	Lorita Woznick
Diane Glassford	Sydnee Keucken	Mary Mansfield
Ari Geczi	Jen Geczi	Terry Clissold
Fred Glassford	Elizabeth Fenwick	Sharon McQueen
Susan Johnston	Marcie Ramsey	John Whitley
Alicia Lawson	Matt Lawson	Melissa Canelis
Giselle Graham	James Graham	Tracy Deuman
Kelly Mihelich	Ryan Soldan	Al Hassnan

PC-22-39, Hudson Square Planned Unit Development (PUD) Concept Plan, located at 3030 S. Lapeer Rd. (Sidwell #09-26-101-021).

Chairman Reynolds asked the petitioner to make a presentation.

Mr. Michael Wayne with Detroit Riverside Capital located at 3250 Auburn Rd., Auburn Hills, MI presented.

Mr. Wayne stated that they were there to share with them a proposal that cultivates the vision of the Orion Township Master Plan and practices responsible development on a currently underutilized parcel.

Mr. Wayne said that this project is not The Woodlands. This proposal has nothing to do with The Woodlands and it is a completely separate project. He added that the adjoining 20 acres that were previously part of The Woodlands proposal is not a part of this proposal, and they have no intention to combine this with the adjacent parcels.

Mr. Wayne stated that the history of this site is interesting because following The Woodlands proposal Dr. Canine was left with a choice of what to do with his land. He met with various members of the Township and through those meetings created some ideas, and the output of those ideas is what they have here tonight.

Mr. Wayne said the existing subject parcel is 7.07 acres. It is located on the northwest corner of Lapeer and Waldon, and the address is 3030 S. Lapeer Rd. The current zoning of the parcel is split between

General Business (GB), and (R-2) single-family. They are bordered to the south by (OP-1) to the east by (RM-1) and to the north, by (R-2) although the current land use is institutional a church being built there and then north of that is (RM-1), to the west is (R-2) residential.

Mr. Wayne said that as of today there is a project that is currently approved on this site. This project features 26,000 total square feet of office space as well as a 4,000 square foot free-standing restaurant. He added that the majority of the office space was being built on spec to complement the car club. But, in a post-pandemic environment, the demand for office space has completely fallen off a cliff. As an example, in Oakland County there are 54 million square feet of office space in total, currently, 24% of that office space is vacant. That leaves 12 million square feet of office space in Oakland County currently vacant. Not a good time to build spec office space.

Mr. Wayne stated that there was another challenge facing this site and that was the adjacent three acres that by building the subject parcel really limited the future development potential of the property to the west. When faced with the economic challenges of office space, as well as the underutilized land, Dr. Canine knew that he had to rethink his approach to this site. So, they collaborated with Dr. Canine and created Hudson Square. They feel that Hudson Square is a tremendous project that meets the relevant needs of the community today as compared to what is currently approved.

Mr. Wayne said that Hudson Square site plan has four main components. On the southeast is the restaurant which is also attached to the car club. The northeast is the drive-through Biggby Coffee and to the west is the for-lease residential. Now, of all of these uses, they need a total of 128 parking spaces of which they provide 130, so parking is not an issue.

Mr. Wayne stated that every (PUD) must bring along with it public benefits, and Hudson Square has numerous. Many of those were mentioned by the Giffels Webster review, which they will hear about later tonight. A couple of those benefits include the preservation of natural features. On the southwest portion of the site, they have a beautiful water feature and that was certainly key in their site design to preserve and not disturb that wetland area. Furthermore, Waldon Rd. features a beautiful tree line as they are driving toward Lapeer and it was really important to them to preserve that tree line, in doing so they did not create any access from the property to Waldon Rd.

Mr. Wayne said that Hudson Square also brings improvements in public safety through the additional construction of safety paths. Of course, this is beneficial just for their site alone, but when they look at the macro situation there is an existing safety path that runs about 3,000-ft. north to south just south of Summerfield Condo community all the way up to the Home Depot. That stretch of safety path doesn't currently connect with the existing three-mile path that is to the west along Waldon Rd. in between Lapeer Rd. and Baldwin. Hudson Square will provide for the connection of almost four miles worth of safety paths which currently are inaccessible to one another.

Mr. Wayne stated that open space and nature preservation were important to them so open space was another public benefit. They have been able to generate 40% of the site to remain as open space, and this is more than double what the ordinance requires.

Mr. Wayne noted that high-quality architectural design is another public benefit listed in the (PUD) application and it is certainly applicable to Hudson Square. Between the commercial and residential uses they have identified façade materials that are not only high quality and durable, but also very aesthetically pleasing and that is represented in some of the elevations and renderings that they will see tonight.

Mr. Wayne said that his favorite public benefit is the public art feature which is proposed at the southeast corner of the site. This is a 10-acre patio space that will be centered by public art piece. He will collaborate with some of the various art institutions, perhaps the DIA to come up with a sculpture design and then propose that for approval to the necessary township boards. They feel that this is a really great

way to accent a popular corner and display a cornerstone piece that can be representative of Orion Township.

Mr. Wayne stated that accessing (PUD) compliance with the Master Plan is critical. One of the ways to do that is to look at the Future Land Use designation. This site on the west portion is high-density residential in the Master Plan and on the east portion is General Business (GB). The Master Plan also calls for higher density residential near commercial thoroughfares, of course, that applies here. It looks like they are missing middle housing types that specifically name quadplexes as one of those and that is what they were presenting tonight.

Mr. Wayne said it calls for the clustering of residential units around natural features and open space, he explained how that was achieved by this site plan. Lastly, it mentions that commercial corridors should be placed along major thoroughfares, of course, they are the most major thoroughfare in the Township.

Mr. Wayne stated that the Giffels Webster review letter notes a number of these, and they stated that the project was generally consistent with the Master Plan and the Future Land Use, and they agreed.

Mr. Wayne said with this project there are four key components; the first is Sweet Amy's Eating House. This is a 4,000-square-foot upscale restaurant that has over 1,000 square feet of outdoor dining space. Then they have Biggby Coffee which is a 1,700-square-foot drive-through, quick-service restaurant. They have the Orion Classic Car Club, which is 3,000 square feet and again is connected to the restaurant. And lastly the 24 residential for lease units. They are going to break down each of these components. He asked Amy Harris the owner of Sweet Amy's and Biggby Coffee to come up and share a few words.

Mrs. Amy Harris 943 Watersmeet Dr., Oxford, MI presented.

Mrs. Harris said that she has lived in the area for ten years. All four of their adult children went to Lake Orion High School. They are affiliated with Lake Orion although they technically are in Oxford. She stated that she owned Sweet Amy's Eating House in Lake Orion for six years. She said she worked in restaurants for seven years throughout high school and college. She then went into advertising and worked 18 years at a larger advertising agency managing a multimillion-dollar automotive, casino, and healthcare accounts. After those 18 years, she got burnt out in corporate America and she always had the desire to open a healthy restaurant. Her family eats very healthy and clean, and her daughter has 10 plus anaphylactic food allergies. No restaurants in the area can truly accommodate her allergies. They did some research and found there was a need for a healthy primarily non-GMO restaurant in the area that does accommodate individuals with special dietary restrictions. They decided to open an Honest to Goodness Breakfast & Smoothies in May of 2016. That evolved into Sweet Amy's Eating House during COVID as people were not so apt to go out for breakfast. They had to pivot and change their primary focus to lunches and dinners, and still served the breakfast that they were known for. They were an award-winning restaurant for six years; they won various awards, everything from best breakfast to best lunch in the local advertiser and as well as the Oakland Press. They were consistently rated 4.5 and higher on all social media. With heavy hearts, they had to make a decision to close their doors on January 30, 2022, due to the everlasting effects of COVID. They were not able to maintain a kitchen crew, they tried for over 6 months to no avail. They had to make a hard decision and take a break and close at that location. However, the intent was always to open in a better location. They have been interested in partnering with Dr. John Canine for years. It just recently came to the realization that they were going to be part of this Hudson Square plan, within the last year. She added that two years ago she was diagnosed with celiac. Between herself and her daughter's allergies, they understand the challenges that the community and people with special dietary restrictions go through on a daily basis. There is literally nowhere in town where she can feel comfortable dining, or her daughter, that she won't have a severe allergic reaction and end up in the hospital. Restaurants say they can accommodate but the reality is most can't. Therefore, she always felt Sweet Amy's was her way of giving back and helping others in the community that goes through similar challenges.

Mrs. Harris added that they did previously own Sweet Amy's Eating House located at 1166 S. Lapeer Rd. in Orion Township. It was located in the Sherman Williams Plaza just north of OSB across from Planet Fitness. They developed quite a following as they were a scratch kitchen 90% non-GMO and accommodated special diets such as celiac, vegetarians, and vegans, and did their best to accommodate those with anaphylactic food allergies. In her kitchen, they would utilize only the highest ingredients such as nitrate-free breakfast meats, cage-free eggs, grass-fed beef, wild-caught salmon, and as much organic dairy and produce as they could. All of their sauces, pancake mixes, and salad dressings, were made from scratch, handmade. Just as an example they had three varieties of their pancake mix, organic buttermilk, gluten-free dairy free, and a vegan mix made without eggs and dairy. They take their allergies very seriously. On that note, they had a separate gluten-free griddle, gluten-free fryer, that only touched potatoes, gluten-free toaster, and a gluten-free prep area to avoid contamination with gluten and other major allergens. Many of their breakfast, lunch, and dinner options are naturally gluten-free since they are making items from scratch. Some of their local favorites were gluten-free dairy-free carrot cake pancakes, gluten-free eggs over ham hash, gluten-free vegan hash, grass-fed burger slider that had an option for gluten-free slider bun, and 100% gluten-free fried varieties.

Mrs. Harris noted that this new Sweet Amy's Restaurant would follow suit with the same scratch kitchen model that accommodates special diets, however, this restaurant will be primarily focused on dinners with a brunch offering on the weekends. In the renderings, it displays that they are proposing a 4,000-square-foot building with a 1,000-square-foot mezzanine above it for VIP social gathering space. It would have a minimum of 1,000 square foot patio surrounded by beautiful foliage that overlooks the pond. There would be lots of glass so even those dining from inside would be able to enjoy the beautiful scenery. The overall look will be upscale in nature, two unique aspects of their restaurants to the area would be the fact that they would have a private dining room fishbowl style, so it would be open surrounded by wine on the walls. They are going to have soft seating in the front all the way to the middle of the restaurant where there will be sofas, tables, and chairs so people can come and socialize over appetizers and hors d'oeuvres. In addition, they are going to have a window that showcases and displays one of those luxury classic cars that Dr. John Canine would have in his car club. Truly nothing like it from an ambiance perspective along with food offerings in their area. They would need to drive to southern Oakland County or Detroit to find something comparable. They are excited to bring the second rendition of Sweet Amy's to Lake Orion. There is a need for Sweet Amy's number two in Lake Orion, additionally, there is a need for another coffee venue in Lake Orion. They would like to bring a Biggby Coffee to the area. There are currently no Biggby Coffee locations in Lake Orion. The closest Biggby Cafes are in Metamora, which is 16.3 miles away, 27 minutes north, and in Auburn Hills 4.5 miles away, 9 minutes southwest. Additionally, there is no coffee venue with a drive-through once you pass Tim Hortons on Lapeer Rd. Tim Hortons is 2.6 miles away. The closest non-drive-through coffee shop is Lava Mountain which is 1.7 miles away. Their new big café will fill the void of a somewhat coffee dessert area for morning commuters. Especially for those moms with young children or those in a hurry looking for a quick convenient drive-through venue. For those who drive Lapeer Rd. every day you can't help but notice the backed-up traffic at Starbucks and Tim Hortons where the traffic wraps around the road. This would help alleviate that backup by providing another coffee venue. For those looking for a place for a business meeting, or to work remotely, there will be a café available for them. Biggby offers a wide array of unique coffee drinks and hot and cold beverages such as Biggby Blast energy drinks. Biggby also serves items such as bragel sandwiches and baked goods. Because of her personal issue with celiac, she is passionate about adding a gluten-free component to Biggby's model. They are currently working with a local baker that can potentially produce mass quantities to see if they can make this happen. Biggby is a Michigan-based company. The first Biggby Café originated in Lansing, MI in 1955, and its headquarters is based there to this day. The rendering is of an existing Biggby Café that resides in Allegan County, and theirs will look very similar to that. For all of these reasons and more, they feel the addition of this Biggby Café with a drive-through will be a positive addition to the community.

Mr. Wayne said that the third component is the Orion Classic Car Club. This was a concept that was approved by this Commission previously. What is most critical about it is that it is really a one-of-a-kind destination, it is about more than storing cars, this is really a community in that these gentlemen and

ladies share a love for cars over and use it to create that community and socialize. Nothing like this in the Township currently and certainly creates a unique asset.

Mr. Wayne stated that for the fourth component they are presenting Hudson Valley which is six individual buildings with four homes in each. These are two-story structures, and the maximum height measured to the midpoint of the roofline is about 27-ft. They know that height is critical and that was a key element to this design. Each building has two, two-bedroom units on the first floor, over 1,100 square feet of living space plus a 420 square foot garage area, and a 200 square foot outdoor patio. A short trip up the steps and they will arrive at the three-bedroom units located on the second floor. Those enjoy 1,600 square feet of living space plus a 420 square foot garage, and over a 400 square foot rooftop patio. The variation between the two and three bedrooms allows them to attract a wide range of demographics in terms of the renter base. They really envision two primary demographics with these homes. First, it would be young families, a married couple with a dog and a kid on the way might be in between housing options, maybe not quite ready to buy a home. This serves as a perfect way to keep those people in the community and give them a housing type that is conducive to their needs. The second would be the late baby boomer generation so perhaps empty nesters free of kids looking for a hassle-free, maintenance-free, living environment. This serves perfectly for those demographics. Keep in mind that these residential dwellings are very high-end. The rental rates on these drawings will be comparable to the monthly mortgage payments of many homes in the surrounding areas. This demonstrates that the demographic will blend nicely with the existing landscape. Another feature of the Hudson Valley design is that all garages are side entry. This means that from the front façade view as they walk down the street no garages are visible, which gives it a quant neighborhood feel. One other item of note would be that half of the homes are handicap accessible.

Mr. Wayne said when they compared this product type to others in the area and they found a very similar example and that would be in the Summerfield Condo community. This property is just to the north of the proposed site, and these are two-story condos that were built in the early 2000s. The similarities are strong between the two structures both from a height perspective as well as a general overall architecture mass and scale. They blend nicely with the existing landscape in the area, they do not immediately abut the Summerfield Condo community so it is an example of a similar product type in the surrounding area but there is no visual connection between the properties.

Mr. Wayne stated that there is a tremendous need for residential housing options in the community and the existing ones are at their capacity. In order for the Township to continue to grow responsibly it must add housing options of this type to support this need. Since 2000 they have only seen 353 for-lease residential dwellings built in the Township. Despite the 15% population growth over that same period, so clearly a big need in the community today. Mr. Wayne said when apartments are built in Orion Township, they lease out immediately.

Mr. Wayne said regarding density and public resources. From a commercial density perspective, their proposal is 21,000 square feet less of total commercial space as compared to the already approved site plan. They reduced that density by 71% in this proposal. From a residential perspective, the Future Land Use on the parcel is high-density residential, which means 3-5 dwelling units per acre, they are proposing 6. This meets the intent of the Future Land Use of high-density residential. One extra unit per acre on a 4-acre site they are only asking for a total of 4 additional units compared to the underlining future land use permitted density. If they take that a step further and assume that there are two people per one of those dwelling units that is a total of 8 additional heartbeats for public resources like police, fire, and EMS demand. The (RM-1) density category of 6 units per acre is what they are proposing. This exact zoning designation exists to the east, north, and also partially to the south. He thought they were in good company as far as the (RM-1) category is concerned.

Mr. Wayne stated in terms of Stormwater Management one of the most critical aspects of every development is to effectively manage that stormwater and ensure that it has no negative effects on surrounding properties. They will show this through an underground series of catch basins with

underground storage on site. He added that they are going to work with OHM to ensure that their design meets the ordinance. This is the same ordinance that of course is designed to prevent this exact issue from happening. So, trusting with collaboration with OHM they will develop a design that has been thoroughly reviewed and confirmed that it meets the standards of the ordinance.

Mr. Wayne said that OHM acknowledges in their review letter that the stormwater on this site flows to the southeast. The southeast corner of the Hudson's proposal is at the corner of Waldon and Lapeer Roads. There are no properties to the east for any of their stormwater to flow onto. On the contrary, all of the properties surrounding them are flowing toward their property. This really eliminates the potential of their site depositing any stormwater or disturbing any surrounding property as a result.

Mr. Wayne stated that as it relates to site circulation and traffic this was a key component of their site design. They did not provide access through Waldon Rd. This was deliberate for two reasons, the first was to preserve the tree line, and the second was to not deposit any new traffic volume onto Waldon Rd. roadway. They understood that there are some existing concerns over traffic at this intersection and they believe that Hudson Square could potentially be the impetus to solve this problem through collaborating with MDOT. They have submitted a traffic study to the Township. It is currently in review, and they also submitted the study to MDOT. They look forward to working with MDOT to develop whatever mitigation requirements MDOT deems necessary, they are willing to provide. They look forward to that process to ensure that they are mitigating traffic congestion to the fullest extent.

Mr. Wayne said that nature preservation was a really critical piece of their design. The large part of the natural water feature but also the buffering surrounding the site gets them to the 40% open space. Of that total ruffly 30% will be completely preserved in its natural habitat.

Mr. Wayne said lastly, they are bringing walking trails to the natural features so existing they are completely inaccessible. Through the construction of both the safety paths as well as their interior site circulation these natural features will be able to be enjoyed by residents, customers and businesses in the community alike.

Mr. Wayne stated that they are at a public hearing, so they wanted to share some feedback that they got from the virtual town square, Facebook. Their proposal was posted on the Orion Township Facebook group as well as a couple of various other groups within the community. The results were overwhelmingly positive. Almost 500 total likes between the posts, and over 250 total comments, and when they compared the positive comments to the negative comments, they saw about 96% positivity for the project. Clearly, hundreds of their community members have spoken and 96% of them were supportive of this project.

Chairman Reynolds asked if there were any public comments. He asked them to limit themselves to 3 minutes. He added that they were taking notes so if something was mentioned previously, they will have that in their notes when they further deliberate on the project.

Ms. Tracy Deuman 270 Waldon Rd. She is the west property adjacent to the proposed property. She really appreciated Mr. Wayne's how he addressed a lot of their concerns. The three main points that she heard were that there was no intent to combine the adjacent parcel behind her property, so she was very impressed by that and hoped that stood true. The next one is that there is no access off of Waldon Rd. Currently, there is an unofficial driveway on Waldon Rd. already and there is a mailbox there. She asked if that would be blocked. She appreciated the preservation of the tree line on Waldon Rd. Her personal concern for her property was she hoped they could keep the tree line and the berm that is on the west side of the property, so adjacent to her property. I would provide light pollution coverage, so it would block the light and privacy from the apartments. Also, there is a big fence there that was put up intentionally and she wanted to make sure that they keep that fence. She has a half-acre pond, and it could be a liability problem with her with an apartment next to her. She was worried about the traffic, and the water runoff.

Al Hassinger 1600 S. Baldwin Rd., Brandon Twp., is a property owner in Lake Orion Village. He wanted to say that getting to know Amy and Scott and really admiring their entrepreneurial spirit, wanting to pick up again where they had to leave off through no fault of their own and bring a fantastic business to Lake Orion. He thought it would be a tremendous addition and a great gateway into and out of the town.

Matt Malenich 4014 Sunfish Dr., Lapeer, was there to speak on behalf of Scott and Amy Harris. First, he would like to say that he wholeheartedly supports the business ventures that Scott and Amy are taking. His wife and he are regular patrons of the Lake Orion community and would love to see an upscale restaurant added to their dining community. As a patron of Scott and Amy's previous restaurant, he can speak from experience about the quality of food and service that was provided. Everything was created with the highest standards in terms of the foods that were used, the presentation of the food, the taste of the food, which for him is the most important, and the service in which it was provided. He truly believed that adding an upscale restaurant to their community run by Scott and Amy would be beneficial to all and would run successfully. He also believed that adding another coffee venue to the Lake Orion community would be beneficial as well. He knew that there are plenty of places to get coffee in Lake Orion, but to his knowledge, there are only two venues with drive-through services. He believed that adding another coffee place with a drive-through would benefit the members of their community and those who travel through their city every day simply due to convenience. He has known Scott his entire life and his wife for many years. In terms of Scott, he didn't think there was anyone who could talk about his character better than him, except for his parents or his wife. Scott is the most dedicated hard-working person that he knows. It doesn't matter if it is in his professional or his personal life, if there is something that needs to be done there is nothing that would stop Scott from doing it. He also saw the driving dedication that Scott and Amy put into their previous business venture. The amount of sacrifice and time they put into their restaurant shows they are willing to do whatever it takes to be successful in their ventures. There is no doubt in his mind that approving these two venues would be beneficial to the Lake Orion community.

Mr. John Slocombe 3066 Waldon Meadows Dr. said that a personal friend got killed on Lapeer Rd. last year and he lost a very dear friend from England, it is a very dangerous road. He has nothing against the project, he hopes it works. He hoped the city would do something about the traffic situation because more traffic would mean it is harder to get off Waldon. He goes out onto Waldon Rd. sometimes and some people are frozen in terror, they just sit there. There are 14-18 people trying to get out. He knew it had nothing to do with the development, but they already have a dangerous situation, he has lost a personal friend and he will never be the same after it. He hoped in partnership with these people that they put a traffic light in. He would like to know what the details were and that they can make it all work and make it less dangerous for people.

Ms. Elizabeth Glassford 389 Hunters Rill, Oxford, MI, said she has been in the food industry for 10 years and an operating partner for 6 years. What she has noticed is it is impossible to fully accommodate severe allergies. The model she has can suffice multiple allergies, and felt it would really create a positive buzz for the community because it is something that not everybody offers. She also does drive down Lapeer Rd. southbound toward 75. The few coffee places that do have drive-throughs are very busy in the morning and she felt that adding the Biggby would be great, a great spot, a great location, and definitely the customers to pull from. She moved out to Lake Orion a couple of years ago. When she was looking, she was looking for 2-3 bedrooms with 2 baths, with amenities such as a washer and dryer, and it was very difficult to find availability in the area. It actually took her over six months, and she had to pay double rent for 4 of those months just to ensure that she had a place locked in. She felt that adding those residential properties to the community would definitely be a positive for the community as well. As far as ownership, great customer service, and having owners that live in the community are very positive when it comes to retention, profitability, and just maintenance, maintaining the area as well.

Ms. Emily Glassford 24 Leslie Lane, Waterford, MI, said she has a lot of family in the Lake Orion/Oxford area, so she is frequently out here. She was a patron often at Sweet Amy's restaurant and since they have had a shutdown it has been hard. A lot of her family does have very severe food allergies. It is hard going to restaurants and feeling safe enough to have them eat there without wondering if they are going to

end up in the hospital because of an anaphylactic issue. She is extremely happy to hear that Amy and Scott Harris are trying to make another location, their family has really missed it.

Ms. Linda Martin-Seng 6625 Shelley Dr., Clarkston, MI, said both she and her husband both have food allergies, especially her husband, his are pretty severe. They have been patrons of Sweet Amy's for many years, and they really trust the owners to take the care that is necessary to make food that is safe for them to eat, and her husband won't be sick for a week after eating there. Their food is delicious and well-presented and the owners and the people that work there are all wonderful. They have really missed it since they have been gone. Also, as for Biggby Coffee, she is not a Starbucks fan she likes Biggby way better and there is always a line at the Starbucks on Lapeer Rd. You can't get in it backs up onto Lapeer Rd. She thought another coffee shop with a drive-through would be a real benefit to the area. They also bring lots of family members to their facility. They celebrated their Mother's Day there one year. They then go into Lake Orion and do shopping, so they bring business to the area as well. She did know a lot of other people, her friend from Rochester loves their restaurant. Her friend from Royal Oak drives up here and eats at their restaurant. She thought it would be a benefit to the community overall. She loves them as people and also their food.

Ms. Kelly Mihelich 275 Waldon Rd. said over the last few months their neighborhood has been here quite often because of the proposed Woodlands development. Once again, she wanted to reiterate that her neighborhood on Waldon Rd. does not come out and fight against development. She lives right next door to the Orion Kennel Club and the new Vet Clinic; they are wonderful neighbors. She has the driving range directly behind her, they are also wonderful neighbors. She knows that Sweet Amy's restaurant obviously everybody loves, its wonderful food, and there is a need for it in their Township. Biggby Coffee is wonderful. Her only concern is the apartments and where they are going to be located. She was concerned that even though they have a dense tree line on Waldon Rd. she was concerned that they are going to see a lot of rooftops and a lot of light pollution, flood lights, that type of thing. They did have to go to the Kennel Club and the Vet and ask them to please tone down their night security cameras because their house was lit up at night, and they had to put extra shades up, it was not good. They cooperated and it is wonderful. So far, she was impressed with what she has seen, she doesn't have any objections, her only concern is the traffic because it is already terrible for them to get out of Waldon Rd. She hoped that they could get a traffic light, the noise pollution, and she is worried about the ponds. The owner of that property used to have a running windmill that he used to keep his pond full. That has not been in operation since he passed away a number of years ago. His pond is way down, and Tracy's Pond at 270 Waldon is way down. She was concerned that the ponds were going to get dried up. Are they going to bring the windmill, which was beautiful, or are they going to put that back into operation to help the ponds and keep everything healthy? Other than that, she really can't see anything to object to at this point. She asked if anyone addressed getting a liquor license for the restaurant. She might have a concern about that, other than that she was impressed with what she saw.

Ms. Elizabeth Fenwick 1133 Devon St. stated she thought that his project would be a great asset to the community. She enjoyed hearing more about it, but she was excited about it already. Seeing it broken down was a lot more exciting. Ever since Sweet Amy's closed, she hasn't been able to find a restaurant that can meet her dietary needs. She works in Rochester and has sent a lot of the Rochester community here too and they are eagerly awaiting their reopening also for the same reason, you can really find a place like that. She felt for them as people and their businesses were a great asset to the community when they were in business and is eager to see them reopen.

Ms. Melisa Canelis, 986 Maloney Ave., Oxford, MI, said she was a resident and a business owner in northern Lake Orion (Oxford). She wanted to be here in support of Amy and Scott Harris today. They did buy a home this last year, having a boy and a girl there was nowhere they could live without a three-bedroom. Fortunately, they found a house they could buy but there were not a lot of options when it came to apartments with three bedrooms, so she really liked and appreciated that. Anybody that drives south on M24 does see a backup, and as an insurance agent she is terrified that her insurers are going to get rear-ended or rear-end someone else on a daily basis, hopefully, that would cause a little less panic attack.

She liked the idea in general of having the drive-through with the convenience and everything else. She did like the idea of a stoplight because she used to live at Joslyn and Silverbell and anytime, they took that way down it was terrible. Outside of the consumers' side, she was there as personal support for Scott and Amy. Her husband was a chef at their restaurant for multiple years. Not only was he a chef at their restaurant but they also became close friends with them. On top of that anything that they did, they took more care than many other business owners she had ever seen. They were much more thorough than many other business owners, herself included and she is a crazy analytical person. They were genuine anytime from the pandemic to struggles with seating, or anything to do with the restaurant, loss of business, closing down, reopening, and shutting down officially, every step along the way they communicated with the staff, they were incredibly professional and organized. Genuinely as humans they are amazing people, and she would love to see them own another restaurant in the area and more.

Ms. Jen Gaczi 776 Fairledge, Lake Orion said the coffee shop would be amazing. She lives off of Heights Rd., so they get stuck by all the traffic-stopping for Starbucks and blocking all the traffic. That would be a phenomenal idea to have another option. As for Sweet Amy's, her family of seven has multiple food allergies and it has been missed greatly. She really appreciated it when they went into the restaurant, it wasn't just a restaurant it was like a family, they were very kind and considerate, they knew them. Whether you had not been in for a while or you were there all the time, they knew them. They recognized them tonight and she hasn't seen them in probably 9 months. She really would appreciate this being approved.

Ms. Susan Johnson 348 Four Seasons Dr., which is the condo development north of the church. It doesn't sound like it, but she was wondering if there were plans for outdoor car shows like Culvers with music and people showing off their vehicles. She didn't want to listen to 50's music which she would hear if there were something like that planned in the works once a week, or even once a month might be too much. The other concern she had was the traffic. For them to go north on 24 and to have to use the turnaround, people are afraid to go they sit there forever, or other people go when they shouldn't, it is dangerous already, and this is going to add a lot to it. She was also wondering about air quality there will be a lot of idling vehicles maybe only morning and night but in that line for the coffee shop where is all that exhaust, is it going to concentrate in her backyard, she is on the south side of her condo development. Having a coffee shop with high-calorie sweet drinks within walking distance is going to be dangerous for her.

Mr. John Whitley 6581 Eastlawn Ave., Clarkston, MI, is a former resident of Lake Orion. He has known Scott for 25 years and Amy for about 10 years. He is a small business owner as well in the area, they are very fortunate to have small business owners like Scott and Amy, very high-integrity people. His wife and he are both vegans, so they appreciate the ability to have vegan alternative and was a big fan of Biggby as well.

Ms. Mary Ann Ryan, 301 Waldon Rd., lives across the street from this development. The parcel of property that sits on the corner of M24 and Waldon Rd. was previously owned by Tim Jones. People might remember the flower shop that existed there, but she was a guest that was frequently invited to the rest of the property. Tim had done landscaping, but that doesn't adequately describe what he really did, he was an artist. Flower trees and bushes planted on this piece of heaven are beyond description. The number of annuals, biannuals, and perennials that bloomed throughout the year was stunning. He would sit on his patio which overlooked the pond and bask in the peace and tranquility of the place. She can't think of a better use for this property than a restaurant with a patio overlooking that pond. She was sure that the vegetation that he planted remained to some degree. She believed that the citizens of Orion Township deserve to experience the solemn beauty of the place. It would honor Tim if others could enjoy the environment he sought to create. She and the neighborhood have been expecting the antique car club to appear for a very long time now, they have no idea why it hasn't. As for the apartment density, she leaves that to the Zoning Board to sort out.

Mr. Ryan Soldan 4124 Calumet Dr., Oakland Twp., was there to support Scott Harris and his wife Amy. He has known Scott for over 15 years echoing some of the people that have spoken before him. Scott is a very passionate individual and anything he commits to is in it 110%. What he has seen and heard tonight about their plans and their development is very impressive. He is a big dog owner so his route is right there on Waldon and a Biggby would be awesome because he would go there and get his coffee and then take his dogs and life would be good.

Ms. Shirley Moran said that Scott Harris was her son, and Amy was her daughter-in-law. They live at 9257 Monica Dr., Davison, MI. They frequent their restaurant at least two times a month. They have to drive 40 minutes to get there but they appreciate the quality of the food. She is also a Naturopathic Doctor so the types of food that her family eats are very important to her. She appreciates going to a restaurant and she knows that the quality of the food is there, and it is what they say it is. It always tastes very good no matter what they eat. She thought that the addition of this restaurant would be a great addition to Lake Orion and for health reasons too.

Ms. Marcie Ramsey 335 Waldon Rd. said it was her understanding that the restaurant, the car club, and a coffee shop were already approved so it was just the four-family housing that was what this meeting was really about. She would really love to have the restaurant, the car club, and all of it approved as long as they can somehow get that traffic light in at Waldon and Lapeer because it is a traffic nightmare, pretty constant to get off Waldon onto Lapeer Rd. If there are accidents somewhere in the area, they take off and come back down Waldon Rd. and sometimes it is a mile backup. That is her only concern. She was concerned about the wildlife, but it sounded like that is kind of being addressed so she appreciated it.

Mr. Scott Harris 947 Watersmeet Dr., Oxford, MI stated that the thought that came to his mind was the conversation he had with his wife in late summer or early fall of 2015. He got a different rendition than a burnout on marketing, she was actually in a company where they lost two major accounts back-to-back and was caught up in a riff. They lost the Greek Town Casino account and the Blue Cross Michigan account. They had been talking about this restaurant concept for some time and her desire to do something special. They talked about creating this little brunch/breakfast spot where she would know everyone's name like Cheers, and it was a common conversation in their house. For those who know him, he was a former commercial banker turned insurance consultant, pretty conservative by nature. When she asked to turn this from something that they were just talking about to something that they actually might do the thing he told her was you don't start a restaurant or business because it would be cute or nice, you do it because there is a business need. Her due diligence literally went from the top of Oxford when the Palace was still standing to where the Palace was, and they did the same thing on Baldwin Rd. They got the menus from every single restaurant and evaluated them, dined in many of them, and determined that nobody was doing what she envisioned. Nobody was doing upscale in Lake Orion, so they started just two years into their marriage and blended family they said they are going to do this crazy restaurant thing. For those of you who have patronized her restaurant you know the rest of the story. It was a great business not because they made a lot of money because it was always a challenge for those who knew the location was at but because they put every ounce of everything into this restaurant in order to build something that helped the community. Fast forward to today, with the absence of her restaurant there is still no one doing what she and her team did, the way they did it. By this time division is even grander. For the same reasons that Honest to Goodness became a reality in May of 2016, they are hopeful that once again this will become a reality sometime around the summer of 2024. Just like there is a business case for Amy's Restaurant there is also a business case for all of the other components of this development. The car club, the Biggby, and the new luxury dwelling units, all have a need for a purpose that will provide value and benefit to his Lake Orion community. Hence, he enthusiastically supports this project and respectfully requests the Planning Commission to also share in his excitement by providing conceptual approval this evening.

Chairman Reynolds asked Secretary St. Henry to read the citizens that they received into the record.

Secretary St. Henry said they received a total of 10 letters, 6 were in favor of the development, and 4 were opposed. The residents that sent letters were Cheryl Querro, Michael Caldwell, Beverly Walton, Linda and Michael Seng, Amy Harris, Rilee Harris, Giselle Graham, Carlee Hass, and Jessica Williams. For those that supported the development, the overall general theme was how much they enjoy Sweet Amy's restaurant and recognizing the need for additional dining options in the community. Those that were against it had concerns about traffic and the size/footprint of the development. The applicant covered some of the statistical bullet points that came from Facebook. Amy Harris provided a letter that reiterated those in terms of general feedback that resulted from the Facebook postings: they had 494 overall like posts, 151 overall love posts, 8 overall wow faces, 1 sad face, 2 overall care faces emojis with hearts, 249 positive comments, 11 negative comments, 191 positive likes to the comments, 17 positive loves to the comments, 3 positive care to the comments, 8 negative likes to the comments, it was shared 27 times, and there were 6 individuals provide negative comments.

Chairman Reynolds turned it over to the Planning Commissioners for any comments or questions they would like to add during the public hearing portion of this evening. No comments.

Chairman Reynolds turned it over to the Board of Trustees.

Supervisor Barnett asked if there were any comments or questions from the Board of Trustees.

Trustee Flood said he thought people liked the restaurant. He counted 18 folks coming to that podium and 75% 12 out of 18 were good. Usually, they come to these, and they hear the opposite, displeasure, not pleasure. This is not their first rodeo on this parcel. Compared to what they had before he likes to see the open space and all that property along Waldon Rd. preserved, especially those pine trees. He liked the concept of not having an entrance on Waldon Rd. He understood the need for a traffic light, he had lived out here all his life and agreed it was not going to get any better. If they didn't have all the development to the north of them keep those people from northern Orion otherwise known as Oxford coming down through there, they would probably have a lot more space. The Planning Commission is going to have a lot of work to do; he has read all of the review letters from the Planner, OHM Engineering, and the Fire Marshal. He was very confident that the men and women that represent the Planning Commission would do their due diligence along with our consultants and go through this diligently. As has been previously stated in the past, someday somehow somewhere this property will be developed. The property owner has the right on private property to come forward to this body and go with (PUD), it is part of our ordinance, our zoning, and our Master Plan. Looking forward to the Planning Commission doing their due diligence and finding out what recommendation is to the Township Board.

Trustee Steele thanked everyone for coming. She always appreciates community involvement because that is what makes a good project a good project. She thanked the developer and felt they had been very diligent and patient. She asked regarding the community benefit and wanted to see if the water feature and the tree line features were just actually part of the green space and the water retention and not necessarily additional green space and water space. The safety path connection yes connects safety paths, but what is the actual contribution that they are making, in addition to what is already required for that development? She knew there was a gap on M24 because the land was never equaled out very well and so there is a big gap on M24 if that is what they were referring to. Height of the design, she knew that height was an issue on the other development and didn't know if they were in the guidelines of where it needed to be or if it higher than normal. She knew that single ownership was one of the criteria and it seemed to her there might be two or three, she wasn't sure how that was going to work. Regarding the drive-through use with the coffee, she asked if that was a Special Use, or if it is allowed because it is a (PUD). The price point of the apartments and to just verify that they are looking at the water drainage because she knew that had been an issue from day one. She asked if that back lot is back up for sale or is that a development that is going to come down at a different time.

Supervisor Barnett thanked everyone for coming. He said if he thought you ever wanted to have anything positive done, he is going to call Scott and Amy to run PR. He thought that this was a tough site, and they

knew the issues. When he reviewed the notes this afternoon from the last couple of times, they were in front of them and the notes he had was the main concerns were traffic, preservation of wetlands, and natural resources, the height, and the general fit of the building for the area, and the storm drainages came up over and over in that area. They have had lots of conversations to the credit of the Detroit Riverside Capitol, and they have been extremely diligent working with our consultants, OHM, and our team to try to do the best they could to take the feedback they received over the last few opportunities that they presented in front of them and put all that together. He thanked them because they don't always get that. A lot of times when people don't get their way, we get lawsuits and so thank you for not doing that. That doesn't always bode well for the Township, unfortunately. He agreed with what Trustee Flood said, he generally sits at these meetings because a lot of times this is the only time, they see some of them when something is going to be built in their backyard and they want to come to tell them how they feel about it. They want to see them but are happy to see them anytime. It is a challenge because as Trustee Flood said this is the busiest road in northern Oakland County, and it is not a park. He appreciated Mary Ann's comments because he didn't know the previous owner, but he got to know her 10 years ago when he was first running for this job. There is a lot of history on this site, he used to buy flowers there too. It was a very unique piece. People get very passionate about these things, they know it is not a park, and the Township doesn't own it, so unless they decide to do that it will never be a park. It is nice when they do have developers that do want to work with them and property owners as Dr. Canine to his credit have really come to them multiple times and asked what he thought the Township would want to see there. Not everyone is going to be happy with what goes on this corner, but he personally thinks this is a lot better than what they have seen in the past. He felt that they have addressed a lot of the issues that have been brought up by the people that live around there. The one thing that he told them all about is the traffic and the traffic lights. He and Jim Stevens from OHM met with MDOT the director of MDOT for their region a couple of months ago, on a few areas on Lapeer Rd. They are under their jurisdiction the Township owns no roads. Waldon is the Road Commission, but MDOT is the organization that they would work with on this project. He stated that they specifically asked about a light at this intersection, will they require it, and will they put the light in because there is a ton of traffic there. This is generally considered a small-scale development a drop in the ocean, and to require this developer to bear the cost of that traffic light which would be very costly is a challenge as well, probably making it a no go. They are working with MDOT and ultimately, they are going to be the ones what improvements will be required there. Their conversations with the developer have been really positive, and MDOT. Once MDOT reviews all of these things they will be able to make those determinations as to what improvements will be needed if any. There are lots of places that need traffic improvements. The challenge is they have no jurisdiction except they can sometimes be a squeaky enough wheel to force improvements. He thought it was great to see positive support. They worked a lot together on their first site, the food was amazing, parking was tough, and the location was you drove by it before you saw it, it was a tough spot for a restaurant. Obviously, they have a great following and great food. He did think it was the first time they had emojis read into the record. He explained that they will close their Board of Trustees public hearing and the three of them will leave. This is a multi-step process so he was sure he would be watching the rest of this meeting as well as his colleagues, but they were not leaving because they were not interested.

Chairman Reynolds said he wanted to address some of the comments from the petitioner. Supervisor Barnett talked a little bit about it, but can they just touch base on traffic mitigation, runoff, and drainage those were a couple of topics here, and then they have a few more.

Mr. Wayne said the traffic topic as the Supervisor outlined is an MDOT-controlled road. No one in this room has any authority on whether or not they could put a traffic light there. All they can be is the squeaky wheel. In this case, they might be the only wheel because absent of another development proposal that produces a traffic impact study and hands it to MDOT they are never going to look at this intersection. Really by proposing this and submitting this traffic study they are forcing them to identify the problem. What they decide to do about the problem is completely up to them. There are a lot of variables that they have to consider. There is a lot of traffic volume on Lapeer Rd. as they know. The idea of stopping it at a traffic light may not be their first reaction. Certainly, their job in this state is to ensure that they have drivable, functioning, hopefully, well-operating roads. They trust that they will do this for this project. As

far as their current process with them they have completed the TIS they have submitted to them, they have also submitted it to the Township. It didn't get fully reviewed before the meeting because they were late on the submission of that. What that traffic study basically says is that the existing conditions warrant a stop light at that intersection, today without their project warranting that stop light, it recommends the mitigation of that stop light. The determination on how or if that can happen is not theirs. They will certainly be the biggest cheerleader and be adequately working with MDOT to try to deliver that solution.

Mr. Wayne said regarding drainage the best way he can describe this is that the whole corner drains to that southeast corner of the site. If they drew a 45-degree line that hit that corner that basically is where all the flow of water is going. Notice none of the surrounding properties that have a concern about stormwater are in that flow, the water is flowing from the surrounding properties onto their site into the culvert that goes under M24. It would completely have to reverse stream and go in the opposite direction from the way that gravity is pulling it in order for the water to move in that direction. That is just a general concept, but on top of that of course they have to manage the stormwater from their site and make sure that despite any of their developments that it doesn't now all of a sudden go to a neighboring property and that is what their stormwater management system will do. That underground detention, they will go through the ordinance, and they are aware of what those requirements are. They briefly designed a system with their civil team. At this stage in the process, it is a little too early to get tremendously detailed about that. They understand it will be a thoroughly reviewed system and it will meet the ordinance. They have faith in satisfying that and eliminating stormwater concerns.

Mr. Wayne stated that there would be no connection to the adjoining 20-acre parcel and no intent to connect. There is a road on Waldon Rd. existing, it was an old service drive, and their plan calls for it to be turned into a pathway, so just a walking path, not a driveway, it will be eliminated there is no chance of a car coming by. He added as far as the fence he was not aware of where that was but will make himself aware of it and will make sure that they do what they can to mitigate that.

Mr. Wayne said as far as the apartment themselves and light pollution, one thing they have going for them just on their apartments themselves which of course is the furthest west is that because of the residential character they would have similar lighting to what a single-family home would have. It would likely have a couple of garage lights adjacent to the entry point of the garage, then a couple of lights along the front façade. They are not talking about huge parking lot lights lighting up a big sea of parking for the apartments. The commercial lights will be blocked from those houses by the apartments as they sit in between them but even still those lights will point in the direction of the light down to mitigate light pollution as much as possible, and that is also covered in the ordinance so they will achieve that.

Mr. Wayne stated as far as noise is concerned these are residential dwellings there are only 24 of them, he didn't think that they would create any kind of noise above and beyond what typical single-family homes would do, the garage door opens, and dog barking but that is about it.

Mr. Wayne said as far as ponds not remaining full as he had mentioned the water all does drain there. Not being a civil engineer himself he doesn't have a hypothesis as to why that is, but he understands the general flow is to that southeast corner.

Mr. Wayne stated regarding the outdoor car shows he can't speak for Dr. Canine he was sure he could answer that question but that is not an intent of the development, the goal is to be able to store the cars inside the structure and that is what the building is there for.

Chairman Reynolds asked about control and ownership. Mr. Wayne replied that the site is currently controlled solely by Dr. Canine. There are agreements that are formulated for each of their respective parties DRC, Scott, Amy, and Dr. Canine being one of them to purchase these individual parcels following the approval process, but for the sake of this application, the land is currently owned by one individual.

Chairman Reynolds closed the public hearing at 8:24 p.m.

Moved by the Trustee Flood, seconded Trustee Steele by that the Board of Trustees adjourns their special meeting of the Township Board at 8:24 p.m.

Respectfully submitted,

Debra Walton
PC/ZBA Clerk
Charter Township of Orion

December 7, 2022

Planning Commission Approval Date

Charter Township of Orion

2323 Joslyn Rd., Lake Orion MI 48360
www.oriontownship.org

Planning & Zoning Department
Phone: (248) 391-0304, ext. 5000

TO: The Charter Township of Orion Planning Commission

FROM: Tammy Girling, Planning & Zoning Director

DATE: January 13, 2023

RE: PC-22-29, Baldwin Village, Final PUD

As requested, I am providing suggested motions for the abovementioned project. Please feel free to modify the language. The verbiage below could substantially change based upon the Planning Commissions' findings of facts for the project. Any additional findings of facts should be added to the motion below.

Planned Unit Development (Ordinance #78, Section 30.03)

Motion 1: I move that the Planning Commission forwards a recommendation to the Township Board to **approve/deny** PC-22-29, Baldwin Village Final PUD, located at 4410 & 4408 S. Baldwin Rd. (parcel 09-32-301-001), an unaddressed parcel 09-32-301-014 located at the NW corner of Morgan and S. Baldwin Roads, an unaddressed parcel 09-32-151-020 located north of 4408 S. Baldwin, and 4292 S. Baldwin (parcel 09-32-151-021) for plans date stamped received December 20, 2022. This recommendation to **approve/deny** is based on the following findings of facts:

a. Compliance with the PUD Concept (insert findings of facts),
b. Compatibility with Adjacent Uses (Insert findings of facts),
c. Impact on Traffic (Insert findings of facts),
d. Protection of natural Environment (Insert findings of facts),
e. Compliance with Applicable Regulations (Insert finding of facts),
f. Township Master Plan (Insert finding of facts).

If Recommendation to Approve:

This recommendation is subject to the following conditions:

a. (Motion maker to indicate outstanding items to be addressed from Planner's, Engineer's and Fire Department review letter(s))
b. Review and approval of the Planned Unit Development agreement by the Township Attorney.
c. Separate review and approval of the condominium documents by the Planner, Engineer, and Township Attorney.
d. Approval of the reconfiguration of the parcels.

Or

I move that the Planning Commission **postpone** action on PC-22-29, Baldwin Village Final PUD, located at 4410 & 4408 S. Baldwin Rd. (parcel 09-32-301-001), an unaddressed parcel 09-32-301-014 located at the NW corner of Morgan and S. Baldwin Roads, an unaddressed parcel 09-32-151-020 located north of 4408 S. Baldwin, and 4292 S. Baldwin (parcel 09-32-151-021) for plans date stamped received December 20, 2022 for the following reasons (insert findings of facts).

RECEIVED

JAN 17 2023

Orion Township
Planning & Zoning

January 16, 2023

Baldwin Village Applicant Response to CWA report:

As noted, the Orion Township Planning Commission and Board of Trustees reviewed and approved the Baldwin Village Conceptual Site Plan and Conceptual PUD at their August 2022 meetings. That approval established the uses, density, and design concept of Baldwin Village and the framework and details under which the final site plan and engineering plans were designed and submitted. The final site plan is identical to the approved conceptual site plan, other than the carwash was replaced by a quick serve restaurant. All other uses, densities, design concepts, site layout, circulation, setbacks, and deviations remain consistant with the approved conceptual PUD and Site Plan.

We appreciate the excellent and thorough review completed by Carlisle Wortman Associates. The CWA report includes all deviations that were previously approved by the Planning Commission and Township Board at the Conceptual stage. To prevent confusion, we have provided the summary below distinguishing between the previously approved deviations and other recommendations identified by CWA, of which we're in agreement with as noted below.

Our summary finds that the CWA comments generally fit into four categories.

1. Items and modifications/deviations previously approved
2. Items that are to be addressed prior to construction permitting (i.e.; final engineering, permits, Development Agreement, etc.)
3. Minor housekeeping items
4. Acknowledgements / discussion points

We are committed to working closely with the Township in the next steps of the review and approval process, and respectfully request that the Planning Commission makes a positive recommendation for final site plan and final PUD approval conditioned on noted items.

As summary of the categorized items include the following:

Category 1: Items and modifications/deviations previously approved:

1. Modification for reduced improved road surface of less than 30 feet to meet RCOC standards.
2. Modification to allow a maximum floor area larger than 13,000 square feet for the grocery building.
3. Modification to all multiple-family dwellings more than 1,000 feet west of the Baldwin right-of-way.
4. Modification to allow less than 60 percent of the site be reserved for single-family dwellings.
5. Modifications (through planned unit development approval) for front facing garages, number of units per acre, and types of dwelling units.
6. Modifications (through planned unit development approval) for front facing garages, number of units per acre, and number of stories.
7. Determination if the standards in §30.01 (F) Standards for Site Plan Approval are satisfied.

8. Modifications of development standards for the Chic-Fil-A site, including reduced front yard setback of 35.7 feet: reduced drive-thru order station to residential setback of 32.3 feet; reduced drive-thru parking to residential setback of 12.5 feet; reduced parking setback of 0.0 feet; and reduced parking to residential setback of 12.5 feet
9. Modification of the development standards for the shake shack site. Including: reduced drive-thru parking setback to residential of 30 feet; and reduced parking setback of 0.0 feet.
10. Modifications of development standards for the Shake Shack site, including: reduced drive-thru parking setback of 31.7 feet; and reduced structure clear space of 0.0 feet.
11. Modification of development standards for grocery store site, including increased maximum tenant square footage of 44,234 square feet, reduced side-yard setback of 12.2 feet; reduced side-yard greenbelt of 12.2 feet; and reduced structure clear space of 0.0 feet.
12. Modification to allow for reduced parking lot landscaping island area and width
13. Setback modifications for multiple-family dwellings as shown.
14. Setback modification for residential monument structures as shown in the plan.
15. Modification to allow parking spaces as shown within Uptown Village.
16. Setback modifications for multiple-family dwellings as shown within North & South Village

Category 2: Items to be addressed prior to constrcution permitting (final engineering, permits, Development Agreement, etc.)

1. Property boundaries within the project site reconfigured to be consistent with the approved final plan
2. Wetland permits secured for any work within the wetlands or required setbacks.
3. Shared parking agreement for the proposed sites within the commercial phase.
4. Accesses easements, maintenance agreements, and commercial shared parking agreements to be approved and recorded
5. Tree permit secured as necessary for tree removal.
6. Locations of protective barriers for trees to remain added to site plan – final permit set
7. Access and circulation approval by the Fire Department, Township Engineer, RCOC, and Township Attorney.
8. Legal mechanism, such as a conservation easement, provided to ensure protection of nature preserve and wooded greenbelts – Development Agreement
9. Traffic regulatory signs consistent with the Michigan Manual on Uniform Traffic Control Devices
10. Maintenance agreement approved for stormwater facilities
11. Township approval of condominium documents, with a recorded copy provided to the Township.
12. Document public benefits in the planned unit development agreement.
13. Mechanism approved by the Township to ensure single control throughout the life of the project – Development Agreement.
14. Commercial deliveries will be limited to off hour and non-peak times – Development Agreement
15. Phasing and road constrcution coordination and timing
16. On-street parking limited to one side of streets with no parking zones with signs posted, as required by the Fire Department.

Category 3: Minor Housekeeping items (minor updates / information to be added to the design documents)

1. Add a list of all requested/approved modifications to the final plans.
2. Modify planting locations to provide a greater distribution of plant type locations
3. Clarification of calculations for replacement of landmark trees within the commercial phase.
4. Sign Package and additional details to be provided for residential and commercial monument, architectural, and wall signs.
5. Additional dimensions for the heights of proposed buildings
6. Stormwater easement location added
7. Note that commercial patios will include tables, chairs, and umbrellas, and that the Chick Fil-A and Shake Shack will not serve alcohol
8. Electric vehicle charging station to be added to grocery parking lot
9. Decorative grasses to be planted within in the gas pipeline easement unless prohibited by the terms of the easement
10. A solid wall of evergreen shrubs to be added along the stacking lanes of the southern fast-food restraint to limit export of light from stacked vehicles. Landscape screening added at transformers.
11. Sidewalks, crosswalks, and bile racks to be added as noted within CWA report
12. Truck turning radius plan provided to ensure proper garbage truck access
13. Additional Carport details to be added to documents
14. Reduce curb radius where possible to provide additional traffic and circulation control
15. Correct the dwelling units and dwelling-unit density calculation on sheet MSP-1.

Category 4: Acknowledgements / discussion points

1. Modification to allow LED (3000K) contemporary light fixtures that are, architecturally consistent within Baldwin Village, but are not consistent with the Gingellville Village Design Plan. All lights shall be 'cut-off'.

2. Determination if applicant should contribute to the Township's Tree Fund to address the shortfall of replacement trees.
    - *Existing trees within the 'development zone' are not required to be replaced per the Orion Township Zoning Ordinance, however trees removed outside of the development zone require replacement. The calculations provided within the submission package represent the most conservative interpretation of the ordinance. We believe the more standard interpretation would include the area of the site required to be graded to enable proper development of the site. As noted, there is greater than 45' of elevation change which will require grading and land balancing throughout the development zone of the site. All perimeter trees, buffers, and trees within the wetland & natural features areas will remain. Baldwin Village has made every effort to preserve all trees outside of the required grading limits and proposes to plant more than 1,200 new trees on site. All proposed trees significantly exceed the Township's size requirements and will provide a beautiful landscape throughout Baldwin Village. Additionally, architectural site amenities including trellis', towers, and outdoor plazas will be built throughout the site to further enhance the landscape architectural and village plan. Because of the significant grading requierments, the large number*

of oversized trees, and site amenities, Baldwin Village requests that these items are found to satisfy the tree replacement requirements without additional required conditions.

3. Modification to allow wetland area to contribute towards minimum required useable open space.
    - *Baldwin Village is designed with significant emphasis on the preservation of greenspace including dense perimeter buffers, the preservation of wetlands and natural areas, the establishment of a large, decorative pond with fountains at Baldwin, internal and perimeter parks, plazas, gathering areas, and a 60'x600' green easement east of Peppermill extending to Morgan Road. In total, the green areas, open space, and preservation areas well exceed the Township's open space requirements and provide consistent open space and preservation areas throughout Baldwin Village.*

4. Landscaping island/bump outs to be added in locations with more than 20 contiguous parking spaces
    - *For the grocery store and multi-tenant buildings, bump outs cannot be accommodated due to required parking demand. Rather than extra bump outs we have provided a large sidewalk and landscaping pathway through the parking lot which we believe is more beneficial that additional bump outs. Bump outs can be added in the apartment area if directed to do so, but will result in the loss of needed parking spaces.*

5. South Village - Decks that extend into the proposed required setbacks on buildings SD1, SD2, SD4, SD5,ST1, ST2, and ST3 should be removed, or the proposed setbacks can be revised.
    - *Buildings SD1, SD2, SD4, & SD5 are single story duplex units. The rear deck will be at grade or elevated less than 4'. The encroachment into the rear yard setback meets ordinance standards.*
    - *Buildings ST1, ST2, and ST3 are two story townhome units and race internally onto Phase 1. The elevated rear decks overlook the green buffer between South Village and Phase 1 commercial and a significant landscape buffer is provided.*
    - *No elevated decks encroach into the perimeter setback when adjacent to neighboring property or homes.*

RECEIVED

JAN 17 2023

Orion Township
Planning & Zoning

Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

January 17, 2023

Final Planned Unit Development/Site Plan Review PLANNING QUICK SUMMARY for Orion Township, Michigan

Because of the complexity of the proposed Baldwin Village planned unit development/site plan project and the associated reports, we have provided this quick summary of planning and zoning determinations, modifications/waivers, and potential conditions to assist in the Planning Commission's discussion and deliberation.

A majority of the items have been identified as part of preliminary/concept review or as part of our final planned unit development/site plan review.

DETERMINATIONS

In making a recommendation to the Township Board for final action, the Planning Commission should make the following determinations. In cases where the Planning Commission might not have all the information necessary to determine full compliance, it could require missing information be added for administrative review and confirmation before the application is forwarded to the Township Board, or it may postpone action and direct the applicant to provide any missing information.

1) Determination if the standards in §30.01(F) Standards for Site Plan Approval are satisfied.
2) Determination if the Planned Unit Development criteria in §30.03 Planned Unit Development are satisfied.
3) Determination if the proposed planned unit development public benefits are clearly defined and agreeable to by the Planning Commission.
4) Determination if the proposed tree replacement plan for the residential phases is acceptable and/or if applicant should contribute to the Township's Tree Fund to address the shortfall of replacement trees.
5) Determination if use of maneuvering lanes for loading/unloading spaces for the commercial sites in Phase 1 *(Plaza at Baldwin Village)* is appropriate. *(Or reconfigure to provide dedicated loading/unloading spaces.)*

Richard K. Carlisle, *President* Douglas J. Lewan, *Executive Vice President* John L. Enos, *Vice President*
David Scurto, *Principal* Benjamin R. Carlisle, *Principal* Sally M. Elmiger, *Principal* Craig Strong, *Principal* R. Donald Wortman, *Principal*
Laura K. Kreps, *Senior Associate* Paul Montagno, *Senior Associate,* Megan Masson-Minock, *Senior Associate*

MODIFICATIONS/WAIVERS

The following modifications/waivers have been identified for the Baldwin Village planned unit development. Unless otherwise noted, the modifications/waivers are consistent with those identified as part of the concept plan review.

1) Drive-thru uses *(fast food restaurants)* as a principal use in commercial sites in Phase 1 *(Plaza at Baldwin Village)*.
2) Developmental standards for grocery store site in Phase 1 *(Plaza at Baldwin Village)*, including: increased maximum tenant square footage of 44, 234 square feet; reduced side-yard setback of 12.2 feet; reduced side-yard greenbelt of 12.2 feet; and reduced structure clear space of 0.0 feet.
3) Architectural standard for the grocery store site in Phase 1 *(Plaza at Baldwin Village)*, including: lack of windows along Baldwin; and façade length greater than 250 feet along Baldwin.
4) Developmental standards for the Chic-Fil-A site in Phase 1 *(Plaza at Baldwin Village)*, including: reduced front-yard setback of 35.7 feet; reduced drive-thru order station to residential setback of 32.3 feet; reduced drive-thru parking to residential setback of 12.5 feet; reduced parking setback of 0.0 feet; and reduced parking to residential setback of 12.5 feet.
5) Developmental standards for the Shake Shack site in Phase 1 *(Plaza at Baldwin Village)*, including: reduced drive-thru parking setback to residential of 30 feet; and reduced parking setback of 0.0 feet.
6) Developmental standards for multiple-tenant buildings in Phase 1 *(Plaza at Baldwin Village)*, including: reduced drive-thru parking setback of 31.7 feet; and reduced structure clear space of 0.0 feet.
7) Architectural standards to allow flat roofs on commercial buildings in Phase 1 *(Plaza at Baldwin Village)*.
8) Multiple-family dwellings more than 1,000 feet west of the Baldwin right-of-way.
9) Less than 60 percent of the site reserved for single-family dwellings for a site larger than 40 acres.
10) Developmental standards for multiple-family and two-family dwellings in the residential phases, as shown in the plans, including: reduced yard setbacks; and reduced building-to-building setbacks.
11) Reduced setback for decks on buildings SD1, SD2, SD4, SD5, ST1, ST2, and ST3, in Phase 4 *(South Village)*, as shown in the plans. *(New modification identified as part of final review.)*
12) Architectural standards for attached single-family dwellings to not include front porches at least 6 feet deep by 8 feet wide.
13) Residential density to exceed 9 dwelling units per acre if front-facing garages are not recessed or if building length is longer than 160 feet.
14) Reduced improved road surface width of 27 feet.

15) Commercial parking lots located within front yards along Baldwin.

16) Reduced parking lot landscape island area and width, as shown in the plan. *(New modification identified as part of final review.)*

17) Reduced number of parking spaces within the grocery store site of Phase 1 *(Plaza at Baldwin Village)*. *(New modification identified as part of final review.)*

18) Reduced number of parking spaces within Phase 2 *(Uptown Village)*. *(New modification identified as part of final review.)*

19) Exterior light fixtures that are not consistent with the Gingellville Village Design Plan *(or lighting revised to be consistent with Gingellville Design Plan)*.

20) Exterior light fixtures with LED bulbs *(with a color temperature of 3000K)*. *(New modification identified as part of final review.)*

21) Wetland or stormwater management areas allowed to contribute towards minimum required useable open space. *(New modification identified as part of final review.)*

22) Developmental setback/height standards for commercial and residential monument structures, as shown in the plan.

23) Other minor modifications may be identified as missing information is provided.

POTENTIAL CONDITIONS

The following potential conditions have been identified as part of our review. Additional potential conditions may be identified before the meeting, at the meeting, or in other reviews.

General Conditions

1) Property boundaries within the project site reconfigured to be consistent with the approved final plan.

2) Wetland permits secured for any work within wetlands or required setbacks.

3) Tree permits secured as necessary for tree removal.

4) A list/table of all approved modifications added to the final plans.

5) Township approval of condominium documents, with a recorded copy provided to the Township.

6) Township approval of a planned unit development agreement, with a recorded copy provided to the Township.

7) Mechanism acceptable to the Township to ensure single control throughout the life of the project.

8) Public benefits agreed to by the Planning Commission and applicant to be documented in the planned unit development agreement.

Use and Developmental Standards Conditions

1) Heights of proposed buildings added to determine if modifications of height standards are necessary.
2) Additional details for outdoor patios in Phase 1 *(Plaza at Baldwin Village)* added.
3) Confirmation whether or not any of the fast-food restaurants will serve alcohol.
4) Decks that extend into the proposed required setbacks on buildings SD1, SD2, SD4, SD5, ST1, ST2, and ST3 in Phase 4 *(South Village)* removed or reconfigured, if modification is not granted.
5) Carport details for Phase 2 *(Uptown Village)* added.

Parking and Loading Conditions

1) Shared parking agreement for the proposed sites within the commercial phase.
2) Electric vehicle charging stations provided in parking lots in Phase 1 *(Plaza at Baldwin Village)* and Phase 2 *(Uptown Village)*.
3) Circuits provided to allow electrical vehicle charging stations in garages in the residential phases.
4) Landscape islands/bumpouts added in locations with more than 20 contiguous parking spaces.
5) Dedicated bicycle parking area added for each of the proposed commercial sites in Phase 1 *(Plaza at Baldwin Village)*.
6) Provide dedicated loading/unloading spaces for all of the commercial sites in Phase 1 *(Plaza at Baldwin Village)*, if modification is not granted to allow for use of maneuvering lanes.
7) On-street parking limited to one side of the private streets, with no parking signs posted, as required by the Fire Department.
8) Applicant to identify how deliveries will be limited and language limiting the time of deliveries added to the site plan and planned unit development agreement, or dedicated loading/unloading spaces provided.

Landscaping and Tree Preservation Conditions

1) All proposed plantings added to Plant Schedules.
2) Planting locations for species to be mixed.
3) Locations of protective barriers for trees to remain added.
4) Clarification of calculations for replacement of landmark trees within the commercial phase.
5) Legal mechanism acceptable to the Township, such as a conservation easement, provided to ensure protection of nature preserve, wooded greenbelts, and other dedicated open space.

6) Decorative grasses planted along the project boundaries in the gas pipeline easement in Phase 1 *(Plaza at Baldwin Village)*, unless prohibited by the terms of that easement.
7) A solid wall or evergreen shrubs added along the stacking lanes of the southern fast-food restaurant in Phase 1 *(Plaza at Baldwin Village)* to limit export of light from stacked vehicles.
8) Screening, fencing, or landscaping, added around transformers for commercial sites in Phase 1 *(Plaza at Baldwin Village)*.

Access and Circulation Conditions

1) Location of access easements added within commercial phase.
2) Access/driveway approval by the Road Commission for Oakland County and Township Engineer.
3) Access easement and maintenance agreement approved by the Township Attorney and Township Board and recorded, with a copy provided to the Township.
4) Access and circulation approval by the Fire Department.
5) If Phase 1 *(Plaza at Baldwin Village)*, Phase 3 (North Village), or Phase 4 (South Village) are developed before Phase 2 *(Uptown Village)*, the portion of Gingellridge providing access to those phases must be installed.
6) Sidewalks added between the Baldwin safety pathway and the multiple-tenant buildings and each of the fast-food restaurants in Phase 1 *(Plaza at Baldwin Village)*.
7) Turning radius for garbage trucks added to ensure accessibility, and/or locations of dumpsters adjusted to provide adequate access in Phase 1 *(Plaza at Baldwin Village)*.
8) Additional pedestrian crossings added and marked throughout the project, as noted in the Planning Report.
9) Pedestrian connection may be required to the property to the south by the Township upon redevelopment of that property in the future.
10) Curb radii reduced for entrances to parking lots in Phase 2 *(Uptown Village)*.
11) Boulevard median on Gingellridge extended west to the entrance for Phase 1 *(Plaza at Baldwin Village)* and toward the traffic circle.

Lighting Conditions

1) Specifications for all light fixtures, including architectural accent lighting added.
2) Lighting revised to be consistent with Gingellville Design Plan *(if modification is not granted)*.
3) Color temperature of exterior lighting to be 3000K.
4) All light fixtures shall be full cutoff.

Sign Conditions

1) Master signage plan/package provided.
2) Signs removed from residential and commercial monuments or additional details provided to confirm compliance or any necessary modifications.
3) Plans revised to clarify area and height of monument signs in Phase *1 (Plaza at Baldwin Village).*
4) Additional details provided for commercial monument signs and wall signs.
5) Additional details provided for residential signs.
6) If entry signs are proposed for residential phases, location and details added.
7) Details of traffic regulatory signs consistent with the Michigan Manual on Uniform Traffic Control Devices added.

Essential Services Conditions

1) Stormwater easement location added.
2) Maintenance agreement approved for stormwater facilities.
3) Utilities and stormwater management approval by the Township Engineer.

Please contact us with any additional questions.

CARLISLE/WORTMAN ASSOC., INC.
Zach Michels, AICP
Planner

RECEIVED
JAN 13 2023
Orion Township
Planning & Zoning

Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

January 12, 2023

Final Planned Unit Development/Site Plan Review for Orion Township, Michigan

Applicant:	RED Equities, LLC
Project Name:	Baldwin Village
Plan Date:	December 9, 2023
Location:	Northwestern corner of Baldwin and Morgan 4292 S Baldwin (09-32-301-014, 09-32-301-001, 09-32-151-020, 09-32-151-021)
Action Requested:	Final planned unit development/site plan approval

PROJECT NARRATIVE

The applicant is requesting final planned unit development/site plan approval for a mixed-use development that would include 4 commercial sites and 465 residential dwelling units.

A public hearing was held with the Planning Commission and Township Board for preliminary approval on August 3, 2022. Concept plan approval was granted by the Township Board on August 15, 2022. This final plan is generally consistent with the concept plan, except the car wash has been replaced with a fast-food restaurant.

The project site includes 4 parcels. All of the parcels are heavily wooded and currently vacant.

The applicant proposes a multiple-phase project. The exact order and timing of the phases is not indicated, and several or all of the phases may be developed concurrently. The applicant's intent is to allow flexibility to adapt to different market conditions.

The purpose of final review is to determine if the proposed uses and site are consistent with Township ordinances and other applicable county, state, and federal laws and regulations and to identify reasonable conditions that may be necessary to mitigate potential negative impacts to surrounding properties and the community.

This review first examines elements common to the whole project. It then examines each phase of the project in greater detail in individual attachments.

The Planning Commission is a recommending body for this application. The Township Board is the review and approval authority for this project.

Richard K. Carlisle, *President* Douglas J. Lewan, *Executive Vice President* John L. Enos, *Vice President*
David Scurto, *Principal* Benjamin R. Carlisle, *Principal* Sally M. Elmiger, *Principal* Craig Strong, *Principal* R. Donald Wortman, *Principal*
Laura K. Kreps, *Senior Associate* Paul Montagno, *Senior Associate*, Megan Masson-Minock, *Senior Associate*

SITE DESCRIPTION

Lot Area:	58.7 acres *(net)*
Frontage:	~1,184+ feet along Baldwin ~221+ feet along Morgan
Current Use:	Undeveloped woodlands and wetlands

The site is currently 4 separate parcels. These parcels will be reconfigured, with the residential uses being a single lot and the commercial uses being on their own individual lots.

Aerial Image of Site

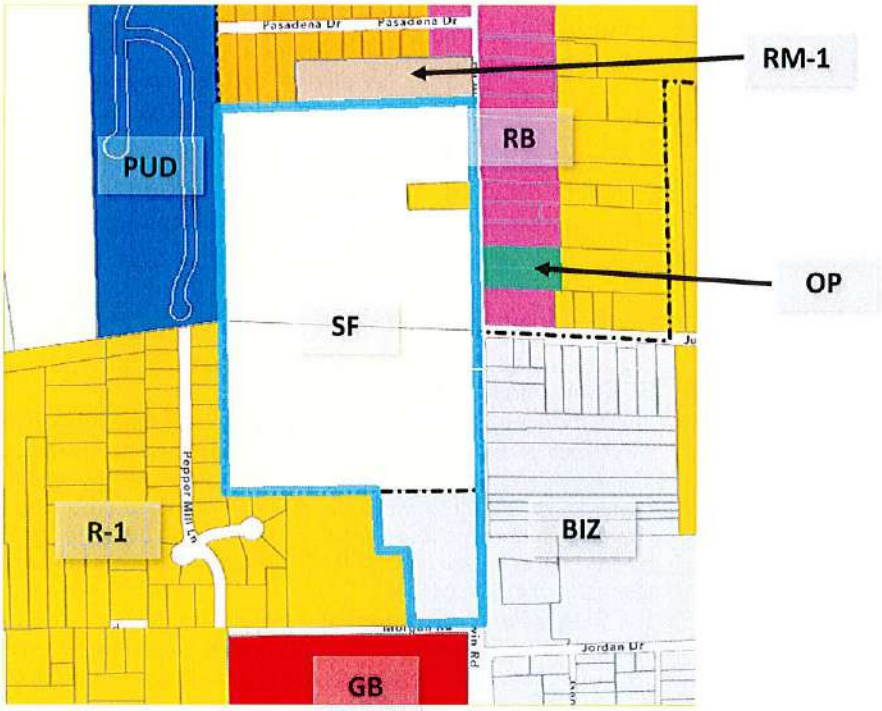
	North	East	South	West
Surrounding Zoning	*R1 Single-Family Residential* *RM-1 Multiple-Family Residential*	*RB Restricted Business* *OP Office and Professional* *BIZ Brown Road Innovation Zone*	*R-1 Single-Family Residential* *GB General Business*	*PUD (Residential)* *R-1 Single-Family Residential*
Surrounding Land Uses	*Single-family dwellings* *Multiple-family dwellings*	*Commercial* *Single-family dwellings*	*Single-family dwellings* *Shopping Center*	*Single-family dwellings*
Future Land-Use Map	*Single Family High Density* *Village Center*	*Village Center*	*General Commercial* *General Office*	*Single-Family High Density* *Single-Family Medium Density*

"Surrounding properties" taken from the overall site.

Current Zoning	SF Suburban Farms *The Suburban Farms... Districts are intended to provide open land area for orderly residential growth, continued agricultural use and residential activities of a semi-rural character in areas that may or may not be served by public water and sewerage facilities. It is further intended that the district protect and stabilize the essential characteristics of these areas in order to promote and encourage suitable environments for low density, family life, and to maintain and to preserve the semi-rural character of the Township.* R-1 Single-Family Residential *The R-1...Single Family Residential Districts are intended to provide areas within the Township suitable for residential use in a family type atmosphere. It is intended that R-1... Districts be developed in accordance with availability of public utilities. Thus, it is intended that areas be established where public utilities are not available while smaller lot areas be established only where public sewers are available. R-1...zones are designated in accordance with the Township Master Plan objectives in keeping with the semi-rural character envisioned for the majority of the Township. Furthermore, it is intended that the designation of R-1... Districts take into account and preserve the environment and physical characteristics of the land.* BIZ Brown Road Innovation Zone *The purpose of the Brown Road Innovation Zoning District shall be to encourage the development of property in accordance with the Charter Township of Orion Master Plan in a manner that: allows mixed industrial and commercial development in a visually cohesive district; promotes economic development; encourages collaboration between adjacent property owners in the form of shared access and lot combinations; promotes employment, and tax base; promotes redevelopment and new development; eliminates blighted properties; incorporates Low Impact Design (LID) practices as well as full or partial ratings for Leadership in Energy and Environmental Design (LEED); ensures safe and complementary vehicular and pedestrian circulation patterns and best practices for access management; improves environmental quality and remediates degraded properties; and provides an attractive transition between residential and non-residential properties.* Gingellville Village Center Overlay *The purpose of the Gingellville Village Center Overlay District shall be to promote the*

	development of the area in accordance with the Gingellville Village Planning and Design Guidelines in such a manner that will: maintain, preserve and enhance historic resources; allow for a mixed use concept of new development that advances the creation of a "Village"; arrive at a residential pattern which addresses both style and architecture appropriate for the area; and, develop a vehicular and pedestrian circulation pattern appropriate for a "Village" while recognizing current community and lifestyle issues.

Current Zoning Map



If approved, the site would be rezoned to PUD Planned Unit Development

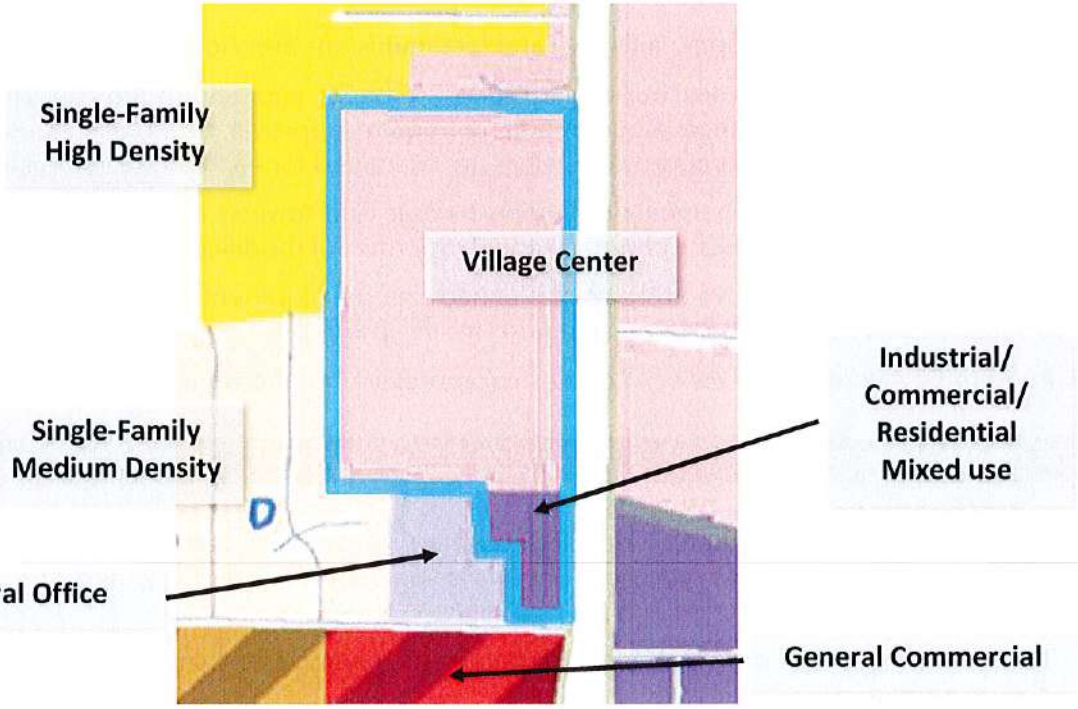
Future Land Use	Village Center *(northern portion of site)* *Village Center is planned for the Gingellville sub area exclusively. This portion of Baldwin Road between Maybee and Judah Roads is one of the oldest commercial/residential centers in the Township and has a rich history. The intended mix of uses includes those in the Neighborhood Commercial, General Office, Multiple Family Residential and Single-Family Residential land use categories. Also, missing middle development, which envisions many house-scale building types such as triplexes, quadplexes, small townhouse cluster, and cottage court bungalows is anticipated to be part of the residential mix in this area. Density will vary in this district and is controlled by form-based zoning. The classification intends for the integration of commercial and residential uses in an attractive and well-designed environment. The classification is also intended to encourage the development of a pedestrian friendly atmosphere, an attractively landscaped boulevard and sidewalks, rear and side parking lots, unified architectural theme and streetscape, and aims to continue the vitality and quality of life in nearby residential neighborhoods through the creation of public spaces and amenities. These developments should be designed with placemaking and pedestrian amenities as an integral component of site development.*

The correlating zoning district is the Gingellville Village Center Overlay District. See the Gingellville Subarea in this Chapter for additional land use considerations regarding the Village Center.

Industrial/Commercial/Residential Mixed Use *(southern portion of site)*

Development is planned to provide a mix of industrial, commercial, and residential uses in the area near Brown Road between Baldwin and Joslyn and along Lapeer Road between Brown and Waldon. The intent is a mix of industrial, residential, commercial, medical and office uses and ancillary commercial uses within a well-planned business setting. Large-format retail may be considered along the Brown Rd. frontage. Density will vary in this district and is controlled by height, bulk, and setback regulations in the applicable zoning district. The Township will also promote economic development initiatives for the area. Economic incentives may include Brownfield Redevelopment, Local Development Finance Authority (LDFA), Industrial Facilities Tax Exemption (IFT), Tax Increment Financing (TIF), infrastructure investments and State grant programs. Redevelopment projects will be reviewed by way of a Planned Unit Development for those projects which deviate from the listing of permitted/special uses. Specific zoning regulations are incorporated within the Light Industrial (LI), Brown Road Innovation Zone (BIZ) and Lapeer Road Overlay zoning districts.

Future Land Use Map



Items to be Addressed: Property boundaries within the project site reconfigured to be consistent with the approved final plan.

NATURAL RESOURCES

Topography: The site has varied topography, with many hills and depressions.

Wetlands:	There is a large wetland in the central western portion of the site. Limited work, including some filling and grading and construction of a retaining wall will take place within this area. A small wetland in the center of the site will be filled. These wetlands are not state-regulated wetlands, but they are regulated by the Township's Wetland Protection Ordinance.
Woodland:	A significant portion of the site is wooded, including a stand of mature trees, scrublands, and landmark trees.
Soils:	According to the USDA Web Soil Survey, the soils on the site are sandy loams, loams, loamy sands, fine sand and undulating updipsamments. These soil types are generally suitable for development.
Water:	There are no waterbodies on the site, aside from wetlands.

Items to be Addressed: *Wetland permits secured for any work within the wetlands or required setbacks.*

AREA, WIDTH, HEIGHT, AND SETBACKS §27.03

Proposed building envelopes, setbacks, and lot dimensions are shown in the plans.

The proposed lot dimensions, building locations, setbacks, and heights are consistent with the minimum Zoning Ordinance requirements or require approval of modifications as part of planned unit development approval. Details are examined for each phase in the attachments.

Accessory structures *(monuments, including trellises and towers)* are proposed within some required front yard setbacks and would require approval of modifications.

If modifications are approved as part of planned unit development approval, those standards would become the developmental standards for this property.

Items to be Addressed: *A list of all requested/approved modifications added to the final plans.*

PARKING AND LOADING §27.04

Parking and loading for the commercial phase will use surface parking lots. Parking for the residential phases will use garages, driveways, parking lots, carports, and some on-street parking.

The dimensions of the proposed parking spaces and maneuvering lanes are consistent with the Zoning Ordinance.

The number of parking spaces provided is generally consistent with the Zoning Ordinance. The number of parking spaces for the grocery site and Uptown Village require approval of a modification or should be increased.

The location of proposed parking is consistent with the Zoning Ordinance.

There are a couple of areas where the parking lot design could be improved, as noted in attached reviews for specific phases.

A shared parking agreement for the proposed sites within the commercial phase would allow for overflow parking from one use to legally use available parking spaces on the adjacent site.

Items to be Addressed: *Shared parking agreement for the proposed sites within the commercial phase.*

LANDSCAPING, FENCES, AND WALLS §27.05

The landscape plan calls for removing a significant number existing trees, including landmark trees, protected trees, and non-protected trees. It calls for preserving existing trees around the wetland area, as part of a nature preserve, along the exterior boundaries of the residential phases, and in several other locations.

Preserved trees and new landscaping would provide screening between the project and adjacent properties. Screening between the different phases of the project is provided with new plantings. Plantings are also proposed within parking lots and along the Baldwin and Morgan rights-of-way.

Calculations for plantings appear to be consistent with the Zoning Ordinance, except where otherwise noted.

The proposed plantings include a variety of species, such as Norway spruce, green spruce, black hills spruce, Fraser fir, white pine, red maple, linden, and basswood. Not all of the individual trees are labelled for specie. Mixing species planting locations is preferred to reduce the impact from disease or pest.

Items to be Addressed: *Planting locations for species to be mixed.*

STREETS, ROADS, AND OTHER MEANS OF ACCESS §27.06

The project will include several new private roads, primarily serving the residential phases, service drives, and parking lot maneuvering lanes. The commercial sites will share the service drives and maneuvering lanes located within that phase.

The proposed rights-of-way for the private roads are consistent with Zoning Ordinance standards.

The improved road surfaces, measured from back of curb to back of curb is 27 feet, which is less than the 30 feet required. This design is consistent with what was presented in the concept plan. Reduced roadway widths reduce vehicular speeds. This width allows for safe, 2-way traffic but limits the ability to park on both sides of the road.

Access easements and maintenance agreements need to be approved and recorded.

Additional comments deferred to the Fire Department, Township Engineer, and Township Attorney.

Items to be Addressed: *1) Location of access easements added within commercial phase. 2) Modification for reduced improved road surface of less than 30 feet. 3) Accesses easements and maintenance agreements to be approved and recorded. 4) Access and circulation approval by the Fire Department, Township Engineer, and Township Attorney.*

LIGHTING §27.11/$30.02(F)

Lighting within the project will be provided with streetlights, bollard lights, and building-mounted lights. Building elevation plans also show some architectural accent lighting.

Details are provided for most but not all of the proposed light fixtures. The light fixtures are consistent throughout the project. However, they are not consistent with the light fixtures identified as part of the Gingellville Village Design Plan.

The proposed light fixtures will use LED bulbs. The only types of bulbs permitted in the Zoning Ordinance are metal halide, incandescent, fluorescent, mercury vapor, or sodium vapor *(with color correction)*. The intent is to ensure a consistent color temperature throughout a development and across the Township. Notes on the photometric plans indicate a color temperature of 3000K for most of the light fixtures. This color temperature is consistent with the approved bulb types.

Items to be Addressed: *1) Modification to allow for exterior light fixtures that are not consistent with the Gingellville Village Design Plan, or lighting revised to be consistent with Gingellville Design Plan. 2) Modification to allow for LED bulbs with a color temperature of 3000K. 3) Color temperature of exterior lighting to be 3000K.*

TREES AND WOODLAND PROTECTION §27.12

The site is heavily wooded with a mix of mature trees and scrublands. Landmark trees are located within the site, with most of them located within the residential phases.

As noted on the tree removal exhibit, a significant number of trees will be removed to facilitate development of the site. Many of these removals are located within building envelopes or the building site. A tree permit may be necessary for removal of some of the trees.

Within the commercial phase, 7 landmark trees will be removed. The plans indicate that more caliper of trees will be planted than would be required for landmark tree replacement. However, these calculations appear to include trees that are required for other landscaping purposes.

Within the residential phases, 51 landmark trees will be removed, and 32 landmark trees will remain. There are 713 fewer trees than required. The applicant has proposed planting larger trees with heights of 8 feet rather than 6 feet and calipers of 3.5 inches rather than 2 inches. The applicant can also contribute to the Township's Tree Fund in lieu of tree replacement.

Existing trees along the exterior boundaries of the residential phases and surrounding the preserved wetland will be preserved. Details of protective barriers around the trees to remain are included, but the locations of these protective barriers are not shown.

It is unclear what legal mechanism is proposed to ensure the continued protection of the nature preserve and other wooded areas.

Items to be Addressed: *1) Tree permit secured as necessary for tree removal. 2) Locations of protective barriers for trees to remain added to site plan. 3) Clarification of calculations for replacement of landmark trees within the commercial phase. 4) Determination if the proposed replacement plan for the residential phase is acceptable. 5) Determination if applicant should*

contribute to the Township's Tree Fund to address the shortfall of replacement trees. 6) Legal mechanism, such as a conservation easement, provided to ensure protection of nature preserve and wooded greenbelts.

ACCESS MANAGEMENT §27.14

Access to the project will be through 5 new access points along Baldwin, which is under the Road Commission for Oakland County jurisdiction. Two of these access points will be new private roads. The other access points will be commercial driveways.

Vehicular connection will not be provided to adjacent properties, but there will be 1 pedestrian access point to the Cottages at Gregory Meadows to the west.

The site design allows and encourages vehicular and pedestrian access throughout the site.

Sidewalks are provided into the residential portions of the project and to the grocery store from the Baldwin safety pathway. Sidewalks are not provided to the multiple-tenant buildings or the fast-food restaurants.

Additional access management comments are deferred to the Township Engineer and Road Commission of Oakland County.

Items to be Addressed: *Access approval by the Township Engineer and Road Commission of Oakland County.*

SIGNS ORD 153

Sign details, such as location, height, and area should be included as part of the final planned unit development plan.

The project will include monument and wall signs for the commercial uses. Location, height, and area details are provided for a single monument sign; the proposed area is different in different locations of the plans. Only the location is shown for wall signs.

Information is not provided for potential entrance signs for the residential phases of the project. Building elevations show the location of wall signs.

Elevations of the residential and commercial monuments show the locations but not the areas for integrated signs.

The locations of traffic regulatory signs are shown, but details are not provided for these signs.

It is not possible to determine full compliance with the sign standards or identify necessary modifications at this time.

Items to be Addressed: *1) Additional details provided for commercial monument signs and wall signs. 2) Additional details provided for residential signs. 3) Additional details provided for integral signs in residential and commercial monuments. 4) Details of traffic regulatory signs consistent with the Michigan Manual on Uniform Traffic Control Devices added.*

GINGELLVILLE VILLAGE CENTER OVERLAY ART 33.00

Principal Permitted Uses. *The proposed uses in the multiple-tenant building are permitted. The proposed grocery store is larger than the 13,000 square feet allowed. Multiple-family dwellings extend more than 1,000 feet west of the Baldwin right-of-way. The project site is more than 40 acres in size, but less than 60 percent of the acreage is reserved for single-family dwellings.*

Design Standards. *The site design appears to meet most of the general design standards. Transitions between uses, pedestrian connections, access drives, and pedestrian amenities are provided. Opportunities to improve pedestrian connections are identified in the Plaza and Baldwin Village review.*

Open space, community design features, building materials, and building roofs appear to be consistent with Zoning Ordinance standards.

Signage should be consistent through the development with certain design standards, to be outlined in a master signage plan. A master signage plan has not been provided; it is not possible to determine compliance with these standards at this time.

Site access, parking and loading, pedestrian pathways and sidewalks, lighting, and landscaping and screening are examined elsewhere in this report.

Front-facing garages extend beyond the living space for most of the dwelling units. The proposed façade materials appear to be consistent with material requirements. Residential density is greater than 9 units per acre but less than 20 units per acre. The height of buildings is not dimensioned, but some of the buildings are 3 stories tall. The density can be increased beyond 9 units per acre and the maximum height and number of stores can be increased if specific conditions are met: Minimum open space of 20 percent; front-facing garages recessed at least 5 feet behind living area; multiple-family dwelling units must be townhouses, bungalow court, small multiples, or duplex; and maximum building height of 35 feet within 100 feet of adjacent residential zoning districts. It does not appear that these conditions are met.

Modifications of Standards. *The Gingellville Village Center Overlay standards can be waived or modified by the Planning Commission with consideration of the following: Standards would prevent reasonable use of the site; existing design of/on the site would make application of standards impractical; limited lot area of existing features do not provide enough space for design features; and other design constraints and considerations, as defined by the Planning Commission. Requirements can be modified as part of a planned unit development.*

***Items to be Addressed**: 1) Modification to allow a maximum floor area larger than 13,000 square feet for the grocery building. 2) Modification to all multiple-family dwellings more than 1,000 feet west of the Baldwin right-of-way. 3) Modification to allow less than 60 percent of the site be reserved for single-family dwellings. 4) Master signage plan provided consistent with design standards. 5) Modifications (through planned unit development approval) for front facing garages, number of units per acre, and number of stories. 6) Heights of proposed buildings dimensions to determine if modification of height standard is necessary.*

ESSENTIAL SERVICES AND UTILITIES

The project will be connected to public water and sanitary sewer systems that are located within the Baldwin right-of-way.

Existing overhead electrical distribution lines run along the eastern side of the project, within the Baldwin right-of-way. Service to the proposed buildings will be buried.

A portion of the stormwater immediately around the preserved wetland will continue to flow to that wetland. The majority of stormwater would be collected through catch basins in the parking lots and directed to a new detention basin on the northern portion of the project.

It does not appear that there will be any conflict between the proposed utilities and proposed landscaping.

Trash for the commercial uses and the residential uses in Uptown Village portion will be collected in dumpsters. Waste for the other residential uses will be collected individually using Township-provided totes and curbside pickup.

We defer additional comments on essential services, utilities, and stormwater management to the Township Engineer.

Items to be Addressed: *1) Stormwater easement location added to the plans. 2) Maintenance agreement approved for stormwater facilities. 3) Utilities and stormwater management approval by the Township Engineer.*

SITE PLAN REVIEW CRITERIA §30.01(F)

Comments below are intended to aid the Planning Commission's review. Additional comments may become available before or during the public meeting.

Adequacy of Information. *The plans and application contain a lot of information. Some missing information does not impact the ability to review the project, but some missing information must be provided in order to determine full compliance or what modifications may be necessary.*

Site Design Characteristics. *The site design elements appear to be harmonious within the project and with the character of the surrounding area and would not be likely to impede the orderly development of surrounding properties or the area. Design elements are consistent throughout the site and are intended to provide an enhanced environment within the project and for the surrounding area. Some design characteristics may need to be revised or receive modification approval.*

Preservation of Natural Areas. *The landscape would be altered throughout the building areas, in order to provide adequate space for buildings and other supporting improvements. This will require removal of trees and alteration of topography. A woodland area and wetland area in the central western portion of the site and wooded greenbelts along the exterior boundaries of the residential phases will be preserved. A small wetland area in the center of the site will be filled.*

Privacy. *The site design appears to provide appropriate visual and sound privacy for the dwelling units within the site and the existing and future dwelling units on adjacent properties. Vegetative*

screening is provided between commercial and residential areas within the project and between residential areas within and adjacent to the site.

Emergency Vehicle Access. *The site design and building arrangement appear to provide adequate emergency vehicle access throughout the project and to each of the buildings. It appears possible to easily access all sides of proposed buildings. Additional emergency vehicle access comments deferred to the Fire Department.*

Ingress and Egress. *Every structure, commercial unit, and dwelling unit will have vehicular access from a public road, private road, service drive, or parking lot. Every dwelling unit will have pedestrian access from an internal walkway system. Pedestrian access is provided to the grocery store and multiple-tenant buildings but not to the proposed fast-food restaurants.*

Pedestrian Circulation. *A separate pedestrian circulation system is provided throughout the site, with sidewalks along roads and parking lots and pathways. There are opportunities to improve pedestrian circulation by providing addition pedestrian crossings within the project, providing connections between the commercial uses and the safety pathway along Baldwin, and providing bicycle parking areas.*

Vehicular and Pedestrian Circulation Layout. *The arrangement of vehicular and pedestrian circulation appears to respect the existing street and pathway pattern in the surrounding area. Pedestrian connections will be provided to a residential planned unit development to the west, within the project, and to the grocery store from the safety pathway. Potential areas to improve pedestrian circulation are noted elsewhere. Vehicular circulation would allow multiple access points from Baldwin and internal movement. A location for a potential new crossover on Baldwin has been identified in the traffic impact study and shown on the plan. Additional circulation comments deferred to the Township Engineer.*

Drainage. *Areas immediately around the large wetland will continue to drain to the wetland. Stormwater from other improved areas in the project will be directed through pipes to a forebay before flowing to an on-site detention pond. The detention pond is not intended to outlet from the project. Existing soils on the site should provide significant on-site infiltration. The detention pond is intended to remain wet and would serve as a landscape water feature with a fountain to aerate the water. Additional drainage comments deferred to the Township Engineer.*

Exterior Lighting. *The proposed exterior lighting should not create a negative impact on adjacent properties or impede the vision of motorists on Baldwin, Morgan, or within the site. The photometric plan shows that some areas along Baldwin may have higher lighting intensity along the right-of-way than allowed, but this lighting intensity would not create glare, is consistent with street lighting along Baldwin, and would provide enhanced visibility at driveways.*

Public Services. *The scale and design of the project are not likely to have a significant impact on the provision of public services. Stormwater will be managed on-site. Baldwin was recently reconfigured with anticipated development of this site. Public water and sanitary sewer are available at the site. Additional comments on utilities deferred to the Township Engineer.*

Vulnerability to Hazards. *The proposed residential and commercial uses are not likely to use hazardous materials or processes beyond what is typically found with existing residential uses or commercial uses in the area.*

Items to be Addressed: 1) Missing information necessary to determine compliance or necessity of modifications must be provided. 2) Determination if the standards in §30.01(F) Standards for Site Plan Approval are satisfied.

SITE CONDOMINIUM REVIEW §30.01(G)

The residential portion of the project will be a single parcel, with units available for rent. The commercial portion of the project will be split into separate condominium lots for each commercial use.

The proposed uses are permitted in the base zoning district, the overlay zoning district, or have received the necessary waiver as part of concept plan approval. The proposed commercial lots would meet dimensional standards and will have access from Baldwin or through common circulation using a private road, service drive, or parking lots.

Condominium documents have not been provided at this time but are required and must be approved following site plan approval. These documents should include a description of any access easements, maintenance of access, and any other maintenance agreements. Additional comments on site condominium documents deferred to Township Attorney.

The Township Board would be the approving authority for this site condominium.

Items to be Addressed: Township approval of condominium documents, with a recorded copy provided to the Township.

PLANNED UNIT DEVELOPMENT REVIEW §30.03

Eligibility Criteria. *General compliance with eligibility criteria was examined as part of concept plan review and approval. The plan remains consistent with the approved concept plan.*

The applicant has previously committed to allowing public use of sidewalks and pathways within the development, providing resources for pathway/sidewalk improvements in the Township, providing resources to make improvements to watercraft launching facilities at Camp Agawam, and several other public benefits. Those benefits should be clearly defined by and agreed to by the Planning Commission and documented in the planned unit development agreement.

At this time, we cannot confirm that the project provides the minimum required useable open space. Although the plans describe the project as providing adequate useable open space, there is no break down or map showing what areas were used to calculate the useable open space. §30.03(B)(5) Guaranteed Open Space states that useable open space should not include wetlands (as identified in Ordinance 107 Wetland Protection or stormwater management facilities.

It appears that portions of protected wetlands are counted as part of useable open space. It is our understanding that the Planning Commission and Township Board have had a favorable position towards considering the wetland area, preserved greenbelts, and proposed stormwater detention pond as useable open space, as the nature of those open spaces are beneficial to the development and the surrounding area in general.

The site is currently under unified control, but a mechanism must be provided to ensure that a single entity remains responsible for the project through all of the construction phases and after completion of the project.

Project Design Standards. *The final plan appears to be generally consistent with the approved concept plan.*

The applicant has submitted a traffic study that is being reviewed by the Township Engineer.

Non-Residential Project Design Standards. *The design standards of the non-residential portion of the project appear to be generally consistent with the approved concept plan. Several potential conditions are identified in the Plaza at Baldwin Village review that would improve consistency and appearance of the commercial areas.*

Optional Provisions for Exemplary Projects. *The final plan appears to be generally consistent with the approved concept plan.*

Project Standards. *The final plan appears to be generally consistent with the approved concept plan.*

A draft planned unit development ahs been provided and is currently being reviewed. Additional comments will be provided before or at the Planning Commission meeting.

Items to be Addressed: *1) Public benefits clearly defined and agreed to by the Planning Commission and documented in the planned unit development agreement. 2) Mechanism approved by the Township to ensure single control throughout the life of the project. 3) Modification to allow wetland area to contribute towards minimum required useable open space.*

SUMMARY

Because of the scope and complexity of the project, additional information, reports, or updates may be provided between the time of this report and the Planning Commission meeting.

As noted in this general review and the attachments, additional information has been identified that is necessary to determine full compliance with the Zoning Ordinance or to identify necessary modifications.

The Planning Commission could recommend approval to the Township Board, with or without conditions, if it determines decision criteria and developmental standards are met or would be met with conditions.

The Planning Commission could postpone action if it determines missing information is necessary for its review or there are significant or too many changes or conditions that would be necessary to grant approval at this time. If this is the case, it should direct the applicant to prepare revisions based on its review and provide guidance as to what additional information or changes would be necessary.

The Planning Commission could recommend denial to the Township Board if it determines decision criteria and developmental standards are not met or could not easily be met with changes or conditions.

Decisions/Determinations/Findings

The list below identifies items that require decision, determination, or finding.

1. *Modification for reduced improved road surface of less than 30 feet.*
2. *Modification to allow for exterior light fixtures that are not consistent with the Gingellville Village Design Plan.*
3. *Modification to allow for LED bulbs with a color temperature of 3000K.*
4. *Determination if the proposed replacement plan for the residential phase is acceptable.*
5. *Determination if applicant should contribute to the Township's Tree Fund to address the shortfall of replacement trees.*
6. *Modification to allow a maximum floor area larger than 13,000 square feet for the grocery building.*
7. *Modification to all multiple-family dwellings more than 1,000 feet west of the Baldwin right-of-way.*
8. *Modification to allow less than 60 percent of the site be reserved for single-family dwellings.*
9. *Modifications (through planned unit development approval) for front facing garages, number of units per acre, and types of dwelling units.*
10. *Modifications (through planned unit development approval) for front facing garages, number of units per acre, and number of stories.*
11. *Determination if the standards in §30.01(F) Standards for Site Plan Approval are satisfied.*
12. *Modification to allow wetland area to contribute towards minimum required useable open space.*

Potential Conditions

The list below includes potential conditions of approval for the Planning Commission to consider. Additional potential conditions could also be identified at the Planning Commission meeting.

1. *Property boundaries within the project site reconfigured to be consistent with the approved final plan*
2. *Wetland permits secured for any work within the wetlands or required setbacks.*
3. *A list of all requested/approved modifications added to the final plans.*
4. *Shared parking agreement for the proposed sites within the commercial phase*
5. *Planting locations for species to be mixed.*
6. *Accesses easements and maintenance agreements to be approved and recorded.*
7. *Access and circulation approval by the Fire Department, Township Engineer, and Township Attorney.*
8. *Light fixtures to be consistent with Gingellville Design Plan, if modification not approved.*

9. *Color temperature of exterior lighting to be 3000K.*
10. *Tree permit secured as necessary for tree removal.*
11. *Locations of protective barriers for trees to remain added to site plan.*
12. *Clarification of calculations for replacement of landmark trees within the commercial phase.*
13. *Legal mechanism, such as a conservation easement, provided to ensure protection of nature preserve and wooded greenbelts*
14. *Access approval by the Township Engineer and Road Commission of Oakland County.*
15. *Additional details provided for commercial monument signs and wall signs.*
16. *Additional details provided for residential signs.*
17. *Additional details provided for integral signs in residential and commercial monuments.*
18. *Details of traffic regulatory signs consistent with the Michigan Manual on Uniform Traffic Control Devices added.*
19. *Master signage plan provided consistent with Gingellville Village Center Overlay design standards.*
20. *Heights of proposed buildings dimensions to determine if modification of height standard is necessary.*
21. *Stormwater easement location added to the plans.*
22. *Maintenance agreement approved for stormwater facilities.*
23. *Utilities and stormwater management approval by the Township Engineer.*
24. *Missing information necessary to determine compliance or necessity of modifications must be provided.*
25. *Township approval of condominium documents, with a recorded copy provided to the Township.*
26. *Township approval of condominium documents, with a recorded copy provided to the Township.*
27. *Public benefits clearly defined and agreed to by the Planning Commission and documented in the planned unit development agreement.*
28. *Mechanism approved by the Township to ensure single control throughout the life of the project.*
29. *Final site plan revised to address other issues noted in consultant and agency reviews.*

CARLISLE/WORTMAN ASSOC., INC.
Zach Michels, AICP
Planner

[End of General Review.]

Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

January 12, 2023

The Plaza at Baldwin Village Review

(Phase 1)

PROJECT NARRATIVE

The Plaza at Baldwin Village portion of the proposed development includes 4 commercial sites. These sites include 2 fast-food restaurants *(with indoor service, drive through, and outdoor patios)*, 2 multiple-tenant buildings, and a grocery store. There will be a total of 5 buildings.

The proposed car wash in the approved concept plan has been replaced with a fast-food restaurant.

Other improvements include parking, sidewalks, pathways, commercial monuments D-1, E, D-2, F, G, H, and I, retaining wall, and infrastructure improvements.

This phase is bordered to the north by a multiple-family dwelling portion of the proposed project, to the east by Baldwin, to the south by Morgan and a place of worship, and to the west by a place of worship and a multiple-family dwelling portion of the proposed project.

USES

The proposed uses are permitted as part of the overlay districts or as part of the planned unit development.

The locations for outdoor patios for both of the fast-food restaurants are shown. Details about seating and tables and umbrellas are not provided. The plans should state if either of the fast-food restaurants may serve alcohol, because it would require additional approvals.

Items to be Addressed: 1) Additional details for outdoor patios added. 2) Confirmation whether or not any of the fast-food restaurants will serve alcohol.

AREA, WIDTH, HEIGHT, AND SETBACKS

The proposed building locations and setbacks are shown. Tables are also provided for each site. The locations are generally consistent with the approved concept plan.

Most of the developmental standards are consistent with Zoning Ordinance standards; some require approval of modifications as part of planned unit development approval.

Richard K. Carlisle, *President* Douglas J. Lewan, *Executive Vice President* John L. Enos, *Vice President*
David Scurto, *Principal* Benjamin R. Carlisle, *Principal* Sally M. Elmiger, *Principal* Craig Strong, *Principal* R. Donald Wortman, *Principal*
Laura K. Kreps, *Senior Associate* Paul Montagno, *Senior Associate*, Megan Masson-Minock, *Senior Associate*

Minimum/Maximum	Required	Proposed	
		"Chic-Fil-A"	"Shake Shack"
Lot Area	20,000 sf	105,668 sf	81,208 sf
Lot Width	90 feet	221.0 feet	198.9 feet
Site Coverage	40 percent	4.7 percent	4.3 percent
Building Height	-	-	-
Front-yard Setback	40 feet	35.7 feet	96.0 feet
Side-yard Setback	20 feet	n/a	36.1 feet
Rear-yard Setback	30 feet	258.5 feet	244 feet
Rear-yard Setback (Residential)	50 feet	111.7 feet	244 feet
Drive-thru Order Station (Residential)	100 feet	32.3 feet	163.6 feet
Drive-thru Parking (Residential)	50 feet	12.5 feet	30 feet
Parking Setback	20 feet	0.0 feet	0.0 feet
Parking Setback (Residential)	30 feet	12.5 feet	30 feet
Right-of-way Greenbelt	20 feet	20.1 feet	27.3 feet
Open Space	10 percent	36.9 percent	51.4 percent

Minimum/Maximum	Required	Proposed	
		Multi-Tennant	Grocery Store
Lot Area	12,000 sf/ 9,000 sf	125,245 sf	204,951 sf
Lot Width	165 feet/ n/a	309.6 feet	529.1 feet
Maximum Tennant Floor Area	13,000 sf	7,520 sf	44,234 sf
Site Coverage	30 percent	12.0 percent	21.6 percent
Building Height	25 feet	Unknown	Unknown
Front-yard Setback	30 feet/ 20 feet	44.4 feet	42.7 feet
Side-yard Setback	20 feet/ 15 feet	28.0 feet	12.2 feet
Rear-yard Setback	30 feet	277.9 feet	154.0 feet
Drive-thru Order Station (Residential)	100 feet	277.9 feet	n/a
Drive-thru Parking	50 feet	31.7 feet	n/a
Perimeter Greenbelt	20 feet/ 15 feet	20.0 feet	12.2 feet
Perimeter Greenbelt (Residential)	30 feet	31.7 feet	30 feet
Structure Clear Space	20 feet/ 15 feet	0.0 feet	0.0 feet
Open Space	10 percent	21.2 percent	21.2 percent

***Items to be Addressed**: 1) Modifications of developmental standards for the Chic-Fil-A site, including: reduced front-yard setback of 35.7 feet; reduced drive-thru order station to residential setback of 32.3 feet; reduced drive-thru parking to residential setback of 12.5 feet; reduced parking setback of 0.0 feet; and reduced parking to residential setback of 12.5 feet. 2) Modification of developmental standards for the Shake Shack site, including: reduced drive-thru parking setback to residential of 30 feet; and reduced parking setback of 0.0 feet. 3) Modifications of developmental standards for multiple-tenant site, including: reduced drive-thru parking setback of 31.7 feet; and reduced structure clear space of 0.0 feet. 4) Modifications of developmental standards for grocery store site, including: increased maximum tenant square footage of 44, 234 square feet; reduced side-yard setback of 12.2 feet; reduced side-yard greenbelt of 12.2 feet; and reduced structure clear space of 0.0 feet. 5) Building heights added.*

PARKING AND LOADING §27.04

Parking for the proposed commercial uses will be provided with surface parking lots on the same lot as the commercial use.

The fast-food sites provide significantly more parking spaces than required. The multiple-tenant site provides slightly more than the minimum number of parking spaces if the buildings are used for restaurants. The grocery store provides 24 fewer parking spaces than required.

The fast-food restaurants provide an adequate number of stacking spaces for the drive-thru lanes.

There are several areas where there is a long run of adjacent parking spaces. In locations where there are more than 20 contiguous parking spaces, a landscape island/bumpout should be added. If there is demand for additional parking in the future, these could be converted to parking.

Due the increasing numbers of electric vehicles, electric vehicle charging stations should be provided in the parking lots.

Loading spaces for the grocery store use a dedicated loading dock on the northern side of the building. Loading spaces for the other commercial uses are located within parking lot maneuvering lanes. If any deliveries are made while the use is open, loading/unloading would interrupt the regular use of the sites. The applicant has stated that all deliveries will be made while the businesses are closed. It can be very challenging to limit deliveries.

***Items to be Addressed**: 1) Shared parking agreement for all of the commercial sites. 2) Electric vehicle charging stations provided in parking lots. 3) Landscape islands/bumpouts added in locations with more than 20 contiguous parking spaces. 4) Applicant to identify how deliveries will be limited and language limiting the time of deliveries added to the site plan and planned unit development agreement or dedicated loading/unloading spaces provided.*

LANDSCAPING, FENCES, AND WALLS §27.05

The landscape plan calls for removing existing vegetation and planting a significant number of new trees and shrubs in this phase. Some existing trees along the southern side of this phase will remain.

Trees and shrubs will be planted along the Baldwin and Morgan rights-of-way, along the western side of this phase, within the parking lots, and around the dumpster enclosures. The screening along

There is a gap of plantings along the portion of the site where a gas pipeline easement traverses the property. Planting of trees and shrubs within these easements is generally prohibited. It may be possible to plan decorative grasses.

The number and character of plantings appears to be consistent with Zoning Ordinance standards. The Plant Schedule does not appear to list all of the proposed plantings for all of the commercial sites.

Decorative fences consistent with the Gingellville Village Design Plan are shown along the Baldwin and Morgan rights-of-way.

Some parking lot landscape islands have a smaller area and smaller width than required.

The landscaping in front of the stacking lanes for the southern fast-food restaurant along Morgan does not appear to provide full screening of headlights from vehicles in those stacking lanes to the adjacent roads. A solid wall or additional evergreen shrubs should be added.

The proposed planting locations in this phase do not appear to interfere with any utilities or with clear vision for pedestrians or motor vehicles.

Items to be Addressed: *1) Decorative grasses planted along the project boundaries in the gas pipeline easement unless prohibited by the terms of the easement. 2) All proposed plantings added to Plant Schedule. 3) Modifications to allow for reduced parking lot landscape island area and width. 4) A solid wall or evergreen shrubs added along the stacking lanes of the southern fast- food restaurant to limit export of light from stacked vehicles.*

STREETS, ROADS, AND OTHER MEANS OF ACCESS §27.06

The commercial sites will have 4 shared access points, including 3 from Baldwin, which is a public road, to the east and 1 from a proposed private road to the north within Phase 2.

Acceleration and deceleration lanes are shown along Baldwin. Geometry of these features will be subject to Road Commission for Oakland County approval. Additional comments are deferred to the Township Engineer and Road Commission for Oakland County.

The parking lot area is configured to create several service roads. These service roads, like the rest of the parking lots, will be paved and designed to direct stormwater to drainage structures within the site. The location and dimensions of these service roads are consistent with Zoning Ordinance standards.

An access easement and maintenance agreement must be approved by the Township Board before a building permit can be issued for any of the proposed commercial buildings.

A safety pathway was added within the Baldwin right-of-way as part of recent road improvements. A portion of this safety pathway will be reconfigured to allow for a new vehicular access point, but it will remain a consistent design with the existing safety pathway.

Pedestrian access from the safety pathway is limited to a sidewalk to the proposed grocery store. There are no sidewalks from the safety pathway to the multiple-tenant buildings or either of the fast-food restaurants.

Another pathway runs along the western side of the proposed grocery store and multiple-tenant buildings. It connects with the proposed multiple-family dwellings to the west and to the sidewalk that runs along the Gingellridge. There are protected pedestrian walkways between this pathway and the proposed grocery store and multiple-tenant building.

The site plan does not appear to include any dedicated bicycle parking areas.

Items to be Addressed: *1) Approval of access points by the Road Commission for Oakland County and Township Engineer. 2) Approval of access easement and maintenance agreement by the Township Attorney and Township Board. 3) If Phase 1 is developed before Phase 3, the portion of Gingellridge providing access to Phase 1 must be installed. 4) Sidewalks added between the Baldwin safety pathway and the multiple-tenant buildings and each of the fast-food restaurants. 5) Dedicated bicycle parking area added for each of the proposed commercial sites.*

LIGHTING §27.11

Lighting will be provided with streetlights, pole lights, and building-mounted lights.

The location and some information about proposed light fixtures, including both full cutoff and refractive lens, are included. Detailed specification sheets for all of the light fixtures are not provided; it is not possible to determine full compliance at this time, but refractive lenses should not be removed.

The illumination level is generally consistent with the Zoning Ordinance Standards.

See general review for light temperature and light fixture style comments.

Items to be Addressed: *1) Specifications for all light fixtures, including architectural accent lighting added. 2) All light fixtures shall be full cutoff.*

TREES AND WOODLAND PROTECTION §27.12

See general review for trees and woodland protection comments.

ACCESS MANAGEMENT §27.14

This phase and the commercial units in it will have direct or shared access to Baldwin and will also have access from a new private road, internal service drive, and shared parking lots.

The traffic impact study has identified a potential for another crossover on Baldwin to provide access to the commercial sites for northbound traffic.

Driveways along Baldwin are spaced adequately and are subject to approval from the Road Commission for Oakland County.

The site is designed to allow recirculation of traffic within the project and to allow direct connections with residential uses within the project.

Additional access management comments deferred to the Township Engineer.

Items to be Addressed: 1) Access management approval by the Township Engineer. 2) Driveway approvals by the Road Commission for Oakland County.

SIGNS ORD 153

Each commercial site will have a free-standing monument sign along Baldwin. Locations are shown and meet the required setback and clear-vision standards of the Sign Ordinance.

An example of a monument sign is shown that meets the height and area standards. The area shown in this example does not match the proposed area in the land use zoning tables for the commercial sites.

Wall signs are also proposed for each of the commercial buildings. The general locations for these signs are shown on building elevations, but sign areas are not defined.

Elevations of the proposed commercial monuments show areas that are considered as signs, circle areas showing the letters "BV." Details for these signs should be added.

Sign packages are required for planned unit developments to ensure consistency with signs throughout the project. Such a sign package has not been provided.

Items to be Addressed: 1) Plans revised to clarify area and height of monument signs. 2) Wall sign details added. 3) Signs removed from commercial monuments or details added. 4) Sign package provided.

ESSENTIAL SERVICES

The location for electrical transformers to service each building are shown. Screening is not proposed around any of the transformers, which is required in the Gingellville Village Center Overlay.

Dumpster enclosures are shown for each of the proposed commercial sites. The enclosures will have brick-faced masonry walls with limestone caps and obscuring gates. Landscaping will be provided adjacent to each of the enclosures. Some of the dumpster locations may be challenging for waste trucks to access. The dumpster for the multiple-tenant buildings is a significant distance from the buildings.

Items to be Addressed: 1) Screening, fencing, or landscaping, added around transformers. 2) Turning radius for garbage trucks added to ensure accessibility and/or locations adjusted to provide adequate access.

SUMMARY OF ITEMS TO BE ADDRESSED

The following items should be addressed as part of final planned unit development/site plan review.

Decisions/Determinations/Findings

The list below identifies items for this phase that require decision, determination, or finding.

1-1. *Modifications of developmental standards for the Chic-Fil-A site, including: reduced front-yard setback of 35.7 feet; reduced drive-thru order station to residential setback of 32.3 feet; reduced drive-thru parking to residential setback of 12.5 feet; reduced parking setback of 0.0 feet; and reduced parking to residential setback of 12.5 feet.*

1-2. *Modification of developmental standards for the Shake Shack site, including: reduced drive-thru parking setback to residential of 30 feet; and reduced parking setback of 0.0 feet.*

1-3. *Modifications of developmental standards for multiple-tenant site, including: reduced drive-thru parking setback of 31.7 feet; and reduced structure clear space of 0.0 feet.*

1-4. *Modifications of developmental standards for grocery store site, including: increased maximum tenant square footage of 44, 234 square feet; reduced side-yard setback of 12.2 feet; reduced side-yard greenbelt of 12.2 feet; and reduced structure clear space of 0.0 feet.*

1-5. *Modifications to allow for reduced parking lot landscape island area and width.*

Potential Conditions

The list below includes potential conditions of approval for this phase for the Planning Commission to consider. Additional potential conditions could also be identified at the Planning Commission meeting.

1-1. *Additional details for outdoor patios added.*

1-2. *Confirmation whether or not any of the fast-food restaurants will serve alcohol.*

1-3. *Building heights added.*

1-4. *Shared parking agreement for all of the commercial sites.*

1-5. *Electric vehicle charging stations provided in parking lots.*

1-6. *Landscape islands/bumpouts added in locations with more than 20 contiguous parking spaces.*

1-7. *Applicant to identify how deliveries will be limited and language limiting the time of deliveries added to the site plan and planned unit development agreement or dedicated loading/unloading spaces provided.*

1-8. *Decorative grasses planted along the project boundaries in the gas pipeline easement unless prohibited by the terms of the easement.*

1-9. *All proposed plantings added to Plant Schedule.*

1-10. *A solid wall or evergreen shrubs added along the stacking lanes of the southern fast- food restaurant to limit export of light from stacked vehicles.*

1-11. *Approval of access points by the Road Commission for Oakland County and Township Engineer.*

1-12. *Approval of access easement and maintenance agreement by the Township Attorney and Township Board.*

1-13. *If Phase 1 is developed before Phase 3, the portion of Gingellridge providing access to Phase 1 must be installed.*

1-14. *Sidewalks added between the Baldwin safety pathway and the multiple-tenant buildings and each of the fast-food restaurants.*

1-15. *Dedicated bicycle parking area added for each of the proposed commercial sites.*

1-16. *Specifications for all light fixtures, including architectural accent lighting added.*

1-17. *All light fixtures shall be full cutoff.*

1-18. *Access management approval by the Township Engineer.*

1-19. *Driveway approvals by the Road Commission for Oakland County.*

1-20. *Plans revised to clarify area and height of monument signs.*

1-21. *Wall sign details added.*

1-22. *Signs removed from commercial monuments or details added.*

1-23. *Sign package provided.*

1-24. *Screening, fencing, or landscaping, added around transformers.*

1-25. *Turning radius for garbage trucks added to ensure accessibility and/or locations adjusted to provide adequate access.*

[End of Plaza at Baldwin Village/Phase 1 Review.]

Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

January 12, 2023

Uptown Village Review

(Phase 2)

PROJECT NARRATIVE

The Uptown Village portion of the proposed development includes 304 dwelling units. These dwelling units are in multiple-family dwellings. There will be a total of 11 residential buildings.

Other improvements include a private road, parking lots, carports, sidewalks, pathways, residential monuments J, entry wall D-3, I, G, and H, retaining walls, mailbox kiosk, Amazon hub, trash compactor, recycling center, club house with pool, stormwater detention pond with fountain, fences, and infrastructure improvements.

This phase is bordered to the north by existing multiple-family dwellings, to the east by Baldwin, to the south by the commercial portion of the proposed project, and to the west by a multiple-family residential portion of the proposed project.

AREA, WIDTH, HEIGHT, AND SETBACKS

Minimum/Maximum	Required	Proposed
Lot Area	5 acres	>> 5 acres
Building Height	35 feet	Unknown
Site Coverage	25 percent	Unknown
Building Perimeter Setback (West)	75 feet	50 feet
Building Perimeter Setback (East)	100 feet	50 feet
Building Perimeter Setback (East Adjacent to Commercial)	50 feet	40 feet
Building Perimeter Setback (South)	100 feet/ 75 feet	50 feet
Building perimeter Setback (North)	75 feet/ 50 feet	50 feet
Building to Curb Setback	70 feet	25 feet
Building Side to Side Setback	30 feet	60 feet
Building Side to Rear Setback	70 feet	55 feet

Richard K. Carlisle, *President* Douglas J. Lewan, *Executive Vice President* John L. Enos, *Vice President*
David Scurto, *Principal* Benjamin R. Carlisle, *Principal* Sally M. Elmiger, *Principal* Craig Strong, *Principal* R. Donald Wortman, *Principal*
Laura K. Kreps, *Senior Associate* Paul Montagno, *Senior Associate*, Megan Masson-Minock, *Senior Associate*

The plans reference carports details being included in architectural plans, but they do not appear to be included in the plan set that we have received for review.

Several residential monument structures are proposed within the required front-yard setbacks.

***Items to be Addressed**: 1) Setback modifications for multiple-family dwellings as shown in the table. 2) Building heights added. 3) Carport details added. 4) Setback modification for residential monument structures as shown in the plan.*

PARKING AND LOADING §27.04

Parking for the proposed dwelling units will be provided with attached garages, parking lots, and under carports. Attached garages can accommodate 1 motor vehicle inside and 1 motor vehicle in front of the garage.

This phase requires a total of 738 parking spaces for the dwelling units and club house but only 693 parking spaces are provided. The other parking spaces are shown as being provided in the other residential phases. It is unlikely that there will be demand for all of the provided parking, due to the availability of spaces within garages and in front of garages. A significant amount of the required parking is to provide 1 guest parking space for every 2 units.

There are several areas where there is a long run of adjacent parking spaces. In locations where there are more than 20 contiguous parking spaces, a landscape island/bumpout should be added. If there is demand for additional parking in the future, these could be converted to parking.

Due the increasing numbers of electric vehicles, charging stations should be provided in the parking lots, and circuits should be provided to allow for charging stations in garages.

Loading spaces are not required for multiple-family dwellings.

***Items to be Addressed**: 1) Modification to allow fewer parking spaces within this phase than required. 2) Electrical vehicle charging stations provided in parking lot. 3) Circuits provided to allow electrical vehicle charging stations in garages. 4) Landscape islands/bumpouts added in locations with more than 20 contiguous parking spaces.*

LANDSCAPING, FENCES, AND WALLS §27.05

The landscape plan calls for removing existing vegetation and planting a significant number of new trees. Existing trees along the northern side of this phase will remain. The number of plantings appears to be consistent with Zoning Ordinance standards.

Evergreens will primarily be used to provide screening between the project site and adjacent properties. Shade trees will be used for street trees and at other locations.

The space between the sidewalk and curb, 6.5 feet, is tight for tree planting but should be adequate for the proposed trees.

The proposed planting locations do not appear to interfere with any utilities or with clear vision for pedestrians or motor vehicles.

Decorative fences consistent with the Gingellville Village Design Plan are shown along the Baldwin and Morgan rights-of-way.

Items to be Addressed: None.

STREETS, ROADS, AND OTHER MEANS OF ACCESS §27.06

Access to the dwelling units will be provided by new private drives *(Baldridge, Amber Ridge, and Gingellridge)*. Gingellridge and Baldridge connect with Baldwin to the east.

See general review for right-of-way and improved road surface comments.

The narrower width of the private streets allows for safe 2-way traffic but limits the ability to park on both sides of the road. On-street parking should be restricted to a single side of the street, with no parking signs posted.

There are several intersections in the boulevard section of Gingellridge. The easternmost intersection provides access to the commercial portion of the project. This boulevard stops roughly 30 feet short of the intersection. The intersection with Dawn Ridge and Keystone is configured as a mini traffic circle. The boulevard stops roughly 20 feet short of the intersection in both directions. Extending the boulevard median closer to these intersections should have a calming effect on traffic and encourage proper use of the traffic circle.

The curb radii for the entrances to the parking lots are the same as the curb radii for the internal streets. Larger curb radii encourage higher vehicular speeds. It appears possible to reduce the size of the curb radii for entrances to parking lots in this phase.

Sidewalks are proposed along the private roads and along parking lots. Additional pedestrian connections provide access to residential monuments and the safety pathway along Baldwin. Several pedestrian crosswalks are shown, but there are a couple of locations where additional crosswalks could be added. For example, there is no pedestrian access from the sidewalk system to the club house.

Items to be Addressed: 1) Boulevard median on Gingellridge extended west to the entrance for Phase 1 and toward the traffic circle. 2) Curb radii reduced for entrances to parking lots. 3) On-street parking limited to one side of streets with no parking zones with signs posted, as required by the Fire Department. 4) Additional pedestrian crossings added and marked.

LIGHTING §27.11

Lighting will be provided with streetlights, bollard-style lights, and building-mounted lights on the residential buildings and the clubhouse.

The location and some information about the proposed light fixtures are included. Detailed specification sheets for all of the light fixtures are not provided; it is not possible to determine full compliance at this time.

The illumination level is generally consistent with the Zoning Ordinance Standards. Some portions of the lighting along Baldwin exceeds 1 footcandle along the right-of-way line. These areas are limited to entrance ways and would improve visibility.

See general review for light temperature and light fixture style comments.

Items to be Addressed: *Specifications for all light fixtures, including accent lighting on club house, added.*

TREES AND WOODLAND PROTECTION §27.12

No additional comments beyond the general review.

ACCESS MANAGEMENT §27.14

Access to the dwelling units and club house will be provided by new private roads and parking lot maneuvering lanes.

Some dwelling units will have access through an attached garage or through a private exterior entrance. Other dwelling units will have access from common entrances.

Road connections are not proposed with adjacent properties. The area to the north is already developed with multiple-family dwelling units, and there are no available connection points.

Items to be Addressed: *None.*

SIGNS ORD 153

The locations of regulatory traffic signs are shown for this phase. Specifications for these signs are not included.

No location or details are included for an entrance sign for this phase. If an entrance sign is proposed, it should be added to the site plan.

Building elevations show areas that are considered wall signs showing the letters "BV." Details for these signs should be added.

Elevations of the proposed commercial monuments show areas that are considered as signs, circle areas showing the letters "BV." Details for these signs should be added.

Sign packages are required for planned unit developments to ensure consistency with signs throughout the project. Such a sign package has not been provided.

Items to be Addressed: *1) If an entrance sign is proposed, location and details added. 2) Wall sign details added. 3) Signs removed from residential monuments or details added. 4) Sign packaged provided.*

ESSENTIAL SERVICES AND UTILITIES

Waste collection in this phase will include a central trash compactor/dumpster and a central recycling collection location.

The stormwater management detention pond will be located within this phase.

See the general review for additional essential services and utilities comments.

Items to be Addressed: None.

SUMMARY OF ITEMS TO BE ADDRESSED

The following items should be addressed as part of final planned unit development/site plan review.

Decisions/Determinations/Findings

The list below identifies items that require P decision, determination, or finding.

2-1. *Setback modifications for multiple-family dwellings as shown in the table.*

2-2. *Setback modification for residential monument structures as shown in the plan.*

2-3. *Modification to allow fewer parking spaces within this phase than required.*

Potential Conditions

The list below includes potential conditions of approval for the Planning Commission to consider. Additional potential conditions could also be identified at the Planning Commission meeting.

2-1. *Building heights added.*

2-2. *Carport details added.*

2-3. *Electrical vehicle charging stations provided in parking lot.*

2-4. *Circuits provided to allow electrical vehicle charging stations in garages.*

2-5. *Landscape islands/bumpouts added in locations with more than 20 contiguous parking spaces.*

2-6. *Boulevard median on Gingellridge extended west to the entrance for Phase 1 and toward the traffic circle.*

2-7. *Curb radii reduced for entrances to parking lots.*

2-8. *On-street parking limited to one side of streets with no parking zones with signs posted, as required by the Fire Department.*

2-9. *Additional pedestrian crossings added and marked.*

2-10. *Specifications for all light fixtures, including accent lighting on club house, added.*

2-11. *If an entrance sign is proposed, location and details added.*

2-12. *Wall sign details added.*

2-13. *Signs removed from residential monuments or details added.*

2-14. *Sign packaged provided.*

[End of Uptown Village/Phase 2 Review.]

Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

January 12, 2023

North Village Review

(Phase 3)

PROJECT NARRATIVE

The North Village portion of the proposed development includes 79 dwelling units. These dwelling units are in attached townhouses, with 3 to 8 units per building. There will be a total of 14 buildings.

Other improvements include private roads, sidewalks, pathways, residential monuments A-1, A-2, A-3, A-4, and A-5, mailbox kiosk, and infrastructure improvements.

This phase is bordered to the north by existing single-family dwellings, to the east and south by multiple-family dwelling portions of the proposed project, and to the west by a planned unit development with single family dwellings.

This phase also includes a portion of the nature preserve with wetlands and woodlands.

AREA, WIDTH, HEIGHT, AND SETBACKS — PUD

Minimum/Maximum	Required	Proposed
Lot Area	5 acres	>> 5 acres
Building Height	35 feet	Unknown
Site Coverage	25 percent	Unknown
Building Perimeter Setback (West)	75 feet	50 feet
Building Perimeter Setback (East)	100 feet	50 feet
Building Perimeter Setback (East Adjacent to Commercial)	50 feet	40 feet
Building Perimeter Setback (South)	100 feet/ 75 feet	50 feet
Building perimeter Setback (North)	75 feet/ 50 feet	50 feet
Building to Curb Setback	70 feet	31.5 feet
Building Side to Side Setback	30 feet	20 feet
Building Side to Rear Setback	70 feet	n/a
Building Rear to Rear Setback	70 feet	60 feet

Richard K. Carlisle, *President* Douglas J. Lewan, *Executive Vice President* John L. Enos, *Vice President*
David Scurto, *Principal* Benjamin R. Carlisle, *Principal* Sally M. Elmiger, *Principal* Craig Strong, *Principal* R. Donald Wortman, *Principal*
Laura K. Kreps, *Senior Associate* Paul Montagno, *Senior Associate*, Megan Masson-Minock, *Senior Associate*

Items to be Addressed: 1) Setback modifications for multiple-family dwellings as shown in the table. 2) Building heights added.

PARKING AND LOADING §27.04

Parking for the proposed dwelling units will primarily be provided with attached garages and driveways. Attached garages can accommodate 2 motor vehicles, and driveways can accommodate 2 motor vehicles. Some on-street parking would be available for residents and guests.

An adequate number of parking spaces are provided for this phase.

Loading spaces are not required for multiple-family dwellings.

Items to be Addressed: None.

LANDSCAPING, FENCES, AND WALLS §27.05

The landscape plan calls for removing existing vegetation and planting a significant number of new trees. Existing trees along the northern and western sides of this phase and within the nature preserve will remain. The number of plantings appears to be consistent with Zoning Ordinance standards.

Evergreens will primarily be used to provide screening between the project site and adjacent properties and between this residential phase and the adjacent commercial phase. Shade trees will be used for street trees and at other locations.

The space between the sidewalk and curb, 6.5 feet, is tight for tree planting but should be adequate for the proposed trees.

The proposed planting locations do not appear to interfere with any utilities or with clear vision for pedestrians or motor vehicles.

Items to be Addressed: None.

STREETS, ROADS, AND OTHER MEANS OF ACCESS §27.06

Access to the dwelling units will be provided by new private roads *(Pond Ridge, Amber Ridge, and Gingellridge)*. Gingellridge connects with Baldwin to the east. It is also possible to drive from Amber Ridge through parking lots in Phase 2 to another access point on Baldwin. If this phase is developed before Phase 2, the portion of Gingellridge shown in Phase 2 will need to be constructed.

See general review for right-of-way and improved road surface comments.

The narrower width of the private streets allows for safe 2-way traffic but limits the ability to park on both sides of the road. On-street parking should be restricted to a single side of the street, with no parking signs posted.

Sidewalks are proposed along the private roads. Additional pedestrian connections include 2 wood chip pathways into the nature preserve and a paved path connecting with the Cottages at Gregory Meadows to the west. Pedestrian connections to the established residential area to the north would be difficult. The plans only show 3 pedestrian crossings: at the parking lot access from Gingellridge, across Amber Ridge at Gingellridge, and across Amber Ridge at Pond Ridge. Additional pedestrian crossings should be added, including to the pathways, and marked; this may be challenging in some areas due to driveways, but there are several locations where additional crossings can be accommodated.

Items to be Addressed: 1) On-street parking limited to one side of streets with no parking zones with signs posted, as required by the Fire Department. 2) Additional pedestrian crossings added and marked.

LIGHTING §27.11

Lighting will be provided with streetlights, bollard-style lighting along the pathways, and on residential buildings.

The location and some information for the proposed light fixtures are included. Detailed specification sheets are not provided for all of the light fixtures; it is not possible to determine full compliance at this time.

The illumination level in this phase is consistent with the Zoning Ordinance Standards.

See general review for light temperature and light fixture style comments.

Items to be Addressed: Specifications for all light fixtures added.

TREES AND WOODLAND PROTECTION §27.12

No additional comments beyond the general review.

ACCESS MANAGEMENT §27.14

This phase and the dwelling units in it will not have direct access to a public road. They will have access from a new internal private road and internal circulation system.

Each dwelling unit will have its own driveway. The proposed locations for the driveways do not appear to create any conflicts for motor vehicles. Some of the proposed driveways will be located within or adjacent to internal intersections. Although this is less than ideal, the limited volume of traffic is not likely to create conflicts.

Road connections are not proposed with adjacent properties. The area to the north is already developed with single-family dwelling units, and there are no available connection points. The area to the west is an approved single-family dwelling planned unit development, with limited access potential, but a pedestrian access point is proposed.

Items to be Addressed: None.

SIGNS ORD 153

The locations of regulatory traffic signs are shown for this phase. Specifications for these signs are not included.

No location or details are included for an entrance sign for this phase. If an entrance sign is proposed, it should be added to the site plan.

Sign packages are required for planned unit developments to ensure consistency with signs throughout the project. Such a sign package has not been provided.

Items to be Addressed: 1) If an entrance sign is proposed, location and details added, or sign reviewed as part of sign permit application. 2) Sign package provided.

ESSENTIAL SERVICES AND UTILITIES

Waste collection in this phase will be handled by each of the individual dwelling units using Township-provided totes that will be kept within garages and brought to the curb for collection.

See the general review for additional essential services and utilities comments.

Items to be Addressed: None.

SUMMARY OF ITEMS TO BE ADDRESSED

The following items should be addressed as part of final planned unit development/site plan review.

Decisions/Determinations/Findings

The list below identifies items that require decision, determination, or finding.

3-1. *Setback modifications for multiple-family dwellings as shown in the table.*

Potential Conditions

The list below includes potential conditions of approval for the Planning Commission to consider. Additional potential conditions could also be identified at the Planning Commission meeting.

3-1. *If Phase 3 is developed before Phase 2, the portion of Gingellridge providing access to Phase 3 must be installed.*

3-2. *On-street parking limited to one side of streets with no parking zones with signs posted, as required by the Fire Department.*

3-3. *Additional pedestrian crossings added and marked.*

3-4. *Specifications for all light fixtures added.*

3-5. *If an entrance sign is proposed, location and details added, or sign reviewed as part of sign permit application.*

3-6. *Sign package provided.*

[End of North Village/Phase 3 Review.]

[Page intentionally blank.]

Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

January 12, 2023

South Village Review

(Phase 4)

PROJECT NARRATIVE

The South Village portion of the proposed development includes 82 dwelling units. *(Sheet MSP 1.0 states it will include "68 Villas.")* These dwelling units are attached townhouses, with 7 duplexes and the remainder in buildings with 4 to 7 attached units. There will be a total of 19 buildings.

Other improvements include a private road, sidewalks, pathways, residential monuments B, C-1, and C-2, mailbox kiosk, retaining walls, and infrastructure improvements.

This phase is bordered to the north by another multiple-family residential phase of the proposed project, to the east by the commercial phase of the proposed project, to the south by an existing place of worship and single-family dwellings, and to the west by existing single-family dwellings.

This phase also includes a portion of the nature preserve with wetlands and woodlands.

AREA, WIDTH, HEIGHT, AND SETBACKS — PUD

Minimum/Maximum	Required	Proposed
Lot Area	5 acres	>> 5 acres
Building Height	35 feet	Unknown
Site Coverage	25 percent	Unknown
Building Perimeter Setback (West)	75 feet	50 feet
Building Perimeter Setback (East)	100 feet	50 feet
Building Perimeter Setback (East Adjacent to Commercial)	50 feet	40 feet
Building Perimeter Setback (South)	100 feet/ 75 feet	50 feet
Building perimeter Setback (North)	75 feet/ 50 feet	50 feet
Building to Curb Setback	70 feet	31.5 feet
Building Side to Side Setback	30 feet	20 feet

Richard K. Carlisle, *President* Douglas J. Lewan, *Executive Vice President* John L. Enos, *Vice President*
David Scurto, *Principal* Benjamin R. Carlisle, *Principal* Sally M. Elmiger, *Principal* Craig Strong, *Principal* R. Donald Wortman, *Principal*
Laura K. Kreps, *Senior Associate* Paul Montagno, *Senior Associate*, Megan Masson-Minock, *Senior Associate*

Building Side to Rear Setback	70 feet	35 feet
Building Rear to Rear Setback	70 feet	60 feet

Decks for units on buildings SD1, SD2, SD4, SD5, ST1, ST2, and ST3 extend into the proposed required perimeter setbacks. Although certain decks may extend into required setbacks, it is not clear that these proposed decks would meet the criteria to project into required setbacks. The decks should be removed or modified, or the proposed setbacks can be revised.

Items to be Addressed: 1) Setback modifications for two-family and multiple-family dwellings as shown in the table. 2) Decks that extend into the proposed required setbacks on buildings SD1, SD2, SD4, SD5, ST1, ST2, and ST3 should be removed, or the proposed setbacks can be revised. 3) Building heights added.

PARKING AND LOADING §27.04

Parking for the proposed dwelling units will primarily be provided with attached garages and driveways. Attached garages can accommodate 2 motor vehicles, and driveways can accommodate 2 motor vehicles.

Parking for guests would be extremely limited. Limited spaces are available along the road. It may be possible for guests to use some of the parking spaces in the adjacent commercial phase.

Loading spaces are not required for two-family or multiple-family dwellings.

Items to be Addressed: None.

LANDSCAPING, FENCES, AND WALLS §27.05

The landscape plan calls for removing existing vegetation and planting a significant number of new trees. Existing trees along the southern and western sides of the phase and within the nature preserve will remain. The number of plantings appears to be consistent with Zoning Ordinance standards.

Evergreens will primarily be used to provide screening between the project site and adjacent properties and between this residential phase and the adjacent commercial phase. Shade trees will be used for street trees and at other locations.

The space between the sidewalk and curb, 6.5 feet, is tight for tree planting but should be adequate for the proposed trees.

The proposed planting locations do not appear to interfere with any utilities or with clear vision for pedestrians or motor vehicles.

Items to be Addressed: None.

STREETS, ROADS, AND OTHER MEANS OF ACCESS §27.06

Access to the dwelling units in this phase will be provided by a new private road, Keystone, which connects through a new proposed private road, Gingellridge, to Baldwin to the east. If this phase is developed before Phase 2, a portion of Gingellridge shown in Phase 2 will need to be constructed.

Because of the number of dwelling units, Fire Code may require multiple access points or other firefighting improvements, such as sprinkled buildings. Additional comments on access deferred to the Fire Department.

See general review for right-of-way and improved road surface comments.

The narrower width of the private streets allows for safe 2-way traffic but limits the ability to park on both sides of the road. On-street parking should be restricted to a single side of the street, with no parking signs posted.

Sidewalks are proposed along the private road. Additional pedestrian connections include 2 wood chip pathways into the nature preserve and a paved pathway that connects with the commercial phase of the proposed project. A pedestrian connection to the established residential area to the west would be difficult. A future pedestrian connection to the property to the south would be possible. Only 2 pedestrian crossings are shown: at the entrance to this phase and north and south across Keystone Lane North. Additional pedestrian crossings should be added, including to the pathways, and marked.

Items to be Addressed: *1) If Phase 4 is developed before Phase 3, the portion of Gingellridge providing access to Phase 4 must be installed. 2) On-street parking limited to one side of the street with no parking zones with signs posted, as required by the Fire Department. 3) Pedestrian connection may be required to property to the south upon redevelopment of that property in the future. 4) Additional pedestrian crossings added and marked.*

LIGHTING §27.11

Lighting will be provided with streetlights, bollard-style lighting along the pathways, and on the residential buildings.

The location and some information for the proposed light fixtures are included. Detailed specification sheets are not provided for all of the light fixtures; it is not possible to determine fully compliance at this time.

The illumination level in this phase is consistent with the Zoning Ordinance Standards.

See general review for light temperature and light fixture style comments.

Items to be Addressed: *Specifications for all light fixtures added.*

TREES AND WOODLAND PROTECTION §27.12

No additional comments beyond those in the general review.

ACCESS MANAGEMENT §27.14

This phase and the dwelling units within it will not have direct access to a public road. They will have access from a new internal private road and circulation system.

Each dwelling unit will have its own driveway. The driveway for the 2 eastern units in Building ST4 will have a shared connection with the road. The proposed locations for the driveways do not appear to create conflicts for motor vehicles, but the number of driveways and their locations would limit on-street parking.

Road connections are not proposed with adjacent properties beyond the project site. The area to the west is developed with single-family dwelling units, and there are no available connection points. The area to the south is developed with a place of worship; reserving a space for future vehicular connection with that property would be ideal, but the limited size of that property reduces the value of such a connection.

Items to be Addressed: None.

SIGNS ORD 153

The locations of regulatory traffic signs are shown for this phase. Specifications for these signs are not included.

No location or details are included for an entrance sign for this phase. If an entrance sign is proposed, it should be added to the site plan for administrative review, or it may be reviewed as part of a separate sign permit application.

Sign packages are required for planned unit developments to ensure consistency with signs throughout the project. Such a sign package has not been provided.

Items to be Addressed: 1) If an entrance sign is proposed, location and details added, or sign reviewed as part of sign permit application. 2) Sign package provided.

ESSENTIAL SERVICES AND UTILITIES

Waste collection in this phase will be handled by each of the individual dwelling units using Township-provided totes that will be kept within garages and brought to the curb for collection.

See the general review for additional essential services and utilities comments.

Items to be Addressed: None.

SUMMARY OF ITEMS TO BE ADDRESSED

The following items should be addressed as part of final planned unit development/site plan review.

Decisions/Determinations/Findings

The list below identifies items that require Planning Commission decision, determination, or finding.

4-1. *Setback modifications for multiple-family dwellings as shown in the table.*

Potential Conditions

The list below includes potential conditions of approval for the Planning Commission to consider. Additional potential conditions could also be identified at the Planning Commission meeting.

4-1. *The number of dwelling units and dwelling-unit density calculation corrected, as necessary.*

4-2. *Decks that extend into the proposed required setbacks on buildings SD1, SD2, SD4, SD5, ST1, ST2, and ST3 should be removed, or the proposed setbacks can be revised.*

4-3. *Building heights added.*

4-4. *If Phase 4 is developed before Phase 3, the portion of Gingellridge providing access to Phase 4 must be installed.*

4-5. *On-street parking limited to one side of the street with no parking zones with signs posted, as required by the Fire Department.*

4-6. *Pedestrian connection may be required to property to the south upon redevelopment of that property in the future.*

4-7. *Additional pedestrian crossings added and marked.*

4-8. *Specifications for all light fixtures added.*

4-9. *If an entrance sign is proposed, location and details added, or sign reviewed as part of sign permit application.*

4-10. *Sign package provided.*

[End of South Village/Phase 4 Review.]

[Page intentionally blank.]

RECEIVED

JAN 12 2023

Orion Township
Planning & Zoning

OHM
Advancing Communities®

January 12, 2023

Scott Reynolds, Planning Commission Chairperson
CHARTER TOWNSHIP OF ORION
2323 Joslyn Road
Lake Orion, MI 48360

RE: Baldwin Village PUD, PC-22-29
1st Final PUD Review

Received: December 20, 2022, by Orion Township

Dear Mr. Reynolds:

We have completed our review of the Baldwin Village Final PUD plan set. The plans were prepared by Stonefield Engineering & Design (commercial) and AEW, Inc. (residential) and were reviewed with respect to the Township's Zoning Ordinance, No. 78, Stormwater Management and Soil Erosion & Sedimentation Control Ordinance, No. 139, and the Township's Engineering Standards.

EXISTING SITE CONDITIONS:

The site is located on the west side of Baldwin Rd. opposite Judah Rd, within the western ½ of Section 32 of the Charter Township of Orion. The site has three different zonings. The majority of the site is zoned Suburban Farms (SF), with the exception of a small portion in the north which is zoned Single-Family Residential (R-1), and a parcel that is located at the intersection of Morgan and Baldwin zoned Brown Rd. Innovation Zone (BIZ). The site is located at the southern end of the Gingellville Village Center Overlay District. The site is bound by parcels to the north zoned Multiple-Family Residential (RM-1) and Single-Family Residential (R-2), to the west by parcels zoned Planned Unit Development (PUD) and Single-Family Residential (R-1), to the south zoned General Business (GB), and to the east zoned Restricted Business (RB), Office and Professional (OP), and Brown Rd. Innovation Zone (BIZ).

The site is 58.70 acres in total. The existing site is undeveloped and appears to be heavily wooded with the exception of a large water body and some dirt access trails. The applicant is proposing a mixed-use for the site, attributing 46.83 net acres (~79.8% of total site) toward residential use and 11.87 net acres (~20.22% of total site) toward commercial use. The commercial portion of the proposed site contains two (2) multi-tenant buildings (7,520 square-feet each) with the southern building having a drive-thru, a Shake Shack with drive-thru (3,503 square-feet), a restaurant with drive-thru (4,978 square-feet), and a grocery store (44,234 square-feet). The residential portion of the site is broken up into three (3) sections that all meet at a roundabout intersection in the middle of the site. The north exit on the roundabout leads to the Uptown Village, which is comprised of eleven (11) Multi-Family buildings totaling 304 units. These three-story buildings range from 19 to 38 units per building. The western exit on the roundabout leads to the North Village, which contains fourteen (14) townhouses totaling 79 units. These two-story buildings range from between three (3) and eight (8) units per building. The southern exit on the roundabout leads to the South Village which contains twelve (12) townhouses totaling 82 units. These buildings range between two (2) and seven (7) units in size each.

The development is split into four (4) separate phases. The commercial portion is Phase 1. Phase 2 is comprised of the Flats at Uptown Village (north of the commercial portion). The Townes at North Village (northwest corner of

OHM Advisors
1827 NORTH SQUIRREL ROAD
AUBURN HILLS, MICHIGAN 48326
T 248.751.3100
F 248.364.3001
OHM-Advisors.com

site) make up Phase 3. Phase 4, the Villas at South Village (west of commercial portion) will complete the development. A more comprehensive Phasing Plan is needed to provide clarification on extent and timing of construction of on-site drives, off-site improvements to Baldwin Rd, on-site utilities, and detention facilities. It appears there will be some improvements outside of the phase lines currently shown.

At engineering, an interim mass grading and SESC plan will also be required if the entire site is to be mass graded at one-time rather than individual phases.

Along with the proposed residential and commercial development, the applicant is proposing several features for public benefit, including a small pocket park in the northeast corner of the site. On the west side of the site, there is a proposed Nature Preserve, trail system, and pathway connection to the Cottages at Gregory Meadows. The Nature Preserve area appears to be the existing protected wetland.

WATER MAIN & SANITARY SEWER:

There is existing 16-inch water main located along the west side of Baldwin Rd. For the commercial portion of the proposed site, the applicant is proposing a small looped connection with long dead-ends extending from it to serve as hydrant coverage. Dead-end hydrant lengths and sizing shall meet Township Standards. The northern and southern building within the commercial portion (Phase 1) of the site show their service lead connecting near the end of a long dead-end hydrant. We recommend the applicant relocate the service leads or water main connections so that the buildings are not connecting to a dead-end hydrant lead. A third connection is shown extending west to the Phase 4; however, the connection point appears to be offset from where the proposed residential water main is shown. Please correct the connection point location as needed as part of the engineering submittal. There are also insufficient gate valves shown on the Final PUD plan. The final count and location of gate valves will need to be submitted and reviewed as part of the engineering plans. Phase 4 also appears to have several areas where leads are in areas with little separation. Multiple areas such as between buildings SD5 and SD6 show two water service leads, a sanitary service, and a storm sewer within the 20 feet of separation between the buildings. Storm sewer structures in the middle Keystone Ln. W. appear to be almost on top of the water service leads. Please consider reconfiguring service leads to provide sufficient separation from other utilities as part of engineering.

Phases 2 and 3 features a total of three (3) connections to existing water main. Two (2) located along Baldwin Rd. and one (1) located in the northwest of the parcel at the Cottages at Gregory Meadows parcel. The water main consists of several loops and an additional connection to Phase 4. An additional watermain connection to the existing southerly stub from the subdivision along Gingell Drive should be considered.

We defer comment on hydrant spacing and accessibility to the Fire Marshal.

Building ST11 appears to show its water service lead connecting to the proposed sanitary sewer. Please revise as needed as part of engineering.

If a single water service is proposed for each of the residential buildings, meter rooms with Knox boxes accessible by the Township shall be provided. The meter room requirements and Knox box access needs to be coordinated with the Township DPW and shown on the engineering plans.

There is existing 15-inch gravity sewer along the east side of Baldwin Rd. north of the Brown Rd. Innovation Zone and 8-inch forcemain located in the median south of that location. The applicant is proposing to connect the southern three (3) commercial buildings via a 6 inch sanitary lead to the manhole located between the forcemain and the gravity sewer. The grocery store and northern multitenant buildings are proposed to discharge into a proposed sanitary sewer that crosses to the east of Baldwin Rd. The sanitary sewer system on-site shall be an 8 inch public main within a 20 foot wide easement. Each building shall connect to the main via a private 6 inch lead, monitoring manhole and wye at the connection point. The connection point is not shown on the plans but will be

required at engineering. Grease interceptors and monitoring manholes appear to be proposed for each of the commercial buildings.

The residential portion of the site discharges toward Phase 2 and ultimately a sanitary sewer crossing located southeast of the proposed detention basin.

Both water main and sanitary sewer easements were shown in the Final PUD, and appear to be acceptable.

Preliminary water main and sanitary sewer basis of design calculations shall be provided for Phase 1. A basis of design calculation was provided for the residential portion of the site (Phases 2, 3, and 4) however it appears to use a value of 3.0 people per REU. Orion Township requires that basis of design calculations use a value of 3.5 people per household. Please update the basis of design to be consistent with Township Standards.

Franchise utility easements were included in the Final PUD plans. The franchise utility easement appears to be acceptable, however the applicant should consider relocating some gate valves in Phases 2 and 3 to ensure sufficient space is provided between water main appurtenances and franchise utilities.

Township models indicate that there is sufficient water main and sanitary sewer capacity to serve the development.

STORMWATER MANAGEMENT:

The existing topography of Phase 1 appears to have several local low and high points. One-foot contours were provided for the existing grade. The applicant is proposing a split storm water management system with the majority of Phase 1 draining north to Phase 2, except for the southern-most restaurant. The applicant is proposing an underground detention basin with an engineered fill bottom that is able to promote infiltration. A stormwater pretreatment unit is proposed upstream of the detention system to remove sediment from the storm conveyance. CPVC and water quality requirements appear to be met by the proposed system, however the infiltration rate used in the calculations appears to be high. Infiltration test results will be required at engineering to verify the use of an infiltration rate of 8 inches/hour. Typically this value is capped at 4 inches/hour for design purposes, as it is rare to maintain that high of an infiltration rate under saturated conditions. Additionally, the h_{ED} value needs to be based off the average V_{ED} volume within the basin. Calculations for sizing the overflow weir and outlet pipe will be required at Engineering. The overflow features should be sized for a 10-year storm event.

Excluding the southern restaurant, Phase 1 and the entirety of Phases 2, 3, and 4 are collected, treated, and detained by the northern stormwater management system. Between the connection point of Phase 1 and the other phases, there is a mechanical pretreatment device and an underground infiltration bed with perforated finger drains. Similarly with the southern portion of Phase 1, the infiltration rate of 8 inches/hour is unlikely considering a saturated soil condition. The detention, CPVC, and C-value calculations for Phase 1 appear to be acceptable except for the minor items mentioned above. Conveyance, BMP volume, orifice, and overflow calculations will be assessed at Engineering. Details for the outlet control structure and chosen BMP's shall be provided at engineering as well.

The Topographic Survey includes 1-foot contours for the site. In general the existing site drains toward the wetlands located central to the residential parcels, to the northeast where there is an existing 24-inch storm outlet, or infiltrates at local low points within the site. A general site C-value was provided for the residential portion of the site, however drainage districts were not provided. A drainage district map shall be provided at Engineering, but a general breakdown of grass/roof/pond/pavement/etc. area should be provided at Final PUD. Detention calculations were provided and the storm management plan includes necessary CPVC features. The h_{ED} elevation needs to be based off of the average V_{ED} elevation rather than the total head on the outlet orifice. Infiltration areas are shown in plan view, but it is unclear what type of BMP is proposed for each infiltration area. It appears that most of the infiltration areas are located within paved areas. It is recommended to include BMP's in green space if possible. The ultimate outlet for the residential portion of the site is the existing 24-inch storm outlet on the east

side of the site. RCOC approval will be required for this outlet, and the applicant must verify that sufficient downstream capacity is available. Conveyance, BMP volume, orifice, and overflow calculations will be assessed at Engineering. Details for the outlet control structure and chosen BMP's shall be provided at engineering as well.

The applicant has included a sheet showing the change in drainage to the existing wetland. While the tributary drainage area is being slightly reduced, the anticipated runoff from the developed condition closely resembles the existing runoff.

SITE ACCESS & CIRCULATION:

Proposed access to the development includes two (2) boulevard entrances, two (2) two-way entrances, one (1) egress only approaches, all located on the west side of Baldwin Rd. One of the boulevard entrances is located on the Baldwin-Judah roundabout. The northern-most boulevard has 21-foot lane-widths. The roundabout boulevard has 16-foot lane-widths. The egress-only lane has a 20-foot lane-width. The remaining two (2) approaches are thirty-six (36) feet wide and appear to facilitate two (2) right-turn exit lanes. All work within the Baldwin Rd. right-of-way will require permit approval from the RCOC.

The minimum drive aisle width throughout the commercial portion of the site appears to be twenty-two (22) feet wide except for a one-way 18-foot-wide drive aisle at the southern restaurant with drive-thru. Main drive aisles appear to range between twenty-six (26) and thirty (30) feet in width. The drive aisles may not be sufficient for the Orion township Fire Truck. The applicant shall overlay a turning template for the Orion Township Fire Apparatus. The residential portion of the site appears to have a minimum drive aisle of twenty-four (24) feet wide with main aisles at twenty-seven (27) foot width. This is acceptable per Township Ordinance and Engineering Standards. There are also several dead-end portions of the parking lot located in the residential portion of the site. The applicant shall coordinate with the Orion Township Fire Marshal to ensure fire access is provided sufficiently based on Fire Department requirements.

Internal sidewalk appears to be provided throughout the site with several connection points to the existing safety pathway along Baldwin Rd by the grocery store and near the Uptown Village. Additional connections should be provided near both restaurants and the commercial buildings. In addition, east-west connections from both southern restaurants to the rest of the site are needed. In general, crossings should not be provided in locations without receiving ramps on both sides of the crossings. Please ensure that ramps/crossings do not lead directly to driveways, curbed areas, or areas without receiving ramps. Crossings should be provided for the units located in the center of the circle in the South Village. For example, northwest of Building A8, there are two sidewalk dead-ends that lead directly to the same drive aisle with no receiving ramp on the other side. There is also a ramp headed west that is not lined up with the sidewalk on the other side of the drive aisle. Please adjust as needed. In addition, railing should be considered at the northeast corner of the Chick-Fil-A building where staff exit to take food to the waiting customers since this is a blind corner and need to make pedestrians more easily visible to the vehicles.

The applicant is proposing a 10-foot-wide pathway connection to the Cottages at Gregory Meadows in the northwest corner of the site via easement provided for cross-access.

Parking spaces appear to be proposed at nine (9) feet by nineteen (19) feet which is acceptable per Township Standards. The sidewalk adjacent parking spaces has been widened to seven (7) feet wide to account for vehicle overhang in most area except for one location north of Shake Shack where it is six (6) feet wide. Detailed ramp and landing grades will be required at Engineering to ensure ADA compliance.

The existing safety path along Baldwin Road should be relocated to provide separation between the pathway and newly proposed taper lanes. Near the proposed grocery store, a proposed driveway taper runs adjacent to the pathway. The pathway in this area should be moved to be a minimum of 5' off back of curb. The proposed sidewalk crossing west of the Judah Rd. roundabout should be removed as there is already a pedestrian crossing via safety path at this location. The existing safety path will need to be reconstructed to cross the proposed boulevard entrances

perpendicularly near the end of the approach radii.

Commercial pavement sections were included on the Construction Details sheet for the Reinforced Concrete Mat (6 inches concrete atop 6 inches aggregate base), the Concrete Walkway (4 inches concrete atop 4 inches aggregate base), and for the Full Depth Asphalt Pavement (3 inches HMA atop 8 inches aggregate base). The Full Depth Asphalt Pavement detail needs to be increased to 4 inches of HMA and the concrete section increased to 7 inches to meet Township Engineering Standards. Residential pavement sections were provided on the Miscellaneous Project Details sheet and include a Standard Pavement Section (4.5 inches HMA atop 10 inches aggregate base), Deep Strength Pavement Section (7 inches HMA atop 10 inches aggregate base), Concrete Section (6 inches concrete atop 8 inches aggregate base), and Concrete Sidewalk (4 inches concrete atop 4 inches Class II sand). The concrete section needs to be increased to 7 inches. Edge Drain will be required for the residential road cross section at engineering. The rest of the pavement sections provided appear acceptable based on Township Standards. A pavement section for the safety path is required.

Refuse vehicle turning movements should be checked to verify that all commercial dumpsters are proposed in serviceable locations.

The internal roadway network includes a circular intersection near the center of the development. Clarification on the operational intent of this intersection should be provided. If this intersection is intended to operate as a roundabout it should be designed with the appropriate geometric features and design best practices. If is in not intended to operate as a roundabout the design should be modified to clarify the intended right-of-way control. In either case the geometry of the intersection will need to be modified at engineering.

Comments regarding the Traffic Impact Study will be provided under separate cover.

GRADING:

Existing grades were provided via 1-foot contours on the commercial portion of the site and the Topographic Survey for the Residential Portion. The high point on site is located in the northwest quadrant of the residential portion at an elevation of roughly 1,090. The wetland area appears to be at an elevation of 1,038, but the lowest point on site is located near the center of the residential area at an elevation of roughly 1,007. The existing drainage pattern varies throughout the site. Some areas drain to the wetlands while other areas drain off-site westerly and northeasterly or infiltrate at local low points.

Proposed grades were provided via 2-foot contours and spot grades on the commercial site. The applicant appears to be proposing maximum slopes of 1:3 to meet existing grades at the southern site border. 1:4 shall be the maximum slope for the portion of the site that is not between the proposed development and the Cottages at Gregory Meadows site. 1:3 slopes should not be used adjacent Morgan Rd. and Baldwin Rd. The proposed grades for the residential portion of the site were provided via finish floor grades, rim grades, and some centerline/top-of-curb grades throughout the road. Additional grades, preferably proposed contours, will need to be provided for the green space. Additional grades should also be provided for the proposed retaining walls. Some proposed contours are shown around the detention basin, however proposed contours should be provided for the entire Grading Plan.

NATURAL FEATURES:

WOODLANDS

The site is heavily wooded, with the highest density of existing trees in the northern half of the site near the wetland. A Tree Survey was provided along with the tabulation of removed landmark trees and replacement trees. The Tree Survey and tabulation provided appears to be acceptable for both the commercial and residential portions of the site.

WETLANDS

The National Wetlands Inventory (NWI) shows record of a single wetland on site (approximately 2.71+ acres). The wetland appears to contain standing water and was recognized on the plan. Additionally, a smaller wetland was identified on the plans located at the site low-point. Proposed impacts include filling ~0.07 acres of the larger ~2.71 acre wetland, filling all of the smaller two wetlands which are ~0.02 acres and 0.003 acres. Impacts to the wetland buffer have been summarized in the plans and within a wetland report. Review of the proposed impacts has been conducted under separate cover finding the impacts to be in substantial compliance with the Township's Wetlands Protection Ordinance.

LANDSCAPING:

Landscape plans were included separately for the commercial (Phase 1) and residential (Phases 2, 3, and 4) portions of the site. Trees appear to have adequate spacing in Phase 1, however the masonry columns for the fence near the proposed grocery store appear to be located within 2 feet of the proposed sanitary sewer. Please provide more separation between the sewer and the masonry. The residential portion of the site appears to show multiple trees directly over the water main and sanitary sewer, and at the top of retaining walls on the north side of the site. Please ensure sufficient separation is provided from utilities and retaining walls so that projected tree growth will not impact site infrastructure.

CONCLUSION:

In our opinion, the Final PUD is in substantial compliance with the Township's ordinances and engineering standards. We ask that any approval include the following:

1. The Phasing plan shall provide further detail on what improvements are being built during each phase to ensure each portion of the site can operate independently.
2. Proposed contours shall be provided for the green space in the residential portions of the site.
3. Site grading should be revised to meet the Township maximum recommended slope of 1:4. Slopes of 1:3 may be considered in some cases or the use of retaining walls will be considered.
4. Include in the plans a turning template layout showing the Orion Township Fire Truck movements throughout the site. There may be some areas that require minor layout changes to accommodate the truck such as the southern restaurant drive isles just north of the building, the two northerly drive isle entrances on the Shake Shack, the carport area in Phase 2 and the traffic circle in Phase 2.
5. Please provide sidewalk connections to the safety path along Baldwin Road for both restaurants and both commercial buildings. In addition, east-west connections from both southern restaurants to the rest of the site should be provided.
6. The existing safety pathway along Baldwin Road near the taper for the grocery store needs to be relocated to provide a minimum of separation of 5' from the pathway and back of curb.
7. The existing pathway crossings at the boulevard entrances need to be relocated to align perpendicular across the drives.
8. The proposed sidewalk crossing west of the Judah Rd. roundabout should be removed as there is already a pedestrian crossing via safety path public pathway at this location. The existing safety path will need to be reconstructed to cross the proposed boulevard perpendicularly.
9. Railing should be considered at the northeast corner of the Chick-Fil-A building where staff exit to take food to the waiting customers since this is a blind corner.
10. Revise the Landscaping or Utility Plan to resolve the conflict between the masonry columns near the proposed grocery store that are proposed to be within 2 feet of the proposed sanitary sewer.
11. Revise the Landscaping Plan or Utility plans as there are multiple proposed trees in the residential portion of the plan that are shown directly over the water main and sanitary sewer, and at the top of retaining walls on the north side of the site.
12. Submittal of condominium/shared use/maintenance agreement documents be provided for review and approval.
13. Address comments related to the Traffic Impact Study which will be provided under separate cover.

14. The engineering plan, designed in accordance with Zoning Ordinance No. 78, Stormwater Management and Soil Erosion & Sedimentation Control Ordinance No. 139, and the Township's Engineering Standards shall be submitted to the Township for review and approval prior to construction. A detailed cost estimate for the improvements shall be submitted with the plans signed and sealed by the design engineer.

The applicant should note the Township may require performance bonds, fees, and/or escrows for a preconstruction meeting and necessary inspections. Please feel free to contact us with any questions at (248) 751-3108 or joseph.lehman@ohm-advisors.com.

Sincerely,
OHM Advisors

Joe Lehman, PE
Project Engineer

Mark A. Landis, PE
Project Manager

cc: Chris Barnett, Township Supervisor
David Goodloe, Building Official
Bill Basigkow, Director of Public Services
Tammy Girling, Director of Planning and Zoning
Lynn Harrison, Planning and Zoning Coordinator
Jeff Williams, Township Fire Marshal
Gilbert "Buzz" Silverman, RED Equities
Charles Olivo, Stonefield Engineering & Design
Stephen Pangori, AEW, Inc.
File

P:\0101_0125\SITE_OrionTwp\2021\0121211401 Baldwin Village PUD\MUNI\Final PUD\1st Review\2023.01.12_Baldwin Village_FinalPUD rev1.docx

OHM Advancing Communities

January 18, 2023

RECEIVED

JAN 18 2023

Orion Township
Planning & Zoning

Scott Reynolds, Planning Commission Chairperson
CHARTER TOWNSHIP OF ORION
2323 Joslyn Road
Lake Orion, MI 48360

RE: Baldwin Village PUD, PC-22-29
1st Final PUD Review – Traffic Impact Study Supplement

Received: December 20, 2022, by Orion Township

Dear Mr. Reynolds:

We have completed our review of the Baldwin Village Final PUD Traffic Impact Study (TIS). The study was prepared by AEW, Inc. and was reviewed with respect to the Township's Zoning Ordinance, No. 78 and the Township's Engineering Standards.

TRAFFIC IMPACT STUDY:

The applicant has been diligently working with us over the last couple of months to address our initial concerns raised during the first review of the TIS. Considerable effort has gone into evaluating the impact the new development will have on the Baldwin Road corridor and newly constructed roundabout at Judah Road. There are still deficiencies and issues with some of the assumptions, trip generation and modeling associated with the TIS and therefore it will need to be revised and resubmitted. However, we are in general agreement with the nature of the anticipated impacts as well as the area requiring proposed mitigation.

The traffic impact study included the following intersections for analysis of the 2030 build out year along with the Background (2030 conditions without development) and Build Out (2030 conditions with the development) Levels of Service in the AM/PM peak hour:

Intersection	2030 Background LOS	2030 Build Out LOS
Baldwin Road and Judah Road Roundabout	A/A	A/C
Southbound to Northbound Crossover	A/A	A/B
Northbound to Southbound Crossover	A/A	A/A
Baldwin Road & Baldwin Commons Drive (west side)	B/C	B/C
Baldwin Road & Baldwin Commons Drive (east side)	B/B	B/B
Baldwin Road & Jordan Road	A/A	A/A
Baldwin Road & Morgan Road	A/A	A/A
Baldwin Road & Brown Road (west side)	A/E	A/E
Baldwin Road & Brown Road (east side)	C/F	C/F

Under the average trip generation scenario all intersections operate at similar levels of service with only minor increases in delays with the exception of the Judah Road roundabout. The Judah Road roundabout would move from a LOS A to an LOS C in the PM peak hour without mitigation. The northbound approach at this intersection would go from and LOS A to an LOS E without proposed mitigation.

OHM Advisors
1827 NORTH SQUIRREL ROAD
AUBURN HILLS, MICHIGAN 48326
T 248.751.3100
F 248.364.3001
OHM-Advisors.com

To mitigate the impacts of the proposed development, the applicant has analyzed options consisting of a new northbound to southbound cross-over in Baldwin Road just south of Judah Road, and various options of adjusting lanes of the existing Judah Road roundabout to increase its capacity, and a combination of roundabout improvements and the new cross over. This analysis also included average trip generation and trip generation of one standard deviation above the average (approximately the 85th percentile). The traffic study shows that proposed mitigation measures will successfully mitigate the traffic impacts from the proposed development to acceptable LOS for the intersection and northbound approach. The variation of the different mitigation measures and trip generations analyzed will be reviewed by RCOC, which will ultimately determine the final mitigation measure required. The study shows the applicants impact on traffic can be appropriately mitigated with reasonable proposed mitigation measures.

CONCLUSION:

In our opinion, the TIS is in substantial compliance with the Township's ordinances and engineering standards. However, we recommend that any approval include the following:

1. Approval and permitting of the development's final off-site traffic mitigation by the Road Commission for Oakland County (RCOC) with concurrence by the Township.

2. The applicant should resubmit the TIS to incorporate all addendums and options analyzed and reviewed in one complete submittal. In addition, the complete TIS submittal should include the revisions/clarifications previously discussed with the applicant.

Please feel free to contact us with any questions at (248) 751-3108 or joseph.lehman@ohm-advisors.com.

Sincerely,
OHM Advisors

Joe Lehman, PE
Project Engineer

Mark A. Landis, PE
Project Manager

cc: Chris Barnett, Township Supervisor
David Goodloe, Building Official
Bill Basigkow, Director of Public Services
Tammy Girling, Director of Planning and Zoning
Lynn Harrison, Planning and Zoning Coordinator
Jeff Williams, Township Fire Marshal
Gilbert "Buzz" Silverman, RED Equities
Mitch Harvey, Stonefield Engineering & Design
Stephen Pangori, AEW, Inc.

P:\0101_0125\SITE_OrionTwp\2021\0121211401 Baldwin Village PUD\MUNI\Final PUD\1st Review\2023.01.18_Baldwin Village_FinalPUD - TIS supplement rev1.docx

Tammy Girling

From: Jeff Williams
Sent: Friday, January 13, 2023 12:02 PM
To: Tammy Girling
Cc: mark.landis
Subject: Baldwin Village Final PUD Review
Attachments: Baldwin Village Final PUD Plan - Fire Marshall Review

Tammy

I had Zoom meeting with Stephen Pangori regarding the fire departments review of Baldwin Village. During the zoom meeting Stephen and I went over all items that were noted in our review. Stephen was able to show and explain how all items can fixed and or addressed.

Please note, from a fire department standpoint we would be comfortable with an administrative review of a revised plan showing all noted items have been changed.

Jeffrey Williams, CFPS – Fire Marshal
Orion Township Fire Department - Fire Prevention
3365 Gregory Road Lake Orion, MI 48359
Office: 248.391.0304 ext. 2004 Cell: 248.978.5143
Fax: 248.309.6993

Charter Township of Orion

3365 Gregory Rd., Lake Orion MI 48359
www.oriontownship.org

Fire Department
Phone: (248) 391-0304, ext. 2000
Fax: (248) 309-6993

RECEIVED
JAN 12 2023
Orion Township
Planning & Zoning

To: Planning Commission/Planning & Zoning Director
From: Jeff Williams, Fire Marshal
Re: PC-2022-29
Date: 01/10/2023

The Orion Township Fire Department has completed its review of Application PC-2022-29 for the limited purpose of compliance with Charter Township of Orion Ordinance's, Michigan Building Code, and all applicable Fire Codes.

Based upon the application and documentation provided, the Fire Department has the following recommendation:

Approved
Approved with Requirements (See below)
X Not approved

Requirements:

Phase 1

- The turning radius for the emergency apparatus road shall be in accordance with the Orion Township Fire Department turning performance analysis template. Overlays of the template shall be shown on the plans **(503.2.4).**
- Details for No Parking Fire Lane signage including road striping (cross hatching) area shall be indicated on the plan **(503.3)** Fire department access roads 20 to 26 feet wide shall be posted with NO PARKING FIRE LANE signage on both sides of the fire apparatus access road **(D103.6.1).** Fire department access roads greater than 26 feet shall only require posting on one side of the roadway.
- The main fire department access drive located on the West side of the site is lacking fire hydrant coverage. Spacing between fire hydrants shall not exceed 500 feet **(C102.1).**
- Fire apparatus access roads shall have an unobstructed width of not less than 20 feet exclusive of shoulders and an unobstructed vertical clearance of 13 feet of 6 inches **(503.2.1).** There were 18' drive isles noted on the site plan for the South restaurant with a drive thru.

Phase 2

- FDC Location for Building A3 shall be relocated to the Southwest corner of the structure
- When entering the site from Baldwin Road, the 1st fire hydrant located on the North side of Gingellridge Lane shall be relocated directly across the street to the South side of the road.
- It is the fire department recommendation that additional fire hydrants be installed in the following areas:
  - Inside the curbed island between Building A9 and the Up Town Club House
  - Inside the curbed island centrally located on West side of building A5
- The turning radius for the emergency apparatus road shall be in accordance with the Orion Township Fire Department turning performance analysis template. Overlays of the template shall be shown on the plans (503.2.4).
- Where the vertical distance between the grad plane and the highest roof surface exceeds 30 feet, an approved aerial access road measuring 26 feet shall be provided on site. The access drive located in front of building A9and the Club House shall be 26' in width.

Charter Township of Orion
3365 Gregory Rd., Lake Orion MI 48359
www.oriontownship.org
Fire Department
Phone: (248) 391-0304, ext. 2000
Fax: (248) 309-6993

- All fire suppression riser rooms shall be outfitted with residential grade Knox Boxes. Notes shall be located on the plan set.

Phase 3

- The turning radius for the emergency apparatus road shall be in accordance with the Orion Township Fire Department turning performance analysis template. Overlays of the template shall be shown on the plans (503.2.4).
- All fire suppression riser rooms shall be outfitted with residential grade Knox Boxes. Notes shall be located on the plan set.

Phase 4

- The turning radius for the emergency apparatus road shall be in accordance with the Orion Township Fire Department turning performance analysis template. Overlays of the template shall be shown on the plans (503.2.4).
- All fire suppression riser rooms shall be outfitted with residential grade Knox Boxes. Notes shall be located on the plan set.

If there are any questions, the Fire Department may be reached at 248-391-0304 ext. 2004.
Sincerely,

Jeffrey Williams

Jeff Williams, Fire Marshal
Orion Township Fire Department

Charter Township of Orion

2323 Joslyn • Lake Orion, Michigan 48360 • (248) 391-0304

To: Tammy Girling
Planning & Zoning Director

From: William Basigkow
Director, Department of Public Services

Date: December 22, 2022

Re: PC-22-29, Baldwin Village final PUD plan

RECEIVED
DEC 22 2022
Orion Township
Planning & Zoning

Dear Tammy,

The Department of Public Services has reviewed the above-mentioned project and has no further objections or concerns at this time.

If you have any questions, please contact me.

Respectfully Submitted,

William Basigkow
Director
Department of Public Services

ORION TOWNSHIP
BUILDING & ZONING DEPT.
2323 Joslyn Rd.
Orion, MI

RECEIVED
SEP 14 2022
Orion Township
Planning & Zoning

Susanne Beran
3432 Gingell Dr.
Lk Orion, MI 48359

To Whom It Does Concern from People that are Very Concerned:

RE: Baldwin Village Project

I put this together regarding issues and thoughts dealing with the Baldwin Village Project.
In my opinion, along with the other people that presented their issues at the Town Hall meeting on Wed. 3 Aug 22; after seeing what this project will looks like....I can't begin to say how **"Out of Place"** this type of project is for this area. It belongs in Rochester Hills or Bloomfield Hills. Imagine if this was your home and a builder was going to build something like that next to your home. Hmmmm..! ! !

Consider how Baldwin Commons was built...all the same brick was used for both sets of buildings....not to mention when the businesses across the street were built....they had to use this same brick so that everything looked copasetic....especially the Taco Bell...it is not like the other Taco Bells you see in other places...you obviously told the builder they had to use the same brick. Well, this new project **"Does NOT FIT"** into the "Architectural Look" of the Gingellville or Lake Orion area. It will NOT look copasetic with the other buildings in this area. I'm not saying that it's not a nice project....It's just Not a Fit for this area; Take and build it in Bloomfield Hills....

Another thing.....You don't have to build on every inch of property Left to Right and Front to Back. There is such a thing as "Tooo Much" being built on the property; and I believe there is w-a-a-ay too much being built there. How about cutting back on the amount of buildings..? ?! ! ! <u>These builders care more about Money in their back pocket than how people feel in the neighborhood about what is going to be built next to them</u>. Maybe they should ask people in the neighborhood.. ! ! ! I live in the Condo Community next to the said Project property. I and other people that live there...love the <u>GREEN SPACE</u> we have before Baldwin Commons. **It a nice Quiet, Peaceful and pretty atmosphere in our community and people that live there love it just like it** is with the woods on the one side of the property. That is why they moved there for the privacy and the Peaceful and Quiet area....

WHY DO YOU HAVE TO ALWAYS TAKE THE GREENSPACE AWAY..? ? (Below are comments regarding taking trees down and needing green space) According to the weather channel, there needs to be Nine (9) square feet Per Person of green space.... The reason they talk about the climate changing is because All these builders are cutting down trees that the earth needs to keep the atmosphere from depleting. They care about all the codes and regulations when building....BUT, think nothing about depleting the atmosphere. They don't plant enough trees for what they cut down. We don't want a concrete jungle.

As other people have told you...we Do Not Need another Car Wash.....I really don't think we need an up-scale grocery store...we have Meijers & Krogers plus a couple smaller stores that also sell groceries.

I have to agree regarding traffic....these traffic circles are dangerous....some of the things people have done and almost crashed into someone.....if you make that trail into a street for Judah...that will be very bad. People don't want to let people going around the circle complete their turn. Open your ears and listen to the people in the neighborhood for once...! ! !

STARBUCKS

Here is something no one commented on regarding traffic.... People get lined up at Starbucks for the drive thru...and end up continuing that line onto the right hand lane on Baldwin Rd and traffic gets backed up because of it. Who checked that issue out..? ? I'm guessing no one...! ! !

Whoever was checking these traffic polls did not do a very good job...imagine during the holidays the Congestion in this area. It already gets lined up certain times of the day & week.

Job Site Trash

These builders come in and build whatever buildings...and since I have lived here...my neighbors and I have found all kinds of broken glass, bottles; plastic pieces that have been uncovered by pouring down rains, even found an old license plate next to a tree; my guess is that these guys working on the site dig a hole off to a side of the site and throw in bottles and cans and just cover it up thinking no one will find it. That's why they have large dumpsters on the job site. My neighbors & I dug up a dead bush above a railroad tie wall and ended up pulling up a wire fence...Seriously..! ! ! Found more pieces of wire fencing in another area we were planting flowers.....Really...? ! ! ! I don't know why any builders think they can just plow this stuff over and think it won't ever be found...and not very deep underground... People can get cut...not to mention the wildlife; they don't deserve it..! ! ! That is NOT being Green...! ! !

Below: Taken from different articles from the internet.

How do trees affect the Earth's ozone layer?

Trees absorb these toxic chemicals through their stomata, or 'pores', effectively filtering these chemicals from the air. Trees also mitigate the greenhouse gas effect by trapping heat, **reduce ground-level ozone levels** and release life-giving oxygen. Jun 4, 2019

What are benefits of trees..?

1) **Trees are the basis of sustaining life on earth**. **Trees give off oxygen that we need to breathe. 2) Trees absorb carbon dioxide and release oxygen by Photosynthesis. 3) Trees reduce the amount of storm water runoff, which reduces erosion** by binding the soil to their roots **and pollution in our waterways and may reduce the effects of flooding. 4) Trees absorb carbon from the atmosphere and store it in their wood and bark, thus SLOWING the rate of "GLOBAL WARMING".** Jul 13, 2022

Many species of wildlife depend on trees for habitat. Trees provide food, protection, and homes for many birds and mammals. And NO…you can't just move them somewhere else…..(How would you feel if someone came and suddenly moved you from your home without notice..? ? ?)

Green spaces aren't just for nature – they boost our mental health too ! ! ! !

We're beginning to understand just how vital access to natural space is for our mental well-being –

Why are green spaces good for people?

Being in green environments **boosts various aspects of thinking, including \\\attention, memory and creativity, in people both with and without depression**. "The evidence is very solid," says psychologist Marc Berman at the University of Chicago.Mar 24, 2021

"When corporations choose short-term profits over keeping forests standing, they're stealing from us all, and **they are literally making the world a more dangerous place."** It's not just endangered species who need the forests and rainforests to survive: **WE ALL DO…..! ! !**

Last thought – YOU & THE BUILDERS of the homes down Gregory Rd. need to CORRECT the water issues some of those people have with their homes…they **did not** have those issues before those homes were built, and now look what you've created. You would not like it if that happened to your home and no one from the Township or Builder would help correct the situation…! ! ! It's your responsibility… since you helped cause their water issues by allowing those builders to build there...! !

DO NOT LET THIS INFO. FALL ON DEAF EARS….OWN UP TO IT; BE ACCOUNTABLE AND JUST FIX THOSE WATER ISSUES, THOSE PEOPLE DON'T DESERVE TO HAVE THOSE ISSUES.

I'm sick & tired of paying higher taxes when I didn't vote for them and the window well water issue I still have has not been taken care of. Someone from the township was supposed to come out and they never showed up….that's how you help the customers in your township…? ? ? ! ! ! You expect people to pay whatever taxes… but you don't want to help when they need help…and it's your job….
What's wrong with that picture..? ? ?

WE CAN'T AFFORD HIGHER TAXES...A LOT OF US IN OUR COMMUNITY ARE RETIRED, ON SOC. SEC.

Thank You for Reading…….

RECEIVED

JUL 07 2022

Orion Township
Planning & Zoning

Charter Township of Orion
Planning & Zoning Department
2323 Joslyn Rd., Lake Orion MI 48360
P: (248) 391-0304 ext. 5000

Case # PC-22-29

Meeting Date: _

Charter Township of Orion Planning Commission
Planned Unit Development (PUD) Application

Project Name: BALDWIN VILLAGE

Applicant

Name: RED Equities, LLC / Gilbert "Buzz" Silverman

Address: 121 West Long Lake - Suite 190 City: Bloomfield Hills State: MI Zip: 48304

Phone: 248-540-6400 Cell: Fax:

Email: buzz@silverman.com

***Property Owner(s)**

Name: David Carr - 3400 Morgan Road, Orion Twp, MI 48359 248-391-0443
Edwin Adler - 20 West Washington Clarkston, MI 48346 248-625-0443

Address: City: State: Zip:

Phone: Cell: Fax:

Email:

* If the name on the deed does not match the name of the property owner on this application, documentation showing the individual is the same as the company name must be provided.

Plan Preparer Firm/Person

Name: J Eppink Partners, Inc - 9336 Sashabaw Road, Clarkston, MI 48348 248-922-0789
Anderson, Eckstein, & Westrick, INc - 51301 Schoenherr Rd, Shelby Twp, MI 586-726-1234

Address: City: State: Zip:

Stonefield Engineering & Design - 607 Shelby St, Suite 200, Detroit, MI 48226

Phone: Cell: Fax:

Email:

Project Contact Person

Name: Gilbert "Buzz" Silverman

Address: 131 West Long Lake, Suite 190 City: Bloomfield Hills State: MI Zip: 48304

Phone: 248-540-6400 Cell: 248-310-3400 Fax:

Email: buzz@silverman.com

Property Description

Sidwell Number(s): 09-32-301-001, 09-32-301-014, 09-32-151-020, 09-32-151-021

Location or Address of Property: West side of Baldwin, North of Morgan, west of Judah Road

Side of Street: Morgan Nearest Intersection: Baldwin & Judah

Acreage: 63.3 Current Use of Property: Vacant

Frontage (in feet): 2.388 aprox Depth (in feet): 1,253 aprox

Subject Property Zoning: SR / BIZ Adjacent Zoning: N. SF / MF S. BIZ / SF E. RB / O&P W. SF / PUD

Is the complete legal description printed on the site plan? [X] Yes [ ] No (if no please attach to the application)

Intent/Eligibility/Design Standards

Comprehensive Statement of Intent: Give a detailed description of the proposed development (refer to Ord. 78, Section 30.03(A)). Please indicate the number and size of the buildings or units be proposed (attach a separate sheet).

Narrative Description of Project: Provide info of the market concept of the project, and explaining the manner in which the criteria set forth for eligibility (Ord. 78, Section 30.03(B)) and design (Ord. 78, Section 30.03(C)-(E)) have been met (attach a separate sheet detailing each criteria).

Per Ord. 78, 30.03(C)(6), all Zoning Ordinance requirements for the underlying zoning district shall remain in full force unless waived or modified by the Planning Commission and Township Board. Below is a list of requirements, please list the current zoning requirement and what is being proposed. Please also detail how the specific design criteria listed is being met.

See Deviation Chart and Site Plan Attached

	Per Zoning Ordinance	Proposed
Lot size and width		
Lot coverage		
Min floor area		
Front, side, and rear setbacks		
Height		
Parking and loading		
Fencing		
Landscaping		
Setback for side entry garage		
Other		

Does the project have adequate:

Perimeter setback and berming? YES

Thoroughfare design? YES

Drainage design? YES

Utility design? YES

Underground utilities? YES

Pedestrian circulation system from vehicular thoroughfares and ways? YES

Achievement of an integrated development with respect to signage, lighting, landscaping, and building materials? YES

Noise reduction and visual screening mechanisms (particularly where nonresidential uses adjoin off-site residentially zonedproperty)? YES

Outside Agencies

Per Ord. 78, Section 30.01(C), a copy of this application and two (2) copies of the site plan must be submitted to each of thefollowing agencies. Please provide the Township with a copy of each transmittal as proof of delivery.

AT&T
54 Mill St.
Pontiac, MI 48342

Consumers Power Company
530 W. Willow St.
Lansing, MI 48906

DTE Energy Co.
ATTENTION: NW Planning & Design
1970 Orchard Lake Rd.
Sylvan Lake, MI 48320

Michigan Department of Transportation (if applicable)
800 Vanguard Dr.
Pontiac, MI 48341

Oakland County Water Resources Commission
(To be submitted by the Township)

Oakland County Health Department
Building 34 East
1200 N. Telegraph Rd.
Pontiac, MI 48341

Road Commission of Oakland County (if applicable)
ssintkowski@rcoc.org
(Electronic submittal only)

Required Signage

Per Ord. 78, Section 30.04(H), a sign indicating the requested rezone shall be installed on the parcels(s) no less than 15 days prior to the scheduled public Hearing. Please check one:

☐ I will install the sign(s) as required (see below for specifications).

☒ I would like to lease signage from the Township (including installation).
(please complete attached Sign Request Form).

The sign shall have the following wording (see Ord. 78, Section 30.04(H) for additional requirements):

ZONING CHANGE PROPOSED	- (min 8" high letters)
For more information call:	- (min 3" high letters)
Charter Township of Orion	- (min 4" high letters)
Planning and Zoning Department	- (min 4" high letters)
248-391-0304 ext. 5002	- (min 4" high letters)

*Please note, the Township does offer the ability to rent the required signage (see attached form). Please contact the Planning and Zoning Department with any questions.

I/We, the undersigned, do hereby submit this application for Rezoning, pursuant to the provisions of the Charter Township of Orion Zoning Ordinance No. 78, Sections 30.03 and 30.01 and any other applicable ordinance requirements. In support of this request, the above facts are provided. I hereby certify that the information provided is accurate and the application that has beenprovided is complete.

Signature of Applicant: SEE ATTACHED
(must be original ink signature) _____ Date: _____

Print Name: _____

I, the <u>property owner</u>, hereby give permission to the applicant listed above to act as my agent in submitting applications, correspondence and to represent me at all meetings. I also grant permission to the Planning Commission members to visit the property, without prior notification, as is deemed necessary.

Signature of Owner*: SEE ATTACHED
(must be original ink signature) _____ Date: _____

Print Name: _____

*If the deed of ownership does not show an individual, ie a corporation, partnership, etc,, documentation must be provided showing theindividual signing this application has signing rights for the entity.

Baldwin Village:

Applicant: BALDWIN VILLAGE

I/We, the undersigned, do hereby submit this application for Rezoning, pursuant to the provisions of the Charter Township of Orion Zoning Ordinance No. 78, Sections 30.03 and 30.01 and any other applicable ordinance requirements. In support of this request, the above facts are provided. I hereby certify that the information provided is accurate and the application that has beenprovided is complete.

Signature of Applicant: RED EQUITIES
(must be original ink signature) BY _____ Date: 7/5/22

Print Name: RED EQUITIES BY Gilbert "Buzz" Silverman

Baldwin Village:

Applicant:

I/We, the undersigned, do hereby submit this application for Rezoning, pursuant to the provisions of the Charter Township of Orion Zoning Ordinance No. 78, Sections 30.03 and 30.01 and any other applicable ordinance requirements. In support of this request, the above facts are provided. I hereby certify that the information provided is accurate and the application that has beenprovided is complete.

Signature of Applicant:
(must be original ink signature) _____ Date: 7/5/22

Print Name: Gabriel Schuchman

Baldwin Village:

Applicant:

I/We, the undersigned, do hereby submit this application for Rezoning, pursuant to the provisions of the Charter Township of Orion Zoning Ordinance No. 78, Sections 30.03 and 30.01 and any other applicable ordinance requirements. In support of this request, the above facts are provided. I hereby certify that the information provided is accurate and the application that has beenprovided is complete.

Signature of Applicant:
(must be original ink signature) _____ Date: 7.5.22

Print Name: Dominic Moceri

Charter Township of Orion
Planning & Zoning Department
2323 Joslyn Rd., Lake Orion MI 48360
P: (248) 391-0304 ext. 5002

Project Name BALDWIN VILLAGE

PC#_____ Parcel#(s)_____

Please select an option below:

☑ **Permission to Post on Web Site**

By signing below as applicant and on behalf of my consultants, we agree to allow the plans for the above-named project, in which approval is being sought by the Planning Commission and/or Township Board, to be posted on the Township website.

RED EQUITIES

BY _____ 7/5/22

Signature of Applicant Date

RED EQUITIES By Gilbert "Buzz" Silverman MGR.

Printed Name of Applicant

☐ **Do not want Posted on Web Site**

Baldwin Village:

Property Owner Two:

I, the property owner, hereby give permission to the applicant listed above to act as my agent in submitting applications, correspondence and to represent me at all meetings. I also grant permission to the Planning Commission members to visit the property, without prior notification, as is deemed necessary.

Signature of Owner*:
(must be original ink signature) David M. Carr Date: 6/29/22

Print Name: DAVID M. CARR

*If the deed of ownership does not show an individual, ie a corporation, partnership, etc,, documentation must be provided showing theindividual signing this application has signing rights for the entity.

Baldwin Village:

Property Owner One:

I, the property owner, hereby give permission to the applicant listed above to act as my agent in submitting applications, correspondence and to represent me at all meetings. I also grant permission to the Planning Commission members to visit the property, without prior notification, as is deemed necessary.

Signature of Owner*:
(must be original ink signature) Edwin L Adler Date: 7-5-2022

Print Name: Edwin L Adler

*If the deed of ownership does not show an individual, ie a corporation, partnership, etc,, documentation must be provided showing theindividual signing this application has signing rights for the entity.

Baldwin Village

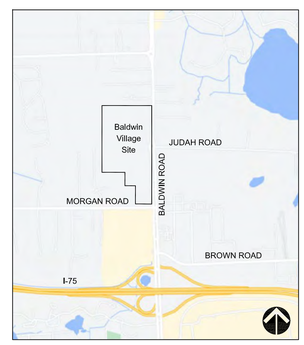
Orion Township Michigan

December 9, 2022

Final Planned Unit Development

Orion Township Planning Commission

Location:
Northwest corner of
Baldwin Road and Morgan Road
Orion Township, Michigan



RECEIVED
December 20, 2022
Orion Township
Planning & Zoning

Commercial Developer:
ALRIG USA

Applicant / Developer:
SILVERMAN
A RED EQUITIES DEVELOPMENT
121 West Long Lake - suite 190
Bloomfield Hills, Michigan 48304
248-540-6400

Residential Developer:
MOCERI
Michigan's Legendary Dream Builder
S.R.JACOBSON
DEVELOPMENT CORPORATION

Architect:
DAG
DETROIT ARCHITECTURAL GROUP

Architect:
Dominick Tringali
ARCHITECTURAL COLLECTION

Urban Design & Landscape Architect:
J EPPINK PARTNERS, INC.
Urban Design Studio
Landscape Architecture
Traditional Town Planning

Commercial Civil Engineer:
STONEFIELD
engineering & design

Residential Civil Engineer:
ANDERSON, ECKSTEIN & WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS

Final PUD & Site Plan Submission - Sheet Index :

Baldwin Village: Master Plan		
SHEET	PAGE TITLE	PROFESSIONAL'S TITLE BLOCK
	Baldwin Village - Cover Page	
INDEX	Index & Project Components	J Eppink Partners
MSP.1.0	Master Site Plan	J Eppink Partners

Baldwin Village: Commercial Component		
SHEET	PAGE TITLE	PROFESSIONAL'S TITLE BLOCK
C-1	Proposed Commercial Development Cover	Stonefield Engineering & Design
C-2	Site Plan (Overall) - Commercial	Stonefield Engineering & Design
C-3	Site Plan (South Restaurant w/ Drive Thru)	Stonefield Engineering & Design
C-4	Site Plan (Restaurant w/ Drive Thru)	Stonefield Engineering & Design
C-5	Site Plan (Commercial Buildings)	Stonefield Engineering & Design
C-6	Site Plan (Neighborhood Grocery Store)	Stonefield Engineering & Design
C-7	Grading Plan (Commercial)	Stonefield Engineering & Design
C-8	Stormwater Mgt Plan (South Commercial)	Stonefield Engineering & Design
C-9	Stormwater Mgt Plan (North Commercial)	Stonefield Engineering & Design
C-10	Utility Plan (Water) Commercial	Stonefield Engineering & Design
C-11	Utility Plan (Sanitary Sewer) Commercial	Stonefield Engineering & Design
C-12	Landscaping Plan (Overall) Commercial	Stonefield Engineering & Design
C-13	Landscaping Plan (South Restaurant)	Stonefield Engineering & Design
C-14	Landscaping Plan (Restaurant)	Stonefield Engineering & Design
C-15	Landscaping Plan (Commercial Buildings)	Stonefield Engineering & Design
C-16	Landscaping Plan (Neighborhood Grocery)	Stonefield Engineering & Design
C-17	Landscaping Details (Commercial)	Stonefield Engineering & Design
C-18	Lighting Plan (Commercial)	Stonefield Engineering & Design
C-19	Construction Details (Commercial)	Stonefield Engineering & Design
C-20	Construction Details (Commercial)	Stonefield Engineering & Design
ALTA	Topographic ALTA/NSPS Land Title Survey	PEA Group
1	ALTA Survey (Commercial Parcel)	Anderson, Eckstein and Westrick, Inc.
EX-1	Tree Removal Exhibit (Overall) Commercial	Stonefield Engineering & Design
EX-2	Tree Survey (Overall) Commercial	Stonefield Engineering & Design
EX-3	Pre vs Post Stormwater Exhibit (Commercial)	Stonefield Engineering & Design
DET-1	Patios & Signs (Commercial)	Detroit Architectural Group
DET-2	Retaining Wall and Dumpsters	Detroit Architectural Group
BLDG-1	Restaurant Shell Building (South Restaurant)	Detroit Architectural Group
BLDG-2	Restaurant Shell Building	Detroit Architectural Group
BLDG-3&4	Multi-Tenant Shell Building	Detroit Architectural Group
BLDG-5	Grocery Building	Detroit Architectural Group
A of 22	Community Monument Key (Commercial)	Dominick Tringali Architects
1 of 22	Commercial Monuments - Pier & Railing	Dominick Tringali Architects
2 of 22	Commercial Monuments - Trellis D-1	Dominick Tringali Architects
11 of 22	Commercial Monuments - Trellis D-2	Dominick Tringali Architects
13 of 22	Commercial Monuments - Trellis E	Dominick Tringali Architects
14 of 22	Commercial Monuments - Trellis F	Dominick Tringali Architects
14A of 22	Commercial Monuments - Trellis F	Dominick Tringali Architects
15 of 22	Commercial Monuments - Trellis G	Dominick Tringali Architects
15A of 22	Commercial Monuments - Trellis G	Dominick Tringali Architects
16 of 22	Commercial Monuments - Trellis H	Dominick Tringali Architects
17 of 22	Commercial Monuments - Tower 1	Dominick Tringali Architects
18 of 22	Commercial Monuments - Tower 2	Dominick Tringali Architects

Baldwin Village: Residential Components		
SHEET	PAGE TITLE	PROFESSIONAL'S TITLE BLOCK
1	Proposed Commercial Development Cover	Anderson, Eckstein and Westrick, Inc.
2	Site Plan (Overall) - Residential	Anderson, Eckstein and Westrick, Inc.
3	Site Plan & Dimension Plan (Phase 2 - Uptown Village)	Anderson, Eckstein and Westrick, Inc.
4	Site Plan & Dimension Plan (Phase 3 - North Village)	Anderson, Eckstein and Westrick, Inc.
5	Site Plan & Dimension Plan (Phase 4 - South Village)	Anderson, Eckstein and Westrick, Inc.
6	Utility Plan (Phase 2 - Uptown Village)	Anderson, Eckstein and Westrick, Inc.
7	Utility Plan (Phase 3 - North Village)	Anderson, Eckstein and Westrick, Inc.
8	Utility Plan (Phase 4 - South Village)	Anderson, Eckstein and Westrick, Inc.
9	Hydraulics (Residential)	Anderson, Eckstein and Westrick, Inc.
10	Hydraulic & Detention Pond Calculations	Anderson, Eckstein and Westrick, Inc.
11	Grading Plan (Phase 2 - Uptown Village)	Anderson, Eckstein and Westrick, Inc.
12	Grading Plan (Phase 2 - Uptown Village)	Anderson, Eckstein and Westrick, Inc.
13	Grading Plan (Phase 2 & 3 - Uptown & North Village)	Anderson, Eckstein and Westrick, Inc.
14	Grading Plan (Phase 2 & 3 - Uptown & North Village)	Anderson, Eckstein and Westrick, Inc.
15	Grading Plan (Phase 2 & 3 - Uptown & North Village)	Anderson, Eckstein and Westrick, Inc.
16	Grading Plan (Phase 4 - South Village)	Anderson, Eckstein and Westrick, Inc.
17	Grading Plan (Phase 4 - South Village)	Anderson, Eckstein and Westrick, Inc.
18	Wetland Tributary Area	Anderson, Eckstein and Westrick, Inc.
19	Miscellaneous Project Details (Residential)	Anderson, Eckstein and Westrick, Inc.
20	Signing Plan (Residential)	Anderson, Eckstein and Westrick, Inc.
21	Photometric Plan (Residential)	GBA
21A	Photometric Plan (Residential)	GBA
22	Topographic Survey (Residential)	Anderson, Eckstein and Westrick, Inc.
UP1	Uptown Village: Bldg Type "A" - Left - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP2	Uptown Village: Bldg Type "AL5" & "EL5" - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP3	Uptown Village: Bldg Type "A" - Right - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP4	Uptown Village: Bldg Type "E.5R" - Right - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP5	Uptown Village: Bldg Type "AR.5" - Right - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP6	Uptown Village: Bldg Type "E" - Left - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP7	Uptown Village: Bldg Type "E" - Right - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP8	Uptown Village: Bldg Type "E" - Left - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP9	Uptown Village: Bldg Type "E" - Right - 1st Floor Plan	Alexander V. Bogaerts & Assoc.
UP10	Uptown Village: Bldg Type "A" & "E" - Left - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP11	Uptown Village: Bldg Type "AL5" & "EL5" - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP12	Uptown Village: Bldg Type "A" - Right - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP 13	Uptown Village: Bldg Type "E.5R" - Right - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP14	Uptown Village: Bldg Type "E" - Right - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP15	Uptown Village: Bldg Type "AR.5" - Right - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP16	Uptown Village: Bldg Type "A" & "E" - Left - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP17	Uptown Village: Bldg Type "AL5" & "EL5" - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP18	Uptown Village: Bldg Type "A" - Right - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP19	Uptown Village: Bldg Type "E.5R" - Right - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP20	Uptown Village: Bldg Type "E" & "E.1" - Right - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP21	Uptown Village: Bldg Type "AR.5" - Right - 2nd & 3rd Floor	Alexander V. Bogaerts & Assoc.
UP22	Uptown Village: Bldg Type "A" & "E" - Left - Front Elevation	Alexander V. Bogaerts & Assoc.
UP23	Uptown Village: Bldg Type "AL5" & "EL5" - Left - Front Elevation	Alexander V. Bogaerts & Assoc.
UP24	Uptown Village: Bldg Type "A" - Right - Front Elevation	Alexander V. Bogaerts & Assoc.
UP25	Uptown Village: Bldg Type "E" - Right - Front Elevation	Alexander V. Bogaerts & Assoc.
UP26	Uptown Village: Bldg Type "ER.5" - Front Elevation	Alexander V. Bogaerts & Assoc.
UP27	Uptown Village: Bldg Type "A" - Left - Rear Elevation	Alexander V. Bogaerts & Assoc.
UP28	Uptown Village: Bldg Type "AL.5" & "EL.5" - Left - Rear Elevation	Alexander V. Bogaerts & Assoc.
UP29	Uptown Village: Bldg Type "A" & "E" - Right - Rear Elevation	Alexander V. Bogaerts & Assoc.
UP30	Uptown Village: Bldg Type "E" - Left - Rear Elevation	Alexander V. Bogaerts & Assoc.
UP31	Uptown Village: Bldg Type "ER.5" - Rear Elevation	Alexander V. Bogaerts & Assoc.
UP32	Uptown Village: Bldg Type "A" & "E" - Left Side Elevation	Alexander V. Bogaerts & Assoc.
UP33	Uptown Village: Bldg Type "ER.5" - Left Side Elevation	Alexander V. Bogaerts & Assoc.
UP34	Uptown Village: Bldg Type "A", "E", & "E.1" - Right Side Elevation	Alexander V. Bogaerts & Assoc.
UP35	Uptown Village: Bldg Type "AL.5"& "EL.5" - Right Side Elevation	Alexander V. Bogaerts & Assoc.
NV1	North Village: Bldg N-2, 4-Plex, 2-Car, Front Entry - Lower Level Floor	Dominick Tringali Architects
NV2	North Village: Bldg N-2, 4-Plex, 2-Car, Front Entry - 1st Floor Plan	Dominick Tringali Architects
NV3	North Village: Bldg N-2, 4-Plex, 2-Car, Front Entry - 2nd Floor Plan	Dominick Tringali Architects
NV4	North Village: Bldg N-2, 4-Plex, 2-Car, Front Entry - Front Elevation	Dominick Tringali Architects
NV5	North Village: Bldg N-2, 4-Plex, 2-Car, Front Entry - Rear Elevation	Dominick Tringali Architects
NV6	North Village: Bldg N-11, 7-Plex, 2-Car, Front Entry - Lower Level Floor	Dominick Tringali Architects
NV7	North Village: Bldg N-11, 7-Plex, 2-Car, Front Entry - 1st Floor Plan	Dominick Tringali Architects
NV8	North Village: Bldg N-11, 7-Plex, 2-Car, Front Entry - 2nd Floor Plan	Dominick Tringali Architects
NV9	North Village: Bldg N-11, 7-Plex, 2-Car, Front Entry - Front Elevation	Dominick Tringali Architects
NV10	North Village: Bldg N-11, 7-Plex, 2-Car, Front Entry - Rear Elevation	Dominick Tringali Architects
NV11	North Village: Bldg N-6, 6-Plex, 3-Story - Ground Floor Plan	Dominick Tringali Architects
NV12	North Village: Bldg N-6, 6-Plex, 3-Story - Entry Floor Plan	Dominick Tringali Architects
NV13	North Village: Bldg N-6, 6-Plex, 3-Story - Upper Floor Plan	Dominick Tringali Architects
NV14	North Village: Bldg N-6, 6-Plex, 3-Story - Front & Side Elevation	Dominick Tringali Architects
NV15	North Village: Bldg N-6, 6-Plex, 3-Story - Rear & Side Elevation	Dominick Tringali Architects
UP36	Uptown Village: Clubhouse - Floor Plan	Alexander V. Bogaerts & Assoc.
UP37	Uptown Village: Clubhouse - Front & Side Elevation	Alexander V. Bogaerts & Assoc.
UP38	Uptown Village: Clubhouse - Rear & Side Elevation	Alexander V. Bogaerts & Assoc.
SV1	South Village: Duplex Bldg SD-1 - 1st Floor Plan	Dominick Tringali Architects
SV2	South Village: Duplex Bldg SD-1 - Elevations	Dominick Tringali Architects
SV3	South Village: Bldg ST-5, 7-Plex, 2-Car, Front Entry - 1st Floor Plan	Dominick Tringali Architects
SV4	South Village: Bldg ST-5, 7-Plex, 2-Car, Front Entry - 2nd Floor Plan	Dominick Tringali Architects
SV5	South Village: Bldg ST-5, 7-Plex, 2-Car, Front Entry - Front Elevation	Dominick Tringali Architects
SV6	South Village: Bldg ST-5, 7-Plex, 2-Car, Front Entry - Rear Elevation	Dominick Tringali Architects
SV7	South Village: Bldg ST-8, 6-Plex, 2-Car, Front Entry - 1st Floor Plan	Dominick Tringali Architects
SV8	South Village: Bldg ST-8, 6-Plex, 2-Car, Front Entry - 2nd Floor Plan	Dominick Tringali Architects
SV9	South Village: Bldg ST-8, 6-Plex, 2-Car, Front Entry - Front Elevation	Dominick Tringali Architects
SV10	South Village: Bldg ST-8, 6-Plex, 2-Car, Front Entry - Rear Elevation	Dominick Tringali Architects
SV11	South Village: Bldg ST-10, 6-Plex, 2-Car, Front Entry - 1st Floor Plan	Dominick Tringali Architects
SV12	South Village: Bldg ST-10, 6-Plex, 2-Car, Front Entry - 2nd Floor Plan	Dominick Tringali Architects
SV13	South Village: Bldg ST-10, 6-Plex, 2-Car, Front Entry - Front Elevation	Dominick Tringali Architects
SV14	South Village: Bldg ST-10, 6-Plex, 2-Car, Front Entry - Rear Elevation	Dominick Tringali Architects
SV15	South Village: Bldg ST-11, 4-Plex, 2-Car, Front Entry - 1st Floor Plan	Dominick Tringali Architects
SV16	South Village: Bldg ST-11, 4-Plex, 2-Car, Front Entry - 2nd Floor Plan	Dominick Tringali Architects
SV17	South Village: Bldg ST-11, 4-Plex, 2-Car, Front Entry - Front Elevation	Dominick Tringali Architects
SV18	South Village: Bldg ST-11, 4-Plex, 2-Car, Front Entry - Rear Elevation	Dominick Tringali Architects
A of 22	Community Monument Key (Residential)	Dominick Tringali Architects
1 of 22	Residential Monuments - Pier & Railing	Dominick Tringali Architects
2 of 22	Residential Monuments - Trellis A-1	Dominick Tringali Architects
3 of 22	Residential Monuments - Trellis A-2	Dominick Tringali Architects
4 of 22	Residential Monuments - Trellis A-3	Dominick Tringali Architects
5 of 22	Residential Monuments - Trellis A-4	Dominick Tringali Architects
6 of 22	Residential Monuments - Trellis A-5	Dominick Tringali Architects
7 of 22	Residential Monuments - Trellis B	Dominick Tringali Architects
8 of 22	Residential Monuments - Trellis C-1	Dominick Tringali Architects
9 of 22	Residential Monuments - Trellis C-2	Dominick Tringali Architects
15 of 22	Residential Monuments - Trellis G	Dominick Tringali Architects
15A of 22	Residential Monuments - Trellis G	Dominick Tringali Architects
16 of 22	Residential Monuments - Trellis H	Dominick Tringali Architects
17 of 22	Residential Monuments - Tower 1	Dominick Tringali Architects
18 of 22	Residential Monuments - Tower 2	Dominick Tringali Architects
20 of 22	Residential Monuments - Trellis J	Dominick Tringali Architects
23 of 22	Residential Monuments - Entry Wall	Dominick Tringali Architects
1	Residential Tree Survey (Southwest)	Anderson, Eckstein and Westrick, Inc.
2	Residential Tree Survey (Northwest)	Anderson, Eckstein and Westrick, Inc.
3	Residential Tree Survey (Northeast)	Anderson, Eckstein and Westrick, Inc.
4	Residential Tree Survey (Southeast)	Anderson, Eckstein and Westrick, Inc.
5	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
6	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
7	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
8	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
9	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
10	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
11	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
12	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
13	Residential Tree Survey (Data)	Anderson, Eckstein and Westrick, Inc.
14	Residential Tree Survey (Data Summary)	Anderson, Eckstein and Westrick, Inc.
LP-1	Residential: Common Area Landscape Plan & Requirements	J Eppink Partners
LP-2	Residential: Main Entrance Landscape Plan	J Eppink Partners
LP-3	Residential: Uptown Village Landscape Plan	J Eppink Partners
LP-4	Residential: North Village Landscape Plan	J Eppink Partners
LP-5	Residential: South Village Landscape Plan	J Eppink Partners
LP-6	Residential: Landscape Details & Notes	J Eppink Partners

Baldwin Village - Village Components & Phasing Plan:

NOT TO SCALE

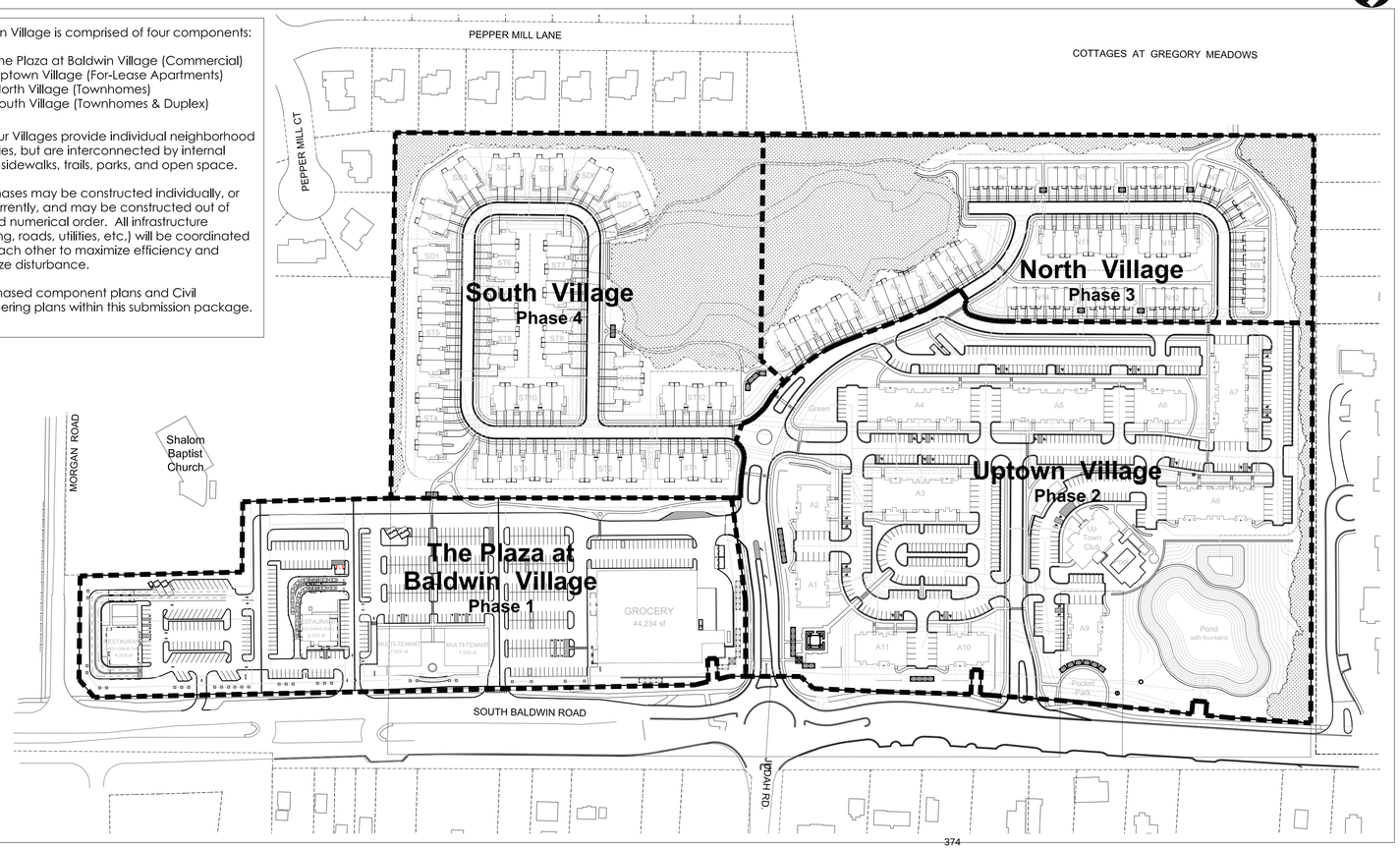
Baldwin Village is comprised of four components:

1. The Plaza at Baldwin Village (Commercial)
2. Uptown Village (For-Lease Apartments)
3. North Village (Townhomes)
4. South Village (Townhomes & Duplex)

The four Villages provide individual neighborhood identities, but are interconnected by internal roads, sidewalks, trails, parks, and open space.

The phases may be constructed individually, or concurrently, and may be constructed out of phased numerical order. All infrastructure (grading, roads, utilities, etc.) will be coordinated with each other to maximize efficiency and minimize disturbance.

See phased component plans and Civil Engineering plans within this submission package.



STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio

Landscape Architecture
Traditional Town Planning

9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

© 2022 J EPPINK PARTNERS, INC

Project:
Baldwin Village
Orion Township, Mi.

Applicant / Developer:
RED Equities, LLC
121 W. Long Lake - Suite 200
Bloomfield Hills, MI 48304

Development Team:

Residential:
Moceri Companies

Residential:
S.R. Jacobson
Development Company

Commercial:
ALRIG USA

Sheet:
Submission Index and Project Component Plan

Issues / Revisions

Final PUD Plan	12-09-2022

Drawn by:

Checked By
JTE

Date
December 9, 2022

Scale
As Shown

Not for Construction

Sheet
INDEX

Project Data:

PARCEL SIZE :

58.70 Total Site: Net Acres
46.83 Net Residential Acres
11.87 Net Commercial Acres

Open Space :

15% Residential Components
28.5% Commercial Components
Preservation of natural wetland & wooded perimeter buffer

Residential Density :

465 Proposed Residences
9.93 Residences / acre

Residential Roads (private):

Road Easement 60'
Road Width 27' (back of curb)

Residential Components:

The Towns at North Village (11.09 ac)
79 Townhomes

The Villas at South Village (13.71 ac)
68 Villas

The Flats at Uptown Village (22.03 ac)
304 Residential Units

Commercial Component: (11.87 ac)

The Plaza at Baldwin Village
70,000 sf Commercial (gross)

See Residential and Commercial detailed Site Plan packages for area and dimensional standards.

A Public Hearing was held on August 3, 2022 at the joint meeting of the Orion Township Planning Commission and Board of Trustees.

The Planning Commission voted to recommend conditional PUD and Site Plan Approval on August 3, 2022.

The Orion Township Board of Trustees voted to approve the Baldwin Village conditional PUD and Site Plan on August 15, 2022.

Underlying Zoning:

SF within the Gingellville Village Center Overlay Dist.
BIZ within the Brown Rd Innovation District

Conditionally Approved Zoning:

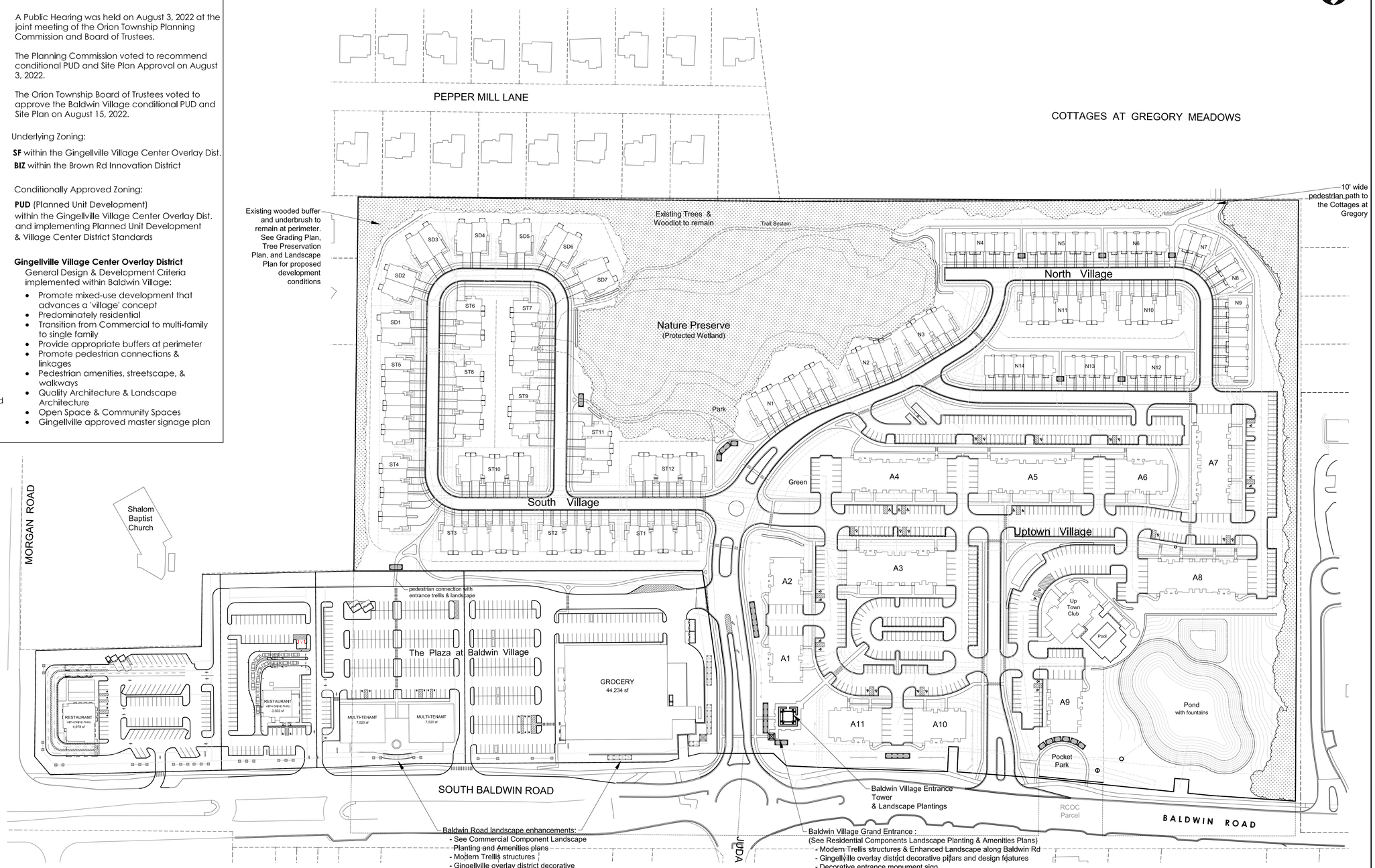
PUD (Planned Unit Development) within the Gingellville Village Center Overlay Dist. and implementing Planned Unit Development & Village Center District Standards

Gingellville Village Center Overlay District
General Design & Development Criteria implemented within Baldwin Village:

- Promote mixed-use development that advances a 'village' concept
- Predominately residential
- Transition from Commercial to multi-family to single family
- Provide appropriate buffers at perimeter
- Promote pedestrian connections & linkages
- Pedestrian amenities, streetscape, & walkways
- Quality Architecture & Landscape Architecture
- Open Space & Community Spaces
- Gingellville approved master signage plan

Baldwin Village - Master Site Plan:

SCALE: 1" = 100'



Gingellville Village Center Overlay District & Brown Road Innovation Zone (BIZ)

Baldwin Village is located within the Gingellville Village Center Overlay District and the Brown Road Innovation Zone (BIZ). The Orion Township Master Plan calls for this area to be developed to create a 'village-like" atmosphere with various uses that are interconnected, pedestrian friendly, and blend community-oriented business with residential uses. It further defines the 'fifteen minute' neighborhood and directs that the Gingellville Village Overlay District and Brown Road Innovation Zone standards outlined in the Township's Zoning Ordinance be used in the design and development of this area. Baldwin Village creates a mixed-use, interconnected, 15-minute neighborhood that will provide 20% open space, landscaped parks, buffers, and natural preservation areas, along with three residential villages and a community targeted commercial village, all with harmonious, high-caliper architecture, site design amenities, and an iconic gateway experience and landscape at the gateway to Orion Township.

Baldwin Village Features:

1. Three Residential Villages
2. One Commercial Village
3. Interconnected sidewalks, trails, and circulation system
4. Preservation / protection of wetland and environmental system
5. Preservation / enhancement of perimeter woods and landscape buffer
6. Decorative pond with fountains at Baldwin Road
7. Iconic Baldwin Village tower and robust landscape
8. Modern trellis features with enhanced landscape along entire Baldwin Rd frontage and throughout neighborhoods

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio

Landscape Architecture
Traditional Town Planning

9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

© 2022 J EPPINK PARTNERS, INC

Project:
Baldwin Village
Orion Township, Mi.

121 W. Long Lake - Suite 200
Bloomfield Hills, MI 48304

Applicant / Developer:
RED Equities, LLC

Development Team:

Residential:
Moceri Companies

Residential:
S.R. Jacobson
Development Company

Commercial:
ALRIG USA

Sheet:
Master Site Plan

Issues / Revisions

Final PUD Plan	12-09-2022

Drawn by:

Checked By
JTE

Date
December 9, 2022

Scale
As Shown

Not for Construction

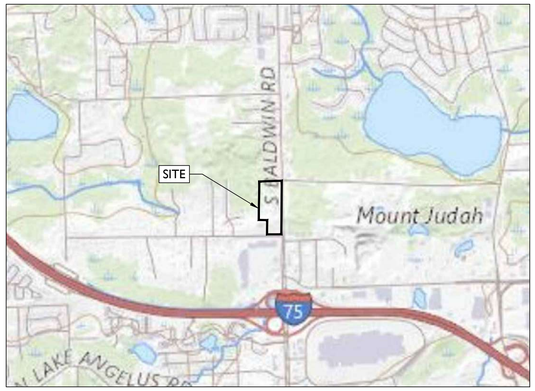
Sheet
MSP 1.0

SITE DEVELOPMENT PLANS
FOR
BALDWIN VILLAGE
PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PARCEL ID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

APPLICANT

ORION TOWNSHIP RETAIL MANAGEMENT LLC
30200 TELEGRAPH ROAD, SUITE 205
BINGHAM FARMS, MICHIGAN 48025
248-646-9999

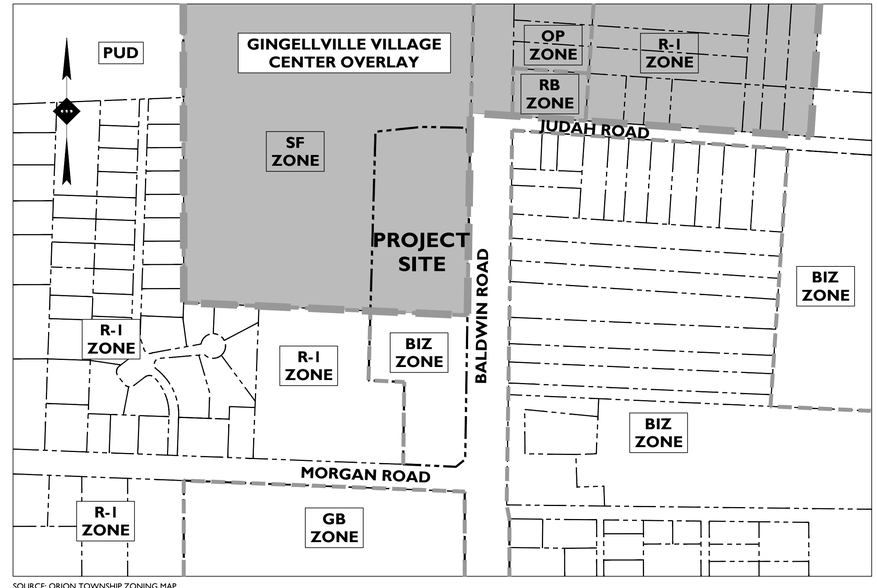


SOURCE: USGS TOPO MAP

LOCATION MAP
SCALE: 1" = 2,000'±

SOURCE: GOOGLE EARTH PRO

AERIAL MAP
SCALE: 1" = 300'±



SOURCE: ORION TOWNSHIP ZONING MAP

ZONING MAP
SCALE: 1" = 300'±

PLAN REFERENCE MATERIALS:

1. THIS PLAN SET REFERENCES THE FOLLOWING DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
   - TOPOGRAPHIC ALTA/NSPS LAND TITLE SURVEY PREPARED BY PEA GROUP DATED 03/11/2022
   - ALTA SURVEY PREPARED BY AEW DATED JUNE 2022
   - GEOTECHNICAL REPORT PREPARED BY McDOWELL & ASSOCIATES DATED 01/10/2022
   - TREE SURVEY FOR BALDWIN VILLAGE COMMERCIAL PREPARED BY BARR ENGINEERING CO., DATED 12/05/2022
   - AERIAL MAP OBTAINED FROM GOOGLE EARTH
   - BALDWIN VILLAGE RESIDENTIAL PLANS PREPARED BY ANDERSON, ECKSTEIN AND WESTRICK, INC., DATED 12/09/2022
   - LOCATION MAP USGS ONLINE MAPS
2. ALL REFERENCE MATERIAL LISTED ABOVE SHALL BE CONSIDERED A PART OF THIS PLAN SET AND ALL INFORMATION CONTAINED WITHIN THESE MATERIALS SHALL BE UTILIZED IN CONJUNCTION WITH THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A COPY OF EACH REFERENCE AND REVIEW IT THOROUGHLY PRIOR TO THE START OF CONSTRUCTION.

Know what's **below**
Call before you dig.

PLANS PREPARED BY:

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

ADDITIONAL SHEETS

DRAWING TITLE	SHEET #
TOPOGRAPHIC SURVEY (PEA)	1 OF 1
ALTA SURVEY (AEW)	1 OF 1
TREE REMOVAL EXHIBIT	EX-1
TREE SURVEY	EX-2
PRE- VS POST- STORMWATER EXHIBIT	EX-3

SHEET INDEX

DRAWING TITLE	SHEET #
COVER SHEET	C-1
SITE PLAN (OVERALL)	C-2
SITE PLAN (SOUTH RESTAURANT W/ DRIVE THRU)	C-3
SITE PLAN (RESTAURANT W/ DRIVE THRU)	C-4
SITE PLAN (COMMERCIAL BUILDINGS)	C-5
SITE PLAN (NEIGHBORHOOD GROCERY STORE)	C-6
GRADING PLAN	C-7
STORMWATER MANAGEMENT PLAN (SOUTH)	C-8
STORMWATER MANAGEMENT PLAN (NORTH)	C-9
UTILITY PLAN (WATER)	C-10
UTILITY PLAN (SANITARY SEWER)	C-11
LIGHTING PLAN	C-11
LANDSCAPING PLAN (OVERALL)	C-12
LANDSCAPING PLAN (SOUTH RESTAURANT W/ DRIVE THRU)	C-13
LANDSCAPING PLAN (RESTAURANT W/ DRIVE THRU)	C-14
LANDSCAPING PLAN (COMMERCIAL BUILDINGS)	C-15
LANDSCAPING PLAN (NEIGHBORHOOD GROCERY STORE)	C-16
LANDSCAPING DETAILS	C-17
LIGHTING PLAN	C-18
DETAILS	C-19

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS
BALDWIN VILLAGE
PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201053
JONATHAN REID COOKSEY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210395

TITLE: COVER SHEET

DRAWING: C-1

V:\DET\2021\DET-210395-AUSCH\FOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP MI\CAD\PLOTTER\PD-01-COVR.DWG

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

PUD REQUIREMENTS

PID: 09-32-301-014		
PLANNED UNIT DEVELOPMENT REQUIREMENTS		
ZONING REQUIREMENT	**REQUIRED**	**PROPOSED**
LOT AREA	10 AC	11.87 AC (517,037 SF)
OPEN SPACE	10% (51,704 SF)	28.4% (146,666 SF)
ACCESS DRIVE SEPARATION FROM EXISTING STREET / INTERSECTION	200 FT	PROVIDED
PERIMETER SETBACK / BERMING ADJACENT TO RESIDENTIAL ZONING	100 FT	12.5 FT (SOUTHERN LOT) (W)

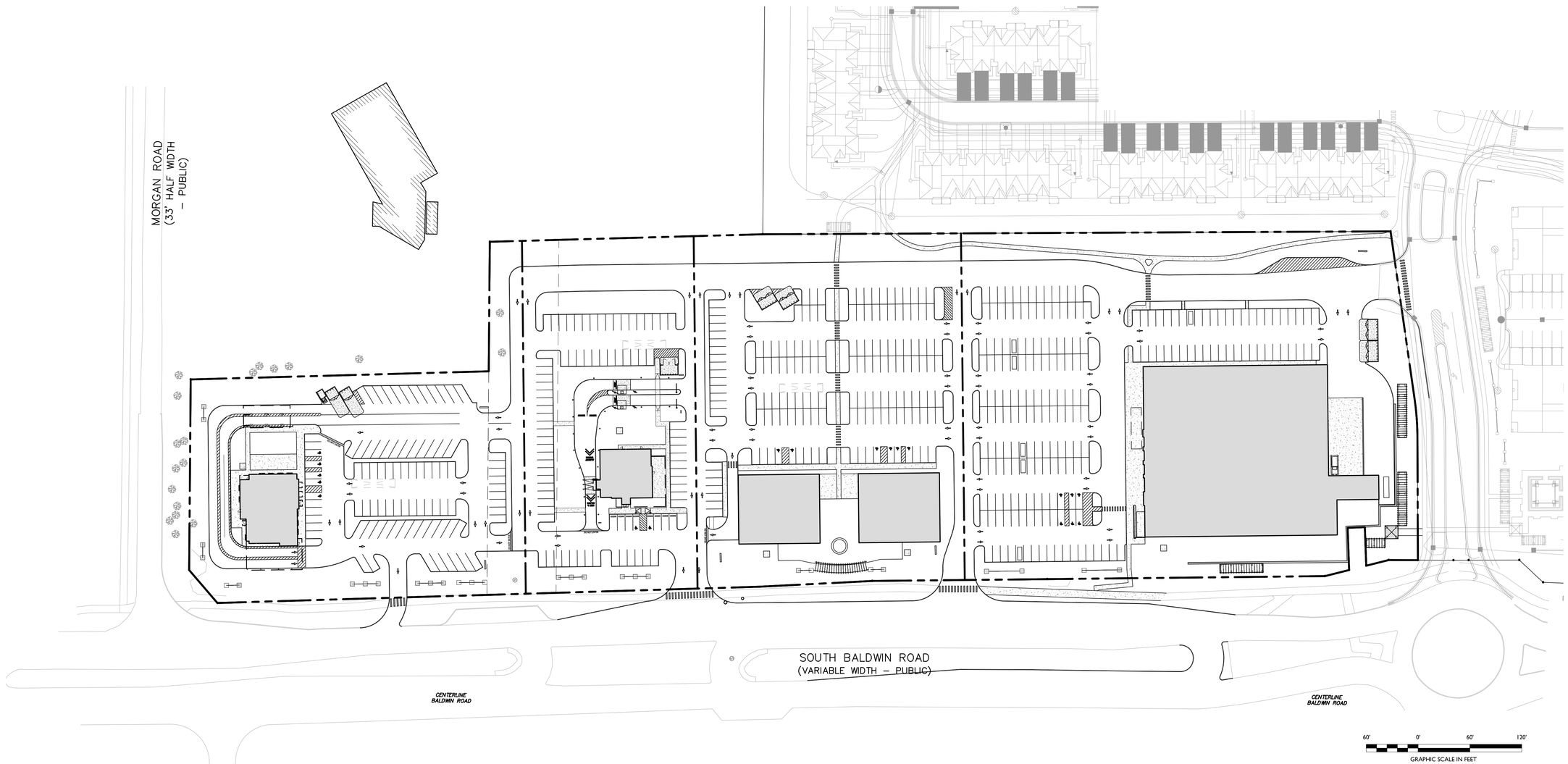
(W) WAIVER

OFF-STREET PARKING REQUIREMENTS *

CODE SECTION	REQUIRED	PROPOSED
§ 34.03.E	RESTAURANT = 50 SPACES RESTAURANT = 35 SPACES RESTAURANT = 150 SPACES GROCERY STORE = 221 SPACES **TOTAL = 50 + 35 + 150 + 221 = 456 SPACES**	**525 SPACES**

* PARKING REQUIREMENTS BASED ON BROWN ROAD INNOVATION ZONE REQUIREMENTS

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	PROPOSED BUILDING
	PROPOSED CONCRETE



ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design

Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201053102
JONATHAN REID COOKSEY, P.E.
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

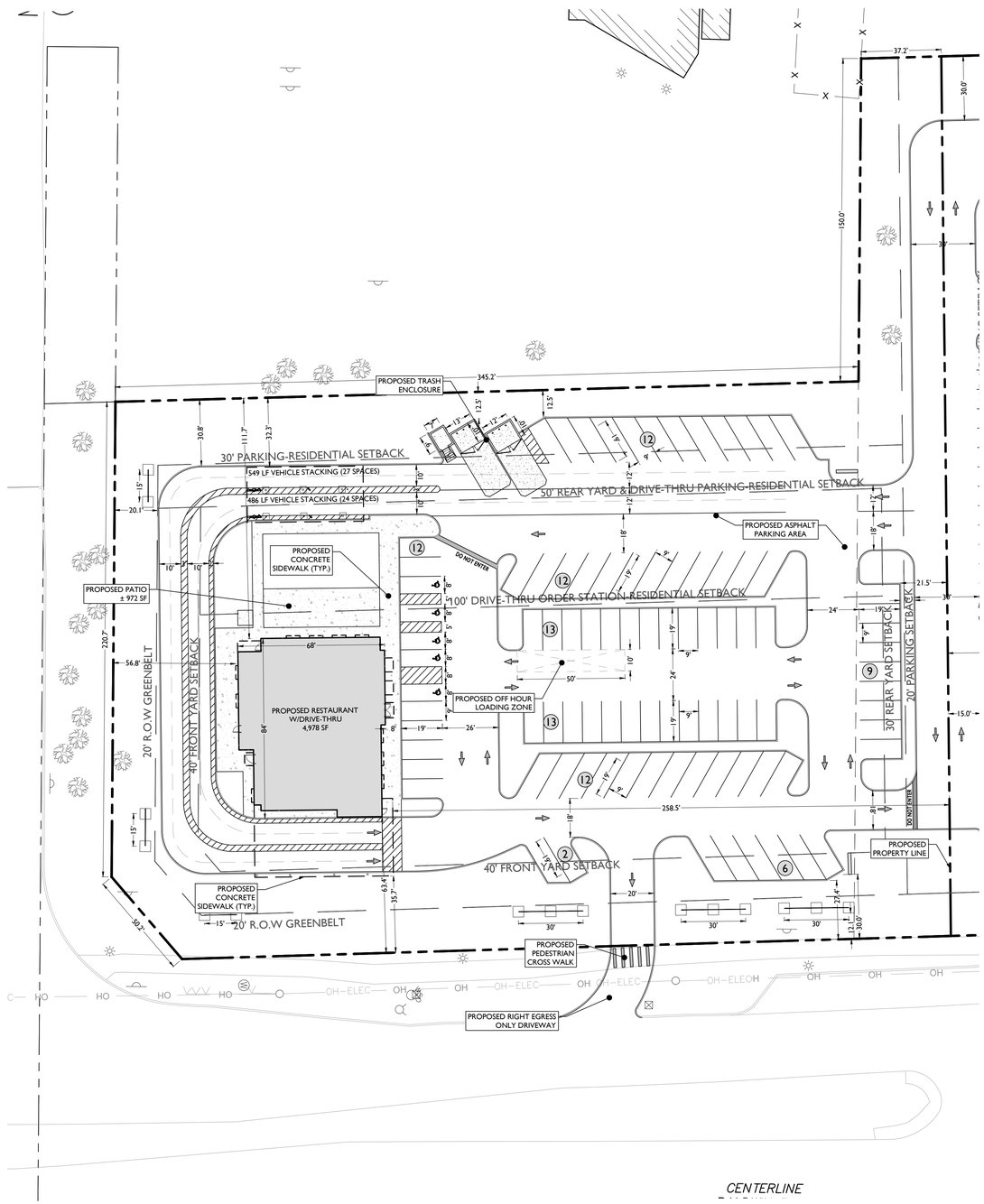
SCALE: 1" = 60' | PROJECT ID: DET-210395

TITLE:

SITE PLAN (OVERALL)

DRAWING:

C-2



LAND USE AND ZONING

PID: 09-32-301-014

BROWN ROAD INNOVATION ZONE

PROPOSED USE		
RESTAURANT (WITH DRIVE-THRU)	ANCILLARY - SPECIAL LAND USE	
OUTDOOR PATIO	ANCILLARY - PERMITTED USE	
OUTDOOR CAFE	ANCILLARY - SPECIAL LAND USE	
ZONING REQUIREMENT	**REQUIRED**	**PROPOSED**
MINIMUM OVERALL AREA	10 AC(1)	±11.87 AC
MINIMUM LOT AREA	20,000 SF	105,668 SF (2.43 AC)
MINIMUM LOT WIDTH	90 FT	221.00 FT
MAXIMUM SITE COVERAGE	40%	4.7% (4,978 SF)
MAXIMUM BUILDING HEIGHT	TBD	TBD
MINIMUM FRONT YARD SETBACK	40 FT	35.7 FT (W)
MINIMUM SIDE YARD SETBACK	20 FT	N/A
MINIMUM REAR YARD SETBACK	30 FT	258.5 FT
MINIMUM REAR YARD (RESIDENTIAL)	50 FT	111.7 FT
MINIMUM DRIVE-THRU ORDER STATION-RESIDENTIAL SETBACK	100 FT	32.3 FT (W)
MINIMUM DRIVE-THRU PARKING-RESIDENTIAL SETBACK	50 FT	12.5 FT (W)
MINIMUM PROPERTY LINE PARKING SETBACK(2) (NORTH)	20 FT	0.0 FT (W)
MINIMUM PROPERTY LINE PARKING SETBACK (RESIDENTIAL)(2)	30 FT	12.5 FT (W)
MINIMUM R.O.W. GREENBELT	20 FT	20.1 FT
MINIMUM OPEN SPACE	10% (10,567 SF)	36.9% (39,058 SF)

(W) WAIVER

(1) § 34.01.C. - ANCILLARY COMMERCIAL USES OR STAND-ALONE COMMERCIAL USES MAY BE PERMITTED WITHIN USE GROUP TYPES A, B AND C IF DEVELOPED IN CONJUNCTION WITH LARGER-SCALE PLANNED DEVELOPMENT PROJECTS HAVING MULTIPLE TENANTS WITH A TOTAL LAND AREA OF AT LEAST TEN (10) ACRES.

(2) § 34.03.E.3. - THE REQUIRED SETBACK FOR PARKING MAY BE REDUCED IN WIDTH OR WAIVED BY THE PLANNING COMMISSION, SUBJECT TO LANDSCAPING OR SCREENING REQUIREMENTS.

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 34.03.E	RESTAURANT 1 SPACE PER 100 SF GFA (4,978 SF)(1/100 SF) = 50 SPACES	**91 SPACES**
§ 27.04.A.3	90° PARKING: 9 FT X 19 FT W/ 22 FT AISLE	9 FT X 19 FT W/ 22 FT AISLES
	60° PARKING: 9 FT X 19 FT W/ 15 FT AISLE	9 FT X 19 FT W/ 18 FT AISLES
§ 27.04.B.2	OFF STREET LOADING: 1 SPACE, 10 FT X 50 FT	PROVIDED OFF HOURS
§ 27.05.6	INTERIOR LOT LANDSCAPING: 20 SF OF LANDSCAPING PER SPACE	PROVIDED

SIGNAGE REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
SIGN ORDINANCE § 153-20 (*)	**NUMBER OF SIGNS:** ONE PER ZONING LOT, ONE PER MULTI-TENANT SIGN, OR ONE SHOPPING CENTER SIGN	**1 SIGN**
	SIGN AREA: OVERALL HEIGHT 6 FT TO 8 FT 40 SF PER SIDE (MAX. 80 SF TOTAL)	**80 SF**
	SETBACK: 30 FT FROM RIGHT-OF-WAY	**30.0 FT**

(*) THE SIGN AREA MAY BE INCREASED BY ONE (1) SQUARE FOOT PER SIDE FOR EACH TWO (2) FEET BY WHICH THE SIGN IS SET BACK BEYOND THE MINIMUM REQUIRED SETBACK, PROVIDED THAT THE RESULTING SIGN AREA IS NOT MORE THAN THREE (3) TIMES THE SIGN AREA PERMITTED IN THE DISTRICT AND IS NOT GREATER THAN ONE HUNDRED AND FIFTY (150) SQUARE FEET.

ADDITIONAL GROUND SIGNS MAY BE PERMITTED FOR EACH ZONING LOT IF THE FOLLOWING CONDITIONS APPLY:
A. TWO (2) GROUND SIGNS MAY BE PERMITTED ON A CORNER LOT THAT HAS AT LEAST TWO HUNDRED (200) FEET OF FRONTAGE ON EACH OF TWO (2) THOROUGHFARES OR COLLECTOR STREETS, PROVIDED THAT ONLY ONE (1) SIGN IS ORIENTED TOWARD EACH THOROUGHFARE OR STREET

THE FOLLOWING ADDITIONAL GROUND SIGNS MAY BE PERMITTED:
A. DRIVE-IN OR DRIVE-THROUGH RESTAURANTS MAY BE PERMITTED TWO GROUND SIGNS IN ADDITION TO THE GROUND SIGNS PERMITTED, PROVIDED THAT THE SIGNS ARE LOCATED WITHIN TWENTY (20) FEET FROM THE FIRST DRIVE-THROUGH WINDOW

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED CONCRETE
	PROPOSED BUILDING DOORS

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI - New York, NY - Princeton, NJ
Tampa, FL - Boston, MA - Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
LICENSED PROFESSIONAL ENGINEER
JONATHAN R. COOKSEY, P.E.
NATIONAL ENGINEER

STONEFIELD engineering & design

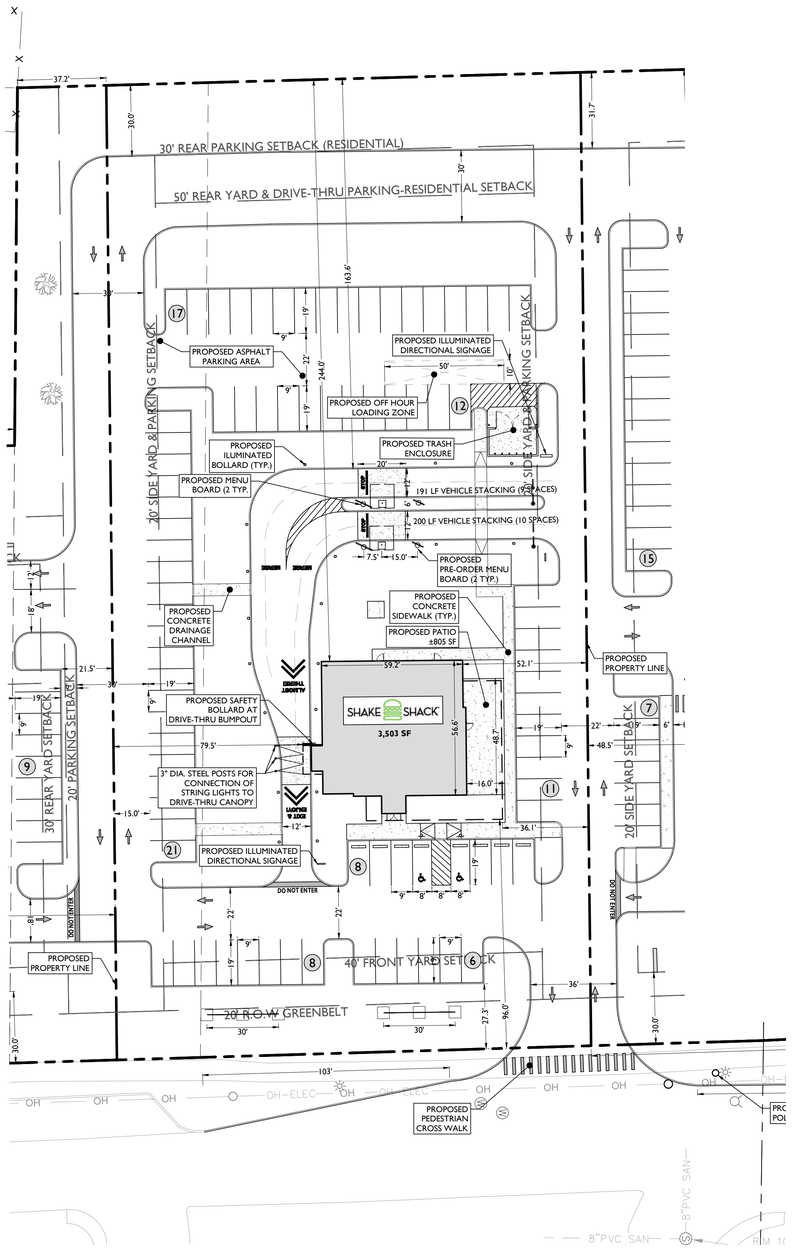
SCALE: 1" = 30' | PROJECT ID: DET-210395

TITLE:

SITE PLAN
(SOUTH RESTAURANT W/ DRIVE-THRU)

DRAWING:

C-3



LAND USE AND ZONING

PID: 09-32-301-014

BROWN ROAD INNOVATION ZONE

PROPOSED USE	
RESTAURANT (WITH DRIVE-THRU)	ANCILLARY - SPECIAL LAND USE
OUTDOOR PATIO	ANCILLARY - PERMITTED USE
OUTDOOR CAFE	ANCILLARY - SPECIAL LAND USE

ZONING REQUIREMENT	REQUIRED	PROPOSED
MINIMUM OVERALL AREA	10 AC(1)	±11.87 AC
MINIMUM LOT AREA	20,000 SF	81,208 SF (1.86 AC)
MINIMUM LOT WIDTH	90 FT	198.9 FT
MAXIMUM SITE COVERAGE	40%	4.3% (3,503 SF)
MAXIMUM BUILDING HEIGHT	TBD	TBD
MINIMUM FRONT YARD SETBACK	40 FT	96.0 FT
MINIMUM SIDE YARD SETBACK	20 FT	36.1 FT
MINIMUM REAR YARD SETBACK	30 FT	244.0 FT
MINIMUM REAR YARD (RESIDENTIAL)	50 FT	244.0 FT
MINIMUM DRIVE-THRU ORDER STATION-RESIDENTIAL SETBACK	100 FT	163.6 FT
MINIMUM DRIVE-THRU PARKING-RESIDENTIAL SETBACK	50 FT	30.0 FT (W)
MINIMUM PROPERTY LINE PARKING SETBACK(2) (NORTH)	20 FT	0.0 FT (W)
MINIMUM PROPERTY LINE PARKING SETBACK (RESIDENTIAL)(2)	30 FT	30.0 FT
MINIMUM R.O.W. GREENBELT	20 FT	27.3 FT
MINIMUM OPEN SPACE	10% (8,121 SF)	51.4 % (41,086 SF)

(W) WAIVER

(1) § 34.01.C. - ANCILLARY COMMERCIAL USES OR STAND-ALONE COMMERCIAL USES MAY BE PERMITTED WITHIN USE GROUP TYPES A, B AND C IF DEVELOPED IN CONJUNCTION WITH LARGER-SCALE PLANNED DEVELOPMENT PROJECTS HAVING MULTIPLE TENANTS WITH A TOTAL LAND AREA OF AT LEAST TEN (10) ACRES.

(2) § 34.03.E.3. - THE REQUIRED SETBACK FOR PARKING MAY BE REDUCED IN WIDTH OR WAIVED BY THE PLANNING COMMISSION, SUBJECT TO LANDSCAPING OR SCREENING REQUIREMENTS.

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 34.03.E	RESTAURANT 1 SPACE PER 100 SF GFA (3,503 SF)(1/100 SF) = 35 SPACES	**83 SPACES**
§ 27.04.A.3	90° PARKING: 9 FT X 19 FT W/ 22 FT AISLE	9 FT X 19 FT W/ 22 FT AISLES
§ 27.04.B.2	OFF STREET LOADING: 1 SPACE, 10 FT X 50 FT	PROVIDED OFF HOURS
§ 27.05.6	INTERIOR LOT LANDSCAPING: 20 SF OF LANDSCAPING PER SPACE	PROVIDED

SIGNAGE REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
SIGN ORDINANCE § 153-20 (*)	**NUMBER OF SIGNS:** ONE PER ZONING LOT, ONE PER MULTI-TENANT SIGN, OR ONE SHOPPING CENTER SIGN	**1 SIGN**
	SIGN AREA: OVERALL HEIGHT 6 FT TO 8 FT 40 SF PER SIDE (MAX. 80 SF TOTAL)	**80 SF**
	SETBACK: 30 FT FROM RIGHT-OF-WAY	**30.0 FT**

(*) THE SIGN AREA MAY BE INCREASED BY ONE (1) SQUARE FOOT PER SIDE FOR EACH TWO (2) FEET BY WHICH THE SIGN IS SET BACK BEYOND THE MINIMUM REQUIRED SETBACK, PROVIDED THAT THE RESULTING SIGN AREA IS NOT MORE THAN THREE (3) TIMES THE SIGN AREA PERMITTED IN THE DISTRICT AND IS NOT GREATER THAN ONE HUNDRED AND FIFTY (150) SQUARE FEET.

ADDITIONAL GROUND SIGNS MAY BE PERMITTED FOR EACH ZONING LOT IF THE FOLLOWING CONDITIONS APPLY:
A. TWO (2) GROUND SIGNS MAY BE PERMITTED ON A CORNER LOT THAT HAS AT LEAST TWO HUNDRED (200) FEET OF FRONTAGE ON EACH OF TWO (2) THOROUGHFARES OR COLLECTOR STREETS, PROVIDED THAT ONLY ONE (1) SIGN IS ORIENTED TOWARD EACH THOROUGHFARE OR STREET

THE FOLLOWING ADDITIONAL GROUND SIGNS MAY BE PERMITTED:
A. DRIVE-IN OR DRIVE-THROUGH RESTAURANTS MAY BE PERMITTED TWO GROUND SIGNS IN ADDITION TO THE GROUND SIGNS PERMITTED, PROVIDED THAT THE SIGNS ARE LOCATED WITHIN TWENTY (20) FEET FROM THE FIRST DRIVE-THROUGH WINDOW

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED CONCRETE
	PROPOSED BUILDING DOORS

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND ITS SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COONSEY
ENGINEER
No. 6201060270
JONATHAN REID COONSEY, P.E.
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210395

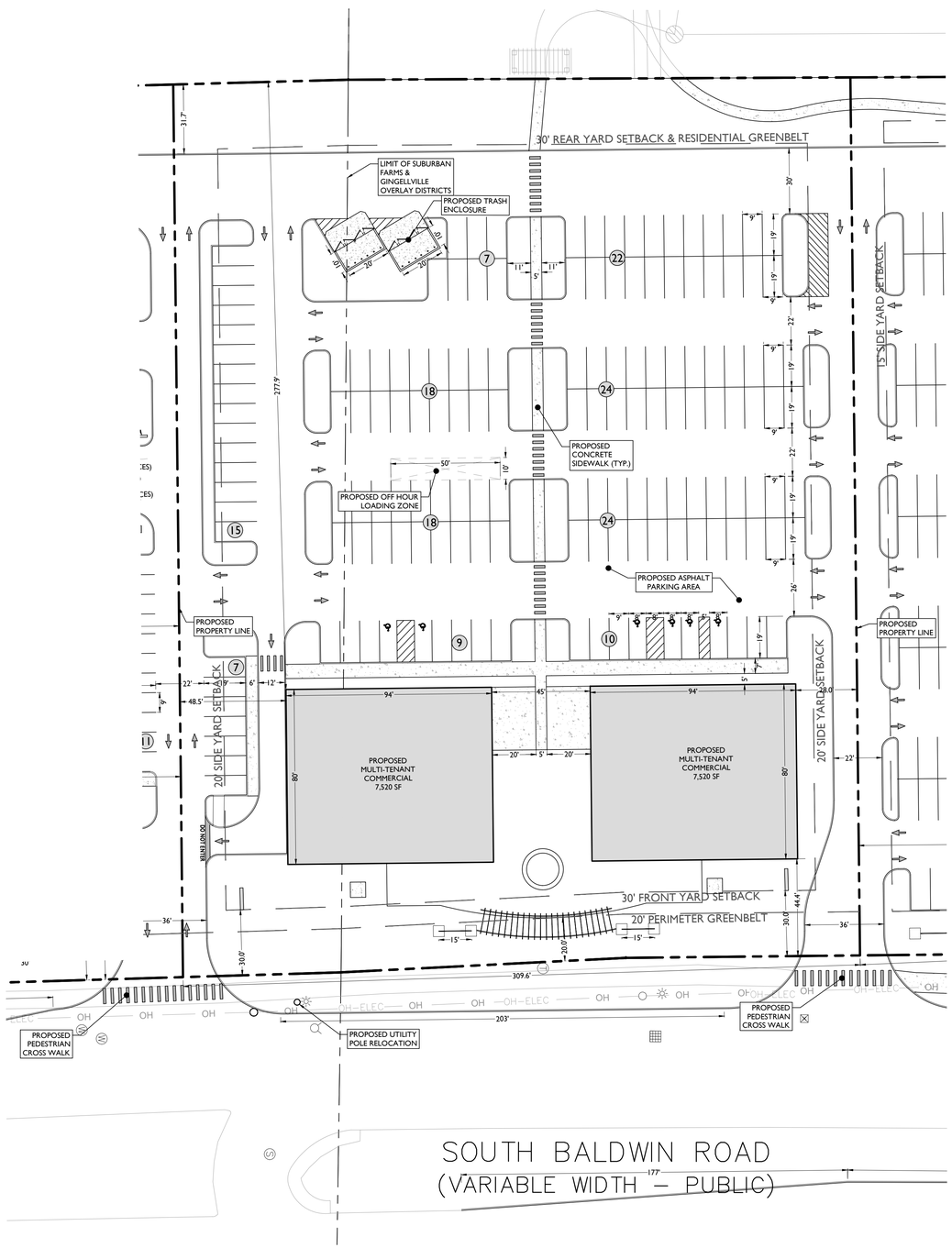
TITLE:

SITE PLAN (RESTAURANT W/ DRIVE THRU)

DRAWING:

C-4

PARCEL WITHIN BROWN ROAD INNOVATION ZONE & SUBURBAN FARMS / GINGELLVILLE OVERLAY DISTRICTS.



LAND USE AND ZONING

PID: 09-32-301-014

GINGELLVILLE OVERLAY DISTRICT & GENERAL BUSINESS ZONE (GB)

PROPOSED USE(1)	
RESTAURANT (NO DRIVE-THRU)	PERMITTED USE
RESTAURANT (W/ DRIVE-THRU)	SPECIAL LAND USE
OUTDOOR PATIO	PERMITTED USE
OUTDOOR CAFE	SPECIAL LAND USE
GROCERY STORE	PERMITTED USE
MEDICAL OFFICE	PERMITTED USE
RETAIL STORE	PERMITTED USE

ZONING REQUIREMENT	REQUIRED (GB)	PROPOSED
MINIMUM LOT AREA	12,000 SF (0.28 AC)	125,245 SF (2.86 AC)
MINIMUM LOT WIDTH	165 FT	309.6 FT
MAXIMUM TENANT FLOOR AREA	13,000 SF	PROVIDED
MAXIMUM STRUCTURE LOT COVERAGE	30% (37,574 SF)	12.0% (15,040 SF)
MAXIMUM BUILDING HEIGHT	25 FT	< 25 FT
MINIMUM FRONT YARD SETBACK	30 FT	44.4 FT
MINIMUM SIDE YARD SETBACK	20 FT	28.0 FT
MINIMUM REAR YARD SETBACK	30 FT	277.9 FT
DRIVE-THRU SPEAKER SETBACK FROM RESIDENTIAL ZONE	100 FT	277.9 FT
DRIVE-THRU PARKING SETBACK	50 FT	31.7 FT (W)
PERIMETER GREENBELT	20 FT	20.0 FT
RESIDENTIAL PERIMETER GREENBELT	30 FT	31.7 FT
MINIMUM CLEAR SPACE AROUND STRUCTURES	20 FT	0 FT (W)
MINIMUM OPEN SPACE	10% (12,525 SF)	21.2% (26,611 SF)

(W) WAIVER

(1) PARKING HAS BEEN BASED ON ALL RESTAURANT USE FOR CONSERVATIVE BREAKDOWN.

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 14.03	**RESTAURANT:**(1) 1 SPACE PER 100 SF GFA (15,040 SF)(1/100 SF) = 150 SPACES	**154 SPACES**
§ 27.04.A.3	90° PARKING: 9 FT X 19 FT W/ 22 FT AISLE	9 FT X 19 FT W/ 22-30 FT AISLES
§ 27.04.B.2	OFF STREET LOADING: 1 SPACE, 10 FT X 50 FT	PROVIDED OFF HOURS
§ 27.05.6	INTERIOR LOT LANDSCAPING: 20 SF OF LANDSCAPING PER SPACE	PROVIDED

(1) PARKING HAS BEEN BASED ON ALL RESTAURANT USE FOR CONSERVATIVE BREAKDOWN.

SIGNAGE REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
SIGN ORDINANCE § 153-20 (*)	**NUMBER OF SIGNS:** ONE PER ZONING LOT, ONE PER MULTI-TENANT SIGN, OR ONE SHOPPING CENTER SIGN	**1 SIGN**
	SIGN AREA: OVERALL HEIGHT 6 FT TO 8 FT 40 SF PER SIDE (MAX. 80 SF TOTAL)	**80 SF**
	SETBACK: 30 FT FROM RIGHT-OF-WAY	**30.0 FT**

(*) THE SIGN AREA MAY BE INCREASED BY ONE (1) SQUARE FOOT PER SIDE FOR EACH TWO (2) FEET BY WHICH THE SIGN IS SET BACK BEYOND THE MINIMUM REQUIRED SETBACK, PROVIDED THAT THE RESULTING SIGN AREA IS NOT MORE THAN THREE (3) TIMES THE SIGN AREA PERMITTED IN THE DISTRICT AND IS NOT GREATER THAN ONE HUNDRED AND FIFTY (150) SQUARE FEET.

ADDITIONAL GROUND SIGNS MAY BE PERMITTED FOR EACH ZONING LOT IF THE FOLLOWING CONDITIONS APPLY:
A. TWO (2) GROUND SIGNS MAY BE PERMITTED ON A CORNER LOT THAT HAS AT LEAST TWO HUNDRED (200) FEET OF FRONTAGE ON EACH OF TWO (2) THOROUGHFARES OR COLLECTOR STREETS, PROVIDED THAT ONLY ONE (1) SIGN IS ORIENTED TOWARD EACH THOROUGHFARE OR STREET

THE FOLLOWING ADDITIONAL GROUND SIGNS MAY BE PERMITTED:
A. DRIVE-IN OR DRIVE-THROUGH RESTAURANTS MAY BE PERMITTED TWO GROUND SIGNS IN ADDITION TO THE GROUND SIGNS PERMITTED, PROVIDED THAT THE SIGNS ARE LOCATED WITHIN TWENTY (20) FEET FROM THE FIRST DRIVE-THROUGH WINDOW

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	PROPOSED CURB
	PROPOSED FLUSH CURB
	PROPOSED SIGNS / BOLLARDS
	PROPOSED BUILDING
	PROPOSED CONCRETE
	PROPOSED BUILDING DOORS

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND ITS SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

30' 0' 30' 60'

GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design

Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REED COONSEY
ENGINEER
No. 6201060150
JONATHAN REED COONSEY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210395

TITLE:

SITE PLAN (COMMERCIAL BUILDINGS)

DRAWING:

C-5

V:\DET\2021\DET-210395-ALMC-M1\SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CADD\PLOT\DP-02-03-04-05-06-SITE.DWG

LAND USE AND ZONING

PID: 09-32-301-014		
GINGELLVILLE OVERLAY DISTRICT & RESTRICTED BUSINESS ZONE (RB)		
PROPOSED USE GROCERY STORE	PERMITTED USE	
ZONING REQUIREMENT	REQUIRED (RB)	PROPOSED
MINIMUM LOT AREA	9,000 SF (0.21 AC)	204,915 SF (4.70 AC)
MINIMUM LOT WIDTH	N/A	529.1 FT
MAXIMUM TENANT FLOOR AREA	13,000 SF	44,234 SF (W)
MAXIMUM STRUCTURE LOT COVERAGE	30% (61,475 SF)	21.6% (44,234 SF)
MAXIMUM BUILDING HEIGHT	25 FT	< 25 FT
MINIMUM FRONT YARD SETBACK	20 FT	42.7 FT
MINIMUM SIDE YARD SETBACK	15 FT	12.2 FT (W)
MINIMUM REAR YARD SETBACK	20 FT	154.0 FT
MINIMUM RESIDENTIAL GREENBELT	30 FT	30.0 FT
MINIMUM FRONT / REAR GREENBELT	20 FT	20.0 FT
MINIMUM SIDE YARD GREENBELT	15 FT	12.2 FT (W)
MINIMUM CLEAR SPACE AROUND STRUCTURES	15 FT	5 FT (W)
MINIMUM OPEN SPACE	10% (12,525 SF)	21.2% (39,905 SF)

(W) WAIVER

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 34.03.E	**GROCERY STORE:** 1 SPACE PER 200 SF GFA (44,234 SF)(1/200 SF) = 221 SPACES	**197 SPACES (W)**
§ 27.04.A.3	90° PARKING: 9 FT X 19 FT W/ 22 FT AISLE	9 FT X 19 FT W/ 22-30 FT AISLES
§ 27.04.B.2	OFF STREET LOADING: 1 SPACE, 10 FT X 50 FT	PROVIDED
§ 27.05.6	INTERIOR LOT LANDSCAPING: 20 SF OF LANDSCAPING PER SPACE	PROVIDED

(W) WAIVER

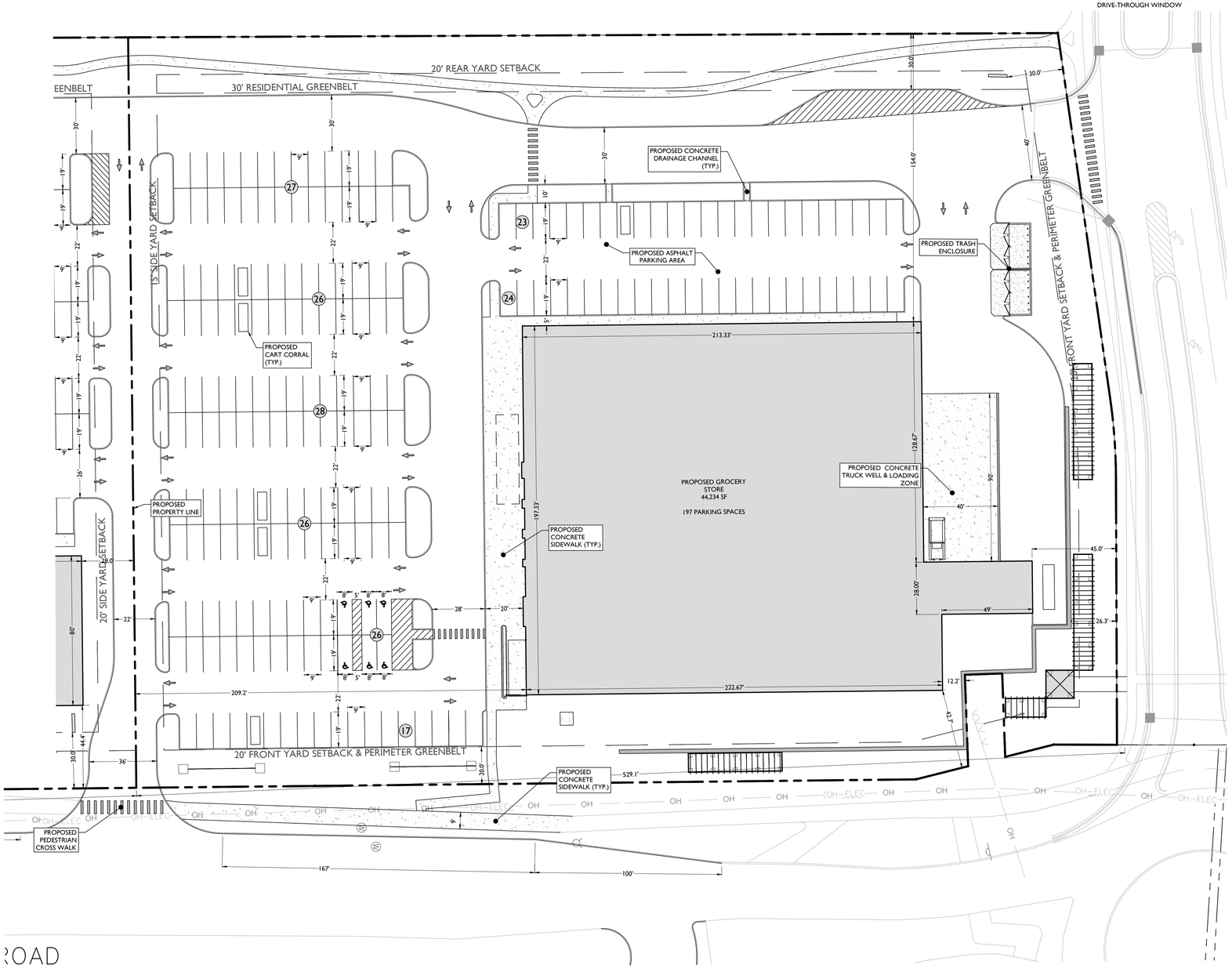
SIGNAGE REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
SIGN ORDINANCE § 153-20 (*)	**NUMBER OF SIGNS:** ONE PER ZONING LOT, ONE PER MULTI-TENANT SIGN, OR ONE SHOPPING CENTER SIGN	**1 SIGN**
	SIGN AREA: OVERALL HEIGHT 6 FT TO 8 FT 40 SF PER SIDE (MAX. 80 SF TOTAL)	**80 SF**
	SETBACK: 30 FT FROM RIGHT-OF-WAY	**30.0 FT**

(*) THE SIGN AREA MAY BE INCREASED BY ONE (1) SQUARE FOOT PER SIDE FOR EACH TWO (2) FEET BY WHICH THE SIGN IS SET BACK BEYOND THE MINIMUM REQUIRED SETBACK, PROVIDED THAT THE RESULTING SIGN AREA IS NOT MORE THAN THREE (3) TIMES THE SIGN AREA PERMITTED IN THE DISTRICT AND IS NOT GREATER THAN ONE HUNDRED AND FIFTY (150) SQUARE FEET.

ADDITIONAL GROUND SIGNS MAY BE PERMITTED FOR EACH ZONING LOT IF THE FOLLOWING CONDITIONS APPLY:
A. TWO (2) GROUND SIGNS MAY BE PERMITTED ON A CORNER LOT THAT HAS AT LEAST TWO HUNDRED (200) FEET OF FRONTAGE ON EACH OF TWO (2) THOROUGHFARES OR COLLECTOR STREETS, PROVIDED THAT ONLY ONE (1) SIGN IS ORIENTED TOWARD EACH THOROUGHFARE OR STREET

THE FOLLOWING ADDITIONAL GROUND SIGNS MAY BE PERMITTED:
A. DRIVE-IN OR DRIVE-THROUGH RESTAURANTS MAY BE PERMITTED TWO GROUND SIGNS IN ADDITION TO THE GROUND SIGNS PERMITTED, PROVIDED THAT THE SIGNS ARE LOCATED WITHIN TWENTY (20) FEET FROM THE FIRST DRIVE-THROUGH WINDOW



SYMBOL / DESCRIPTION

- PROPERTY LINE
- SETBACK LINE
- PROPOSED CURB
- PROPOSED FLUSH CURB
- PROPOSED SIGNS / BOLLARDS
- PROPOSED BUILDING
- PROPOSED CONCRETE
- PROPOSED RETAINING WALL
- PROPOSED BUILDING DOORS

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 47000
LICENSED PROFESSIONAL ENGINEER
JONATHAN REID COOKSEY, P.E.
NOT FOR CONSTRUCTION

STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210395

TITLE: SITE PLAN (NEIGHBORHOOD GROCERY STORE)

DRAWING: C-6

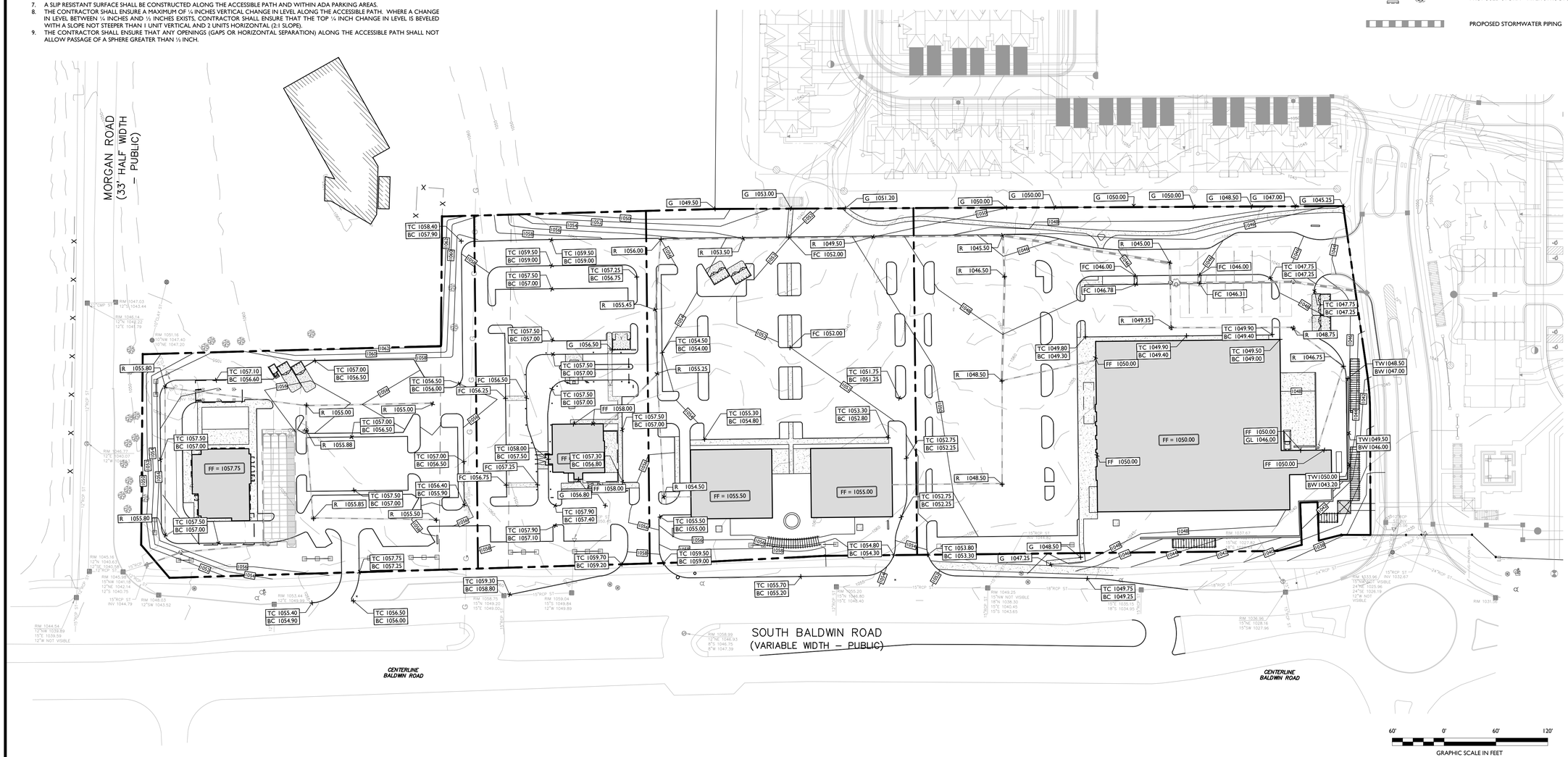
V:\DET\DET\DET-210395-ALREC-1F SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP MI\CADD\PLOTTER\PD-01\04-06-06-SITE.DWG

GRADING NOTES

1. ALL SOIL AND MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. ANY GROUNDWATER DE-WATERING PRACTICES SHALL BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FOR THE DISCHARGE OF DE-WATERED GROUNDWATER. ALL SOIL IMPORTED TO THE SITE SHALL BE CERTIFIED CLEAN FILL. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL FILL MATERIALS BROUGHT TO THE SITE.
2. THE CONTRACTOR IS REQUIRED TO PROVIDE TEMPORARY AND/OR PERMANENT SHORING WHERE REQUIRED DURING EXCAVATION ACTIVITIES, INCLUDING BUT NOT LIMITED TO UTILITY TRENCHES, TO ENSURE THE STRUCTURAL INTEGRITY OF NEARBY STRUCTURES AND STABILITY OF THE SURROUNDING SOILS.
3. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 4 INCHES TO 7 INCHES ABOVE EXISTING GRADES UNLESS OTHERWISE NOTED. THE CONTRACTOR WILL SUPPLY ALL STAKEOUT CURB GRADE SHEETS TO STONEFIELD ENGINEERING & DESIGN, LLC. FOR REVIEW AND APPROVAL PRIOR TO POURING CURBS.
4. THE CONTRACTOR IS RESPONSIBLE TO SET ALL PROPOSED UTILITY COVERS AND RESET ALL EXISTING UTILITY COVERS WITHIN THE PROJECT LIMITS TO PROPOSED GRADE IN ACCORDANCE WITH ANY APPLICABLE MUNICIPAL, COUNTY, STATE AND/OR UTILITY AUTHORITY REGULATIONS.
5. MINIMUM SLOPE REQUIREMENTS TO PREVENT PONDING SHALL BE AS FOLLOWS:
   - CURB GUTTER: 0.50%
   - CONCRETE SURFACES: 1.00%
   - ASPHALT SURFACES: 1.00%
6. A MINIMUM SLOPE OF 1.00% SHALL BE PROVIDED AWAY FROM ALL BUILDINGS. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FROM THE BUILDING IS ACHIEVED AND SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IF THIS CONDITION CANNOT BE MET.
7. FOR PROJECTS WHERE BASEMENTS ARE PROPOSED, THE DEVELOPER IS RESPONSIBLE TO DETERMINE THE DEPTH TO GROUNDWATER AT THE LOCATION OF THE PROPOSED STRUCTURE. IF GROUNDWATER IS ENCOUNTERED WITHIN THE BASEMENT AREA, SPECIAL CONSTRUCTION METHODS SHALL BE UTILIZED AND REVIEWED/APPROVED BY THE CONSTRUCTION CODE OFFICIAL. IF SUMP PUMPS ARE UTILIZED, ALL DISCHARGES SHALL BE CONNECTED DIRECTLY TO THE PUBLIC STORM SEWER SYSTEM WITH APPROVAL FROM THE GOVERNING STORM SEWER SYSTEM AUTHORITY.

ADA NOTES

1. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION WITHIN THE ADA PARKING SPACES AND ACCESS AISLES.
2. THE CONTRACTOR SHALL PROVIDE COMPLIANT SIGNAGE AT ALL ADA PARKING AREAS IN ACCORDANCE WITH STATE GUIDELINES.
3. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 5.00% RUNNING SLOPE AND A MAXIMUM OF 2.00% CROSS SLOPE ALONG WALKWAYS WITHIN THE ACCESSIBLE PATH OF TRAVEL (SEE THE SITE PLAN FOR THE LOCATION OF THE ACCESSIBLE PATH). THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE ACCESSIBLE PATH OF TRAVEL IS 36 INCHES WIDE OR GREATER UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
4. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION AT ALL LANDINGS. LANDINGS INCLUDE, BUT ARE NOT LIMITED TO, THE TOP AND BOTTOM OF AN ACCESSIBLE RAMP, AT ACCESSIBLE BUILDING ENTRANCES, AT AN AREA IN FRONT OF A WALK-UP ATM, AND AT TURNING SPACES ALONG THE ACCESSIBLE PATH OF TRAVEL. THE LANDING AREA SHALL HAVE A MINIMUM CLEAR AREA OF 60 INCHES BY 60 INCHES UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 8.33% RUNNING SLOPE AND A MAXIMUM 2.00% CROSS SLOPE ON ANY CURB RAMPS ALONG THE ACCESSIBLE PATH OF TRAVEL. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 10.00% IF A LANDING AREA IS PROVIDED AT THE TOP OF THE RAMP. FOR ALTERATIONS, A CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 8.33% IF A LANDING AREA IS NOT PROVIDED AT THE TOP OF THE RAMP. CURBS RAMPS SHALL NOT RISE MORE THAN 6 INCHES IN ELEVATION WITHOUT A HANDRAIL. THE CLEAR WIDTH OF A CURB RAMP SHALL BE NO LESS THAN 36 INCHES WIDE.
6. ACCESSIBLE RAMPS WITH A RISE GREATER THAN 6 INCHES SHALL CONTAIN COMPLIANT HANDRAILS ON BOTH SIDES OF THE RAMP AND SHALL NOT RISE MORE THAN 30" IN ELEVATION WITHOUT A LANDING AREA IN BETWEEN RAMP RUNS. LANDING AREAS SHALL ALSO BE PROVIDED AT THE TOP AND BOTTOM OF THE RAMP.
7. A SLIP RESISTANT SURFACE SHALL BE CONSTRUCTED ALONG THE ACCESSIBLE PATH AND WITHIN ADA PARKING AREAS.
8. THE CONTRACTOR SHALL ENSURE A MAXIMUM OF ¼ INCHES VERTICAL CHANGE IN LEVEL ALONG THE ACCESSIBLE PATH. WHERE A CHANGE IN LEVEL BETWEEN ¼ INCHES AND ½ INCHES EXISTS, CONTRACTOR SHALL ENSURE THAT THE TOP ¼ INCH CHANGE IN LEVEL IS BEVELED WITH A SLOPE NOT STEEPER THAN 1 UNIT VERTICAL AND 2 UNITS HORIZONTAL (2:1 SLOPE).
9. THE CONTRACTOR SHALL ENSURE THAT ANY OPENINGS (GAPS OR HORIZONTAL SEPARATION) ALONG THE ACCESSIBLE PATH SHALL NOT ALLOW PASSAGE OF A SPHERE GREATER THAN ½ INCH.



SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
G 100.00	PROPOSED GRADE SPOT SHOT
TC 100.50 / BC 100.00	PROPOSED TOP OF CURB / BOTTOM OF CURB SPOT SHOT
FC 100.00	PROPOSED FLUSH CURB SPOT SHOT
TW 102.00 / BW 100.00	PROPOSED TOP OF WALL / BOTTOM OF WALL SPOT SHOT
	PROPOSED STORMWATER STRUCTURES
	PROPOSED STORMWATER PIPING

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOMBSEY
ENGINEER
No. 6201058
JONATHAN R. COOMBSEY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 60' | PROJECT ID: DET-210395

TITLE: GRADING PLAN

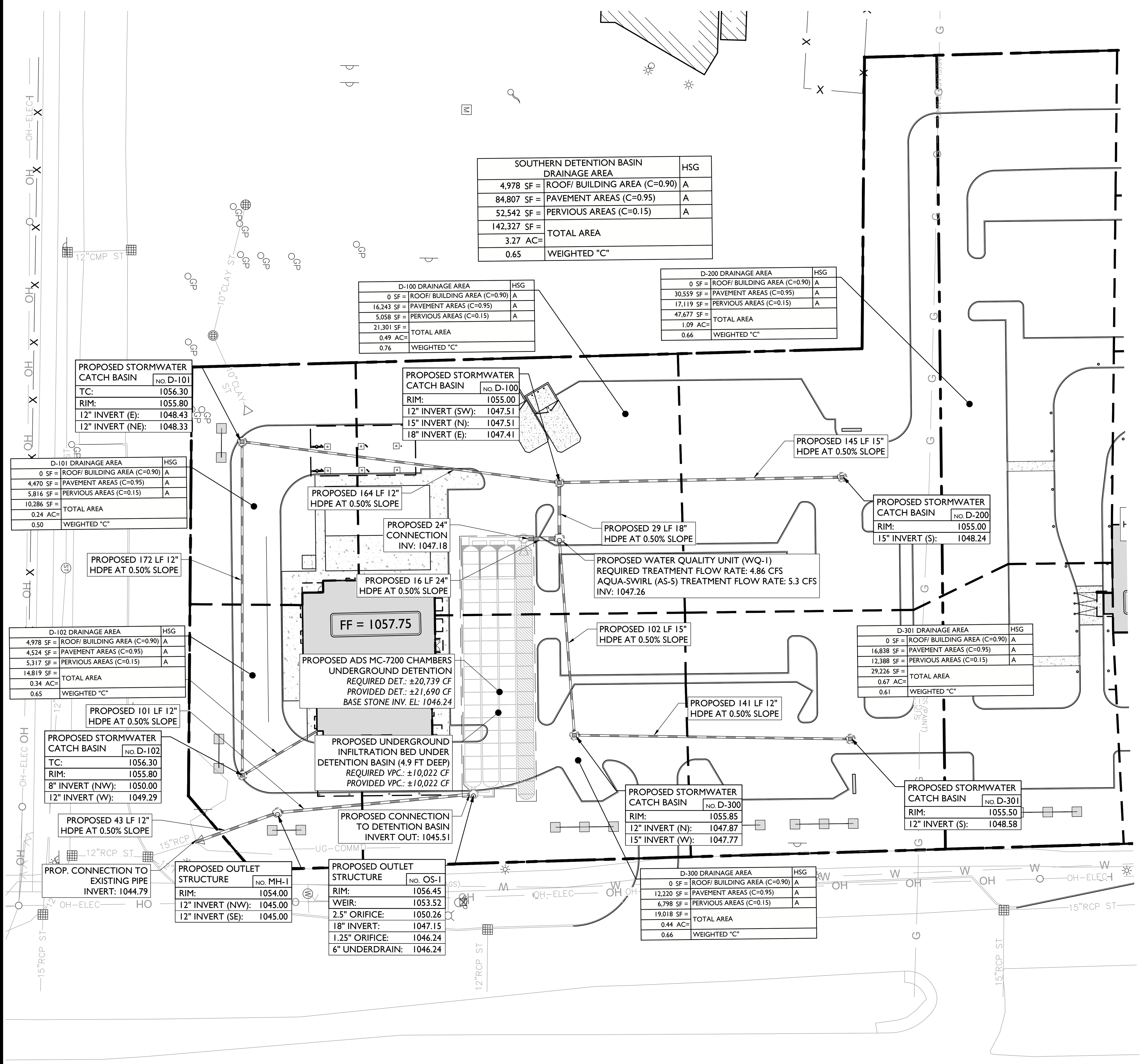
DRAWING: C-7

V:\DET\2021\DET-210395-AUSG-19\SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CADD\FOTDP\FOTDP-AUTOCAD.DWG

10-YR STORMWATER SYSTEM DESIGN (SOUTH COMMERCIAL)

Rainfall Intensity = I = 175/(T+25)

Line #	Line ID	Rim Elevation Downstream (FT)	Rim Elevation Upstream (FT)	Invert Downstream (FT)	Invert Upstream (FT)	Pipe Size (IN)	Pipe Length (FT)	Pipe Slope (%)	Q Required (CFS)	Pipe Capacity (CFS)	Velocity Downstream (FPS)	HGL Downstream (FT)	HGL Upstream (FT)	Drainage Area (AC)	Runoff Coefficient	Time of Concentration (MIN)	Rainfall Intensity (IN/HR)	Rim to HGL (FT)
1	UG BASIN TO WQ-1	1056.25	1055.88	1047.18	1047.26	24	16	0.50	8.48	15.99	2.71	1049.18	1049.20	0.00	0.00	19.00	3.98	6.56
2	WQ-1 TO D-100	1055.88	1055.00	1047.26	1047.41	18	29	0.50	5.72	7.55	3.24	1049.32	1049.40	0.49	0.76	18.80	3.99	5.35
3	D-100 TO D-101	1055.00	1055.80	1047.51	1048.33	12	164	0.50	1.41	2.52	1.8	1049.76	1050.02	0.24	0.50	17.30	4.14	5.71
4	D-101 TO D-102	1055.80	1055.80	1048.43	1049.29	12	172	0.50	0.97	2.52	1.24	1050.12	1050.24	0.34	0.65	15.00	4.38	5.54
5	D-100 TO D-200	1055.00	1055.00	1047.41	1048.05	15	145	0.50	3.15	4.29	2.56	1049.71	1050.05	1.09	0.66	15.00	4.38	4.85
6	WQ-1 TO D-300	1055.88	1055.85	1047.26	1047.71	15	102	0.50	2.98	4.29	2.43	1049.34	1049.56	0.44	0.66	16.00	4.26	6.16
7	D-300 TO D-301	1055.85	1055.50	1047.71	1048.32	12	141	0.50	1.79	2.34	2.28	1049.71	1050.06	0.67	0.61	15.00	4.38	5.36



STORMWATER MANAGEMENT CALCULATIONS

(Based on Township of Orion Engineering Standards (November 2021 Ordinance)

Project:	Baldwin Village - South	Designer:	MG	Date:	12/06/22

COMPOSITE C VALUE

Landcover		Area (AC)	Area (SF)		C-Value*		Weighted Value
Roofs / Building		0.11	4,978	x	0.90	=	4,480
Pavement		1.95	84,805	x	0.95	=	80,565
Landscaped Areas	HSG A	1.21	52,542	x	0.15	=	7,881
Subtotals		3.27	142,325				92,926

*C-values obtained from Orion Township Engineering Standards Article VII.B.iv.d

Composite C Value, C: **0.65**

INTENSITY

$I_{100} = 30.2*P^{0.22} / (9.17+T_C)^{0.81}$ — I_P: **6.30** IN/HR

P - DESIGN STORM RETURN PERIOD — P: **100** YEARS

T_C ASSUMED TO BE 15 MINUTES — T_C: **15.0** MINS

CHANNEL PROTECTION VOLUME CONTROL (CPVC) VOLUME

$V_{CP-R} = A * C * 4,719$ — Required Channel Protection Volume, V_{CP-R}: **10,022** CF

V_{CP-P} — Provided Channel Protection Volume, V_{CP-P}: **10,022** CF

WATER QUALITY CONTROL (1-YR Peak Flow)

$I_{1-YR} = 30.2 / (9.17+T_c)^{0.81}$ — I_P: **2.29** IN/HR

Option 1: Manufactured Treatement System

$Q_{WQ} = C * I_{1-YR} * A$ — Water Quality Peak Flow, Q_{WQ}: **4.86** CFS

Option 2: Forebay

$V_F = 545 * C * A$ — Water Quality Volume, V_F: **1,157** CF

CHANNEL PROTECTION RATE CONTROL (CPRC) VOLUME: EXTENDED DETENTION VOLUME (V_{ED})

$V_{ED} = A * C * 6,897$ — V_{ED}: **14,648** CF

100-YEAR DETENTION & FLOOD CONTROL VOLUME

$Q_{VRR} = 1.1055 - 0.206*ln(A)$ — *100-YR Allowable Release Rate, Q_{VRR}: **0.10** CFS / AC

*Allowable peak discharge rate for Brown Drain per Appendix D in Orion Township Engineering Standards

$Q_{100p} = Q_{VVR} * A$ — 100-YR Allowable Peak Flow Discharge Rate, Q_{100p}: **0.33** CFS

$V_{100R} = 18,985 * C * A$ — 100-YR Runoff Volume, V_{100r}: **40,320** CF

$Q_{100in} = C * I_{100} * A$ — 100-YR Peak Inflow Rate, Q_{100-in}: **13.39** CFS

$R = 0.206 - 0.15*ln(Q_{100P} / Q_{100in})$ — Storage Curve Factor, R: **0.76**

$V_{100D} = (V_{100R} * R) - V_{CP-P}$ — 100-YR Required Detention Volume, V_{100d}: **20,739** CF

BASIN VOLUME SUMMARY PROVIDED

	Elevation	Volumes (CF)
Bottom of Stone	1046.24	0.00
Top of Stone	1046.99	1,891.19
	1047.24	2,605.20
	1048.24	6,821.00
	1049.24	10,855.17
	1050.24	14,593.62
	1051.24	17,846.88
Top of Chamber	1051.99	19,646.35
	1052.24	20,157.31
Top of Stone	1052.99	21,690.19

Extended Detention Volume Elevation, Z_{ED}: **1,050.26** EL.

100-YR Volume Elevation, Z_{100}: **1,052.52** EL

INFILTRATION BMP DEWATER TIME (72 HOURS)

$T = (V_{CP-P} / A_{CP-P}) / (Infiltration Rate / 12 in.)$ — Channel Protection Volume, V_{CP-P}: 10,022 CF

Infiltration Bed Depth, D_{CP-P}: 4.9 FT — Infiltration Bed Area, A_{CP-P}: 5,110 SF

Infiltration Rate: 8.00 IN / HR

Dewater Time, T: **2.94** HR

CHANNEL PROTECTION RATE CONTROL (CPRC) ORIFICE: EXTENDED DETENTION (DEWATER IN 48-HRS)

Head = Extended Detention Volume Elevation - Outlet Elevation — Head, h_{ED}: **4.02** FT

$h_{ED} = Z_{ED} - Z_{out}$

Number of Holes — Number of Holes, N: 1

Diameter of Orifice — Diameter of Holes, D_a: **1.25** IN

Orifice Area — Orifice Area, A_o: 0.01 SF

Extended Detention Actual Release Rate $= 0.62*Ao*((2*g*h_{ED})^{0.5})$ — Q_{act-ED}: 0.08 CFS

Actual Release Time (Extended Detention) — T_{ED}: 47.90 HR

DETENTION & FLOOD CONTROL ORIFICE

$h_{100} = h_{max} - h_{ED}$ — 100-YR Head, h_{100}: **2.27** FT

Orifice Area, a_{ED}: **0.01** SF

$Q_{ED} = a_{ED} * 0.62 (2 * g * h_{100})^{(0.5)}$ — Flow Through Ext. Det. Orf, Q_{ED}: **0.06** CFS

$Q_{res} = Q_O - Q_{ED}$ — Remn. Flow for 100-YR Orf, Q_{res}: **0.26** CFS

$A = Q_{res} / (0.62 * (2 * g * h)^{(0.5)})$ — Flood Control Orifice Area, A: **0.035** SF

$d = 12 (4 * A / PI)^{(0.5)}$ — Flood Control Orifice Diam., d: **2.5** IN

SYMBOL	DESCRIPTION
(long dashed line)	PROPERTY LINE
(line labelled 100)	PROPOSED GRADING CONTOUR
(dashed line)	PROPOSED DRAINAGE AREA / RIDGELINE
(structure symbols)	PROPOSED STORMWATER STRUCTURES
(hatched line)	PROPOSED STORMWATER PIPING

40' 0' 40' 80'
GRAPHIC SCALE IN FEET
1" = 40'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN RED COOKSEY ENGINEER
JONATHAN RED COOKSEY, P.E.
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' PROJECT ID: DET-210395

TITLE: STORMWATER MANAGEMENT PLAN (SOUTH)

DRAWING: C-8

STORMWATER MANAGEMENT CALCULATIONS

(Based on Township of Orion Engineering Standards (November 2021 Ordinance)

Project:	Baldwin Village - North	Designer:	MG	Date:	12/06/22

COMPOSITE C VALUE

Landcover		Area (AC)	Area (SF)		C-Value*		Weighted Value
Roofs / Building		1.44	62,777	x	0.90	=	56,499
Pavement		5.00	217,816	x	0.95	=	206,925
Landscaped Areas	HSG A	2.16	94,118	x	0.15	=	14,118
Subtotals		8.60	374,711				277,542

*C-values obtained from Orion Township Engineering Standards Article VII B.w.d

Composite C Value, C: 0.74

CHANNEL PROTECTION VOLUME CONTROL (CPVC) VOLUME

$V_{CP,R} = A * C * 4{,}719$ — Required Channel Protection Volume, $V_{CP,R}$: 30,039 CF

$V_{CP,P}$ — Provided Channel Protection Volume, $V_{CP,P}$: 30,490 CF

WATER QUALITY CONTROL (1-YR Peak Flow)

T_C *ASSUMED TO BE 15 MINUTES* — T_C: 15.0 MINS

$I_{1\text{-}YR} = 30.2 / (9.17+T_c)^{0.81}$ — $I_{1\text{-}YR}$: 2.29 IN/HR

Option 1: Manufactured Treatement System

$Q_{WQ} = C * I_{1\text{-}YR} * A$ — Water Quality Peak Flow, Q_{WQ}: 14.57 CFS

Option 2: Forebay

$V_F = 545 * C * A$ — Water Quality Volume, V_F: 3,469 CF

INFILTRATION BMP DEWATER TIME (72 HOURS)

$T = (V_{CP,P} / A_{CP,P}) / (\text{Infiltration Rate} / 12 \text{ in.})$ — Channel Protection Volume, $V_{CP,P}$: 30,490 CF

Infiltration Bed Depth, $D_{CP,P}$: 7.3 FT — Infiltration Bed Area, $A_{CP,P}$: 10,443 SF

Infiltration Rate: 8.00 IN / HR

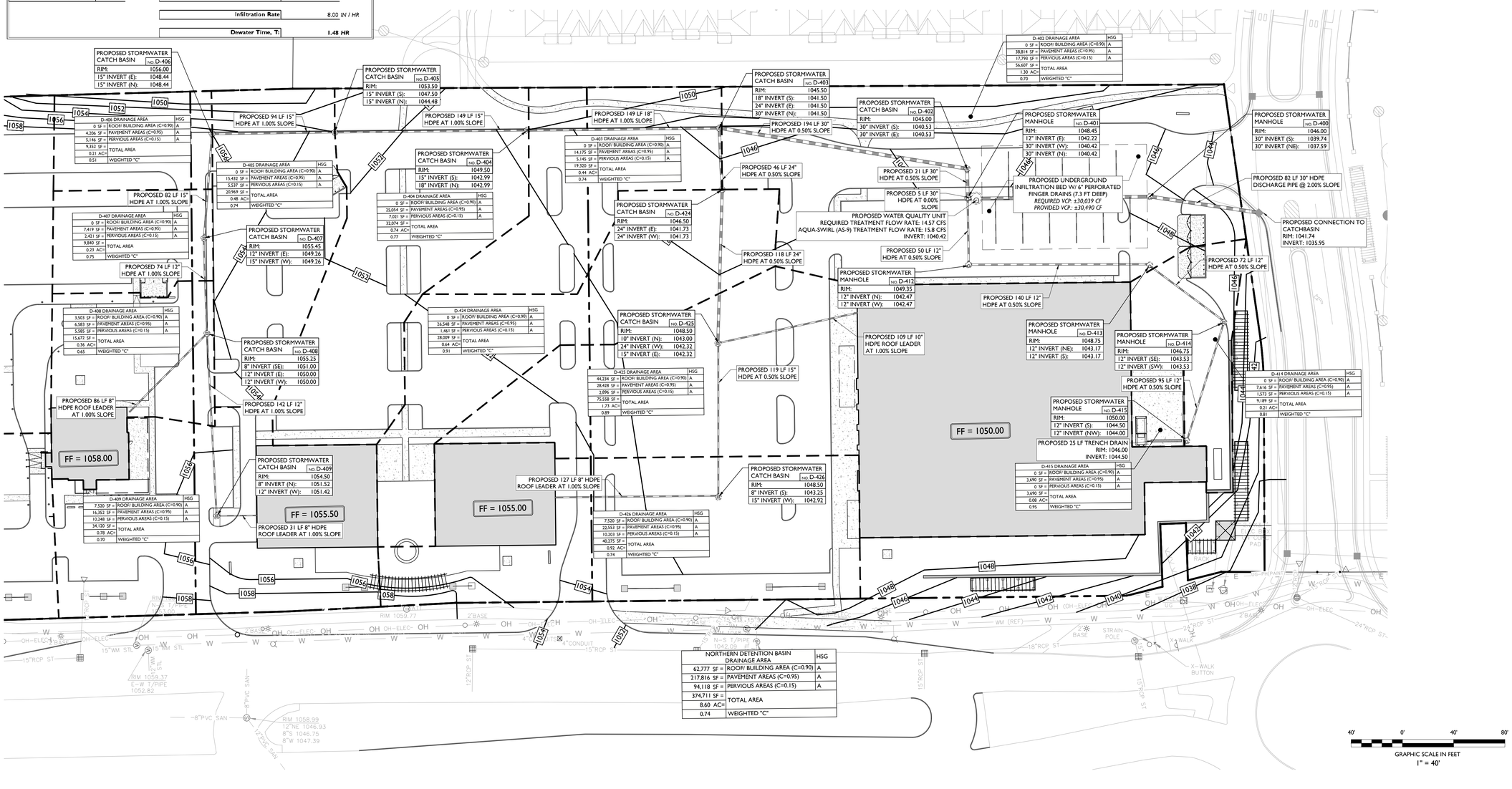
Dewater Time, T: 1.48 HR

10-YR STORMWATER SYSTEM DESIGN (NORTH COMMERCIAL)

Rainfall Intensity = I = 175/(T+25)

Line #	Line ID	Rim Elevation Downstream (FT)	Rim Elevation Upstream (FT)	Invert Downstream (FT)	Invert Upsteam (FT)	Pipe Size (IN)	Pipe Length (FT)	Pipe Slope (%)	Q Required (CFS)	Pipe Capacity (CFS)	Velocity Downstream (FPS)	HGL Downstream (FT)	HGL Upstream (FT)	Drainage Area (AC)	Runoff Coefficient	Time of Concentration (MIN)	Rainfall Intensity (IN/HR)	Rim to HGL (FT)
1	RESIDENTIAL CB TO D-400	1041.74	1046.85	1035.95	1037.59	30	82	2.00	23.05	58.00	5.74	1038.45	1039.22 j	0.00	0.00	19.60	3.92	7.63
2	D-400 TO WQ-2	1046.85	1048.25	1039.74	1040.42	30	135	0.50	23.23	29.11	6.59	1041.43	1042.11	0.00	0.00	19.30	3.95	6.04
3	WQ-2 TO D-401	1048.25	1048.25	1040.42	1040.42	30	5	0.00	23.24	0.00	4.73	1042.92	1042.94	0.00	0.00	19.30	3.95	4.97
4	D-401 TO D-402	1048.25	1045.00	1040.42	1040.53	30	21	0.50	22.76	29.68	4.64	1043.30	1043.36	1.30	0.40	18.30	4.04	1.14
5	D-402 TO D-403	1045.00	1045.50	1040.53	1041.50	30	194	0.50	21.03	29.00	4.28	1043.91	1044.42	0.44	0.74	17.60	4.11	0.66
6	D-403 TO D-404	1045.50	1049.50	1041.50	1042.99	18	149	1.00	8.26	10.50	4.68	1044.85	1045.77	0.74	0.77	17.00	4.16	3.56
7	D-404 TO D-405	1049.50	1053.50	1042.99	1044.48	15	149	1.00	5.96	6.46	4.86	1045.94	1047.21	0.48	0.74	16.50	4.22	6.11
8	D-405 TO D-406	1053.50	1056.00	1047.50	1048.44	15	94	1.00	4.50	6.46	5.35	1048.27	1049.30	0.21	0.51	16.20	4.25	6.70
9	D-406 TO D-407	1056.00	1055.45	1048.44	1049.26	15	82	1.00	4.08	6.46	4.21	1049.52	1050.08 j	0.23	0.75	15.90	4.28	5.37
10	D-407 TO D-408	1055.45	1055.25	1049.26	1050.00	12	74	1.00	3.36	3.56	4.82	1050.15	1050.78	0.36	0.65	15.60	4.31	4.47
11	D-408 TO D-409	1055.25	1054.50	1050.00	1051.42	12	142	1.00	2.39	3.56	3.69	1051.04	1052.08 j	0.78	0.70	15.00	4.38	2.42
12	D-403 TO D-424	1045.50	1046.50	1041.50	1041.73	24	46	0.50	11.83	15.99	3.77	1044.91	1045.04	0.64	0.91	16.50	4.22	1.35
13	D-424 TO D-425	1046.50	1048.50	1041.73	1042.32	24	118	0.50	9.52	15.99	3.03	1045.22	1045.43	1.73	0.89	15.80	4.29	3.00
14	D-425 TO D-426	1048.50	1048.50	1042.32	1042.92	15	119	0.50	2.98	4.59	2.43	1045.56	1045.81	0.92	0.74	15.00	4.38	2.60
15	D-401 TO D-412	1048.25	1049.35	1042.22	1042.47	12	50	0.50	0.99	2.52	1.26	1043.61	1043.65	0.00	0.00	18.60	4.01	5.68
16	D-412 TO D-413	1049.35	1048.75	1042.47	1043.17	12	140	0.50	1.02	2.52	1.62	1043.67	1043.81	0.00	0.00	17.20	4.15	4.91
17	D-413 TO D-414	1048.75	1046.75	1043.17	1043.53	12	72	0.50	1.03	2.52	2.33	1043.88	1043.99	0.21	0.81	16.70	4.20	2.57
18	D-414 TO D-415	1046.75	1050.00	1043.53	1044.01	12	95	0.50	0.33	2.53	0.96	1044.31	1044.35	0.08	0.95	15.00	4.38	5.62

SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
	PROPOSED DRAINAGE AREA / RIDGELINE
	PROPOSED STORMWATER STRUCTURES
	PROPOSED STORMWATER PIPING



ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-27-201-001 & 09-27-201-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

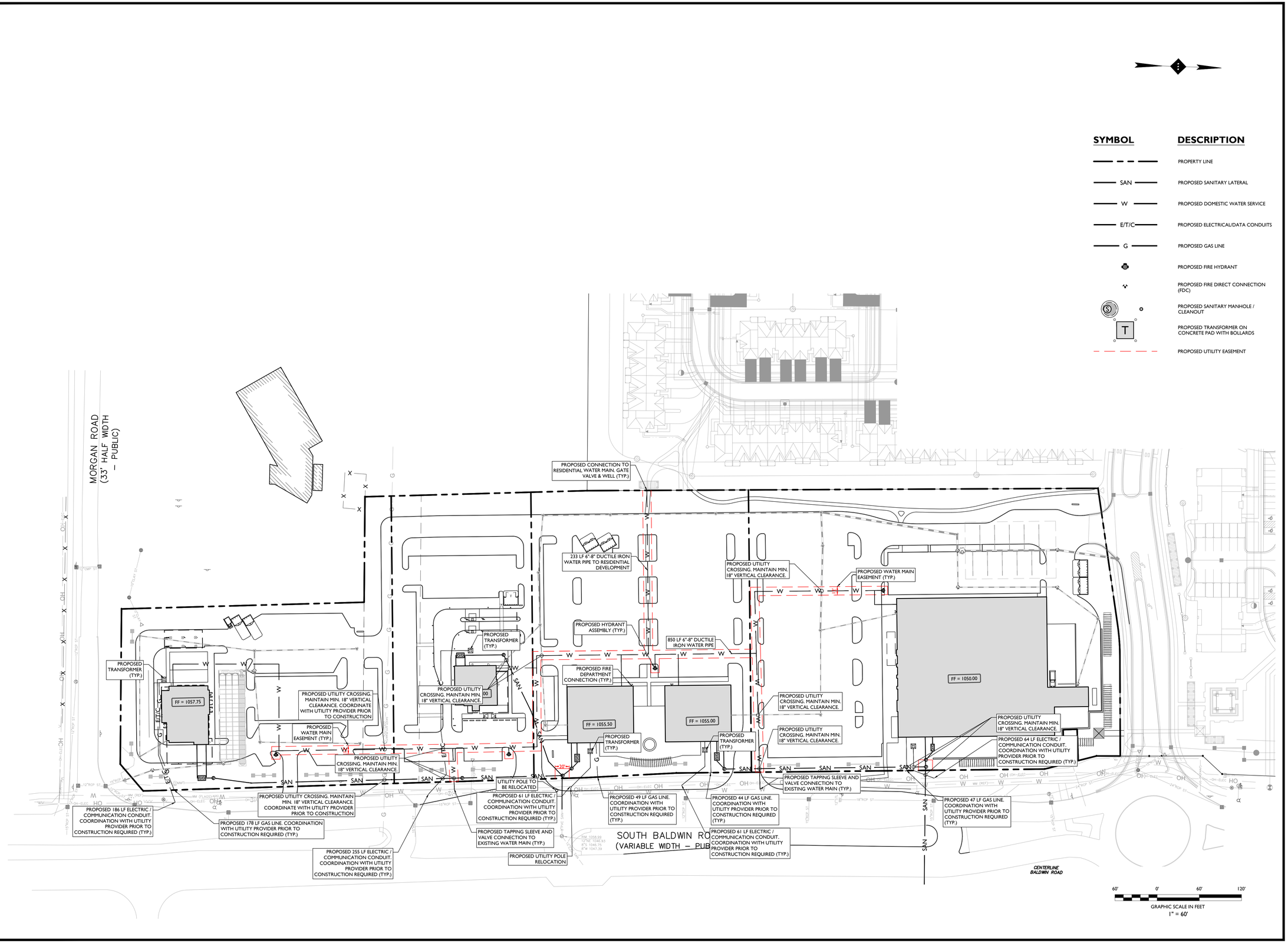
STATE OF MICHIGAN JONATHAN REID COOKSEY ENGINEER No. 6201053911 JONATHAN REID COOKSEY, P.E. PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' | PROJECT ID: DET-210395

TITLE: STORMWATER MANAGEMENT PLAN (NORTH)

DRAWING: C-9



SYMBOL	DESCRIPTION
	PROPERTY LINE
SAN	PROPOSED SANITARY LATERAL
W	PROPOSED DOMESTIC WATER SERVICE
E/T/C	PROPOSED ELECTRICAL/DATA CONDUITS
G	PROPOSED GAS LINE
	PROPOSED FIRE HYDRANT
	PROPOSED FIRE DIRECT CONNECTION (FDC)
S	PROPOSED SANITARY MANHOLE / CLEANOUT
T	PROPOSED TRANSFORMER ON CONCRETE PAD WITH BOLLARDS
	PROPOSED UTILITY EASEMENT

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design

Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-201-001 & 09-32-201-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
LICENSE NO. 6201053127
JONATHAN REID COOKSEY, P.E.
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 60' | PROJECT ID: DET-210395

TITLE:

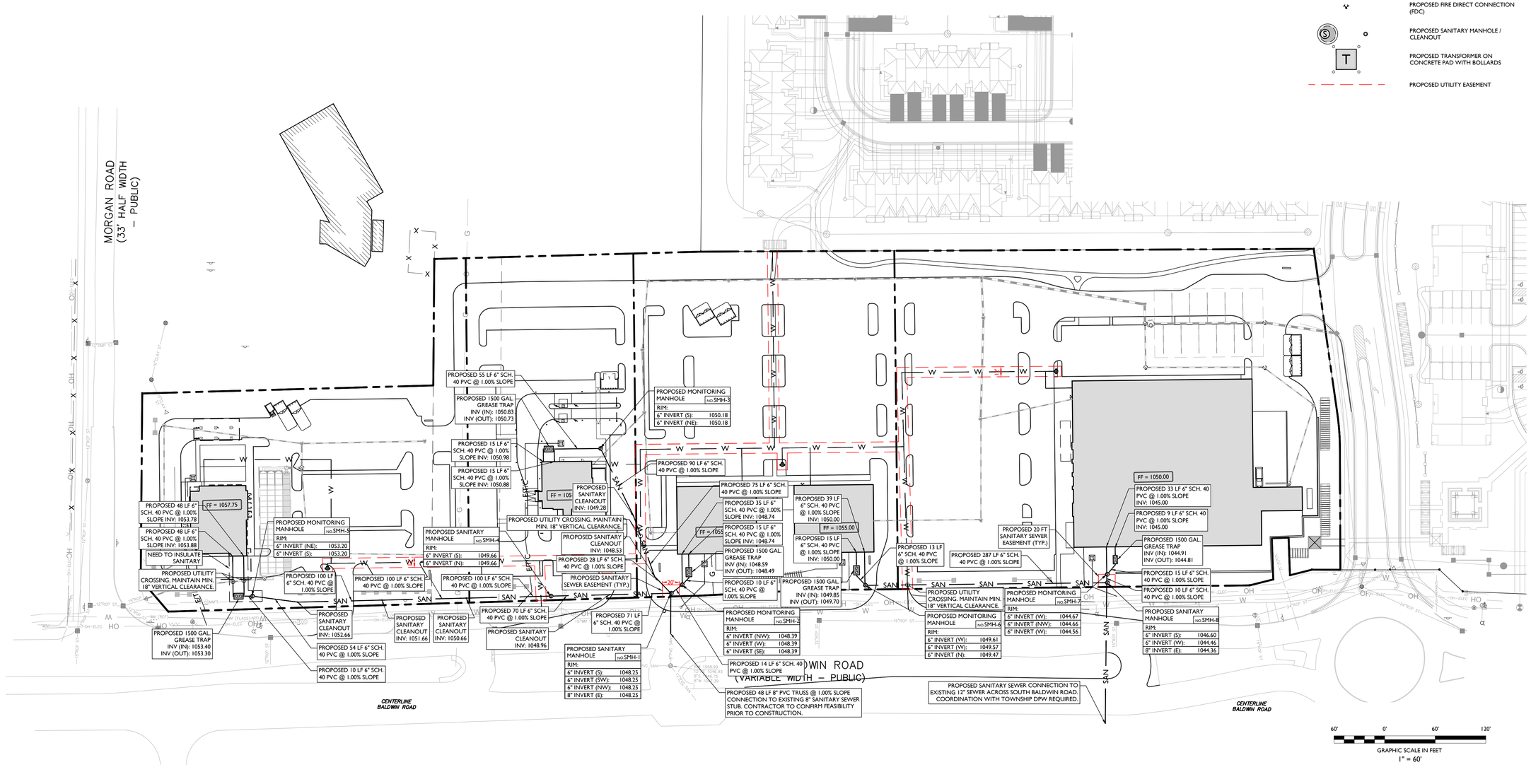
UTILITY PLAN (WATER)

DRAWING:

C-10

V:\DET\2021\DET-210395-AL\DC-W-SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CAD\PLOT\DP-10-1 UTILITY.DWG

SYMBOL	DESCRIPTION
	PROPERTY LINE
SAN	PROPOSED SANITARY LATERAL
W	PROPOSED DOMESTIC WATER SERVICE
E/T/C	PROPOSED ELECTRICAL/DATA CONDUITS
G	PROPOSED GAS LINE
	PROPOSED FIRE HYDRANT
	PROPOSED FIRE DIRECT CONNECTION (FDC)
S	PROPOSED SANITARY MANHOLE / CLEANOUT
T	PROPOSED TRANSFORMER ON CONCRETE PAD WITH BOLLARDS
	PROPOSED UTILITY EASEMENT



ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design

Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201058127
JONATHAN R. COOKSEY, P.E.
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 60' | PROJECT ID: DET-210395

TITLE:

UTILITY PLAN (SANITARY SEWER)

DRAWING:

C-11

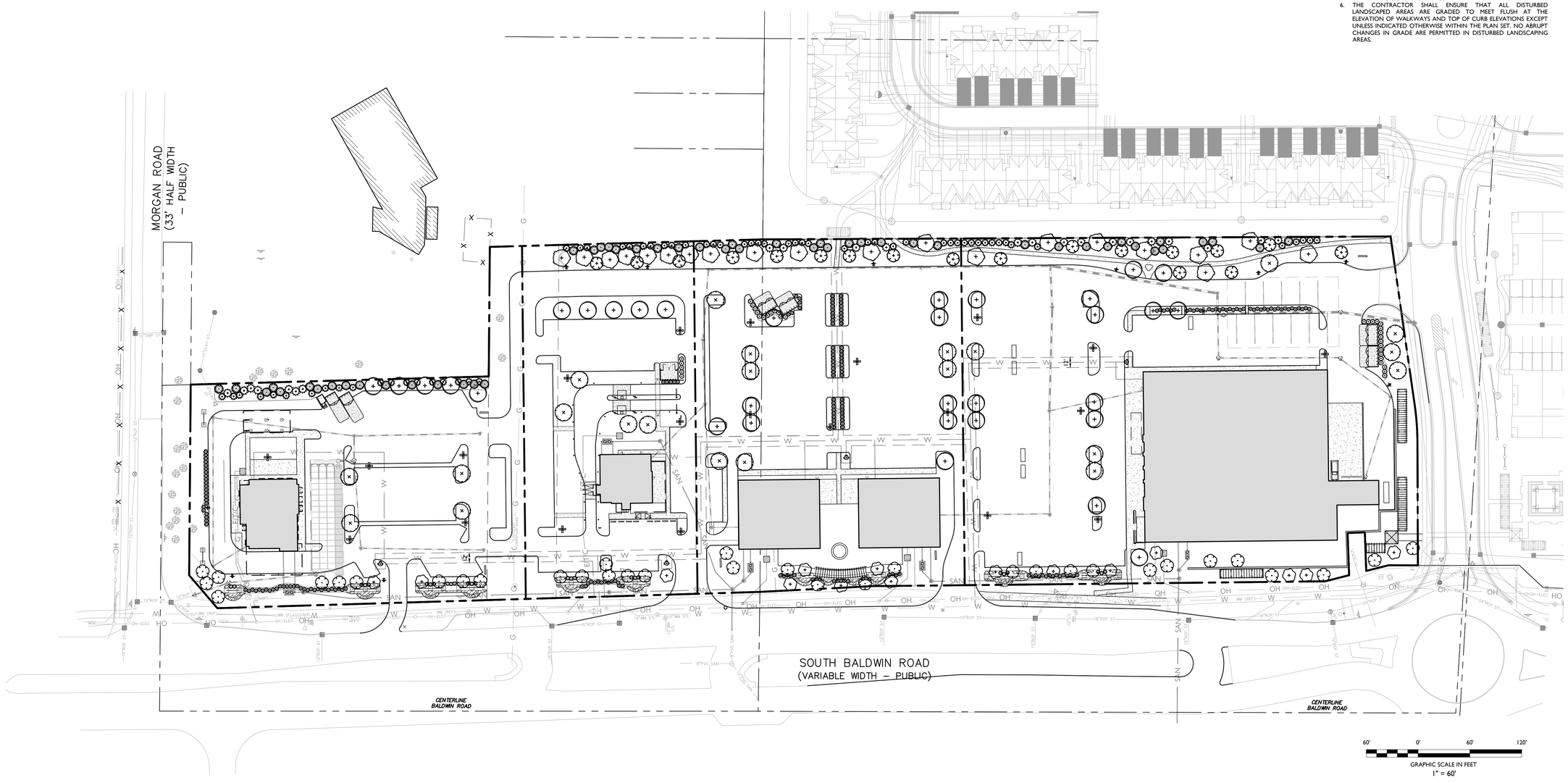
Know what's **below**
Call before you dig.

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION, DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.



ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-23-201-001 & 09-23-201-014
SW C OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOREY
ENGINEER
No. 6201053179
JONATHAN REID COOREY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 60' | PROJECT ID: DET-210395

TITLE:

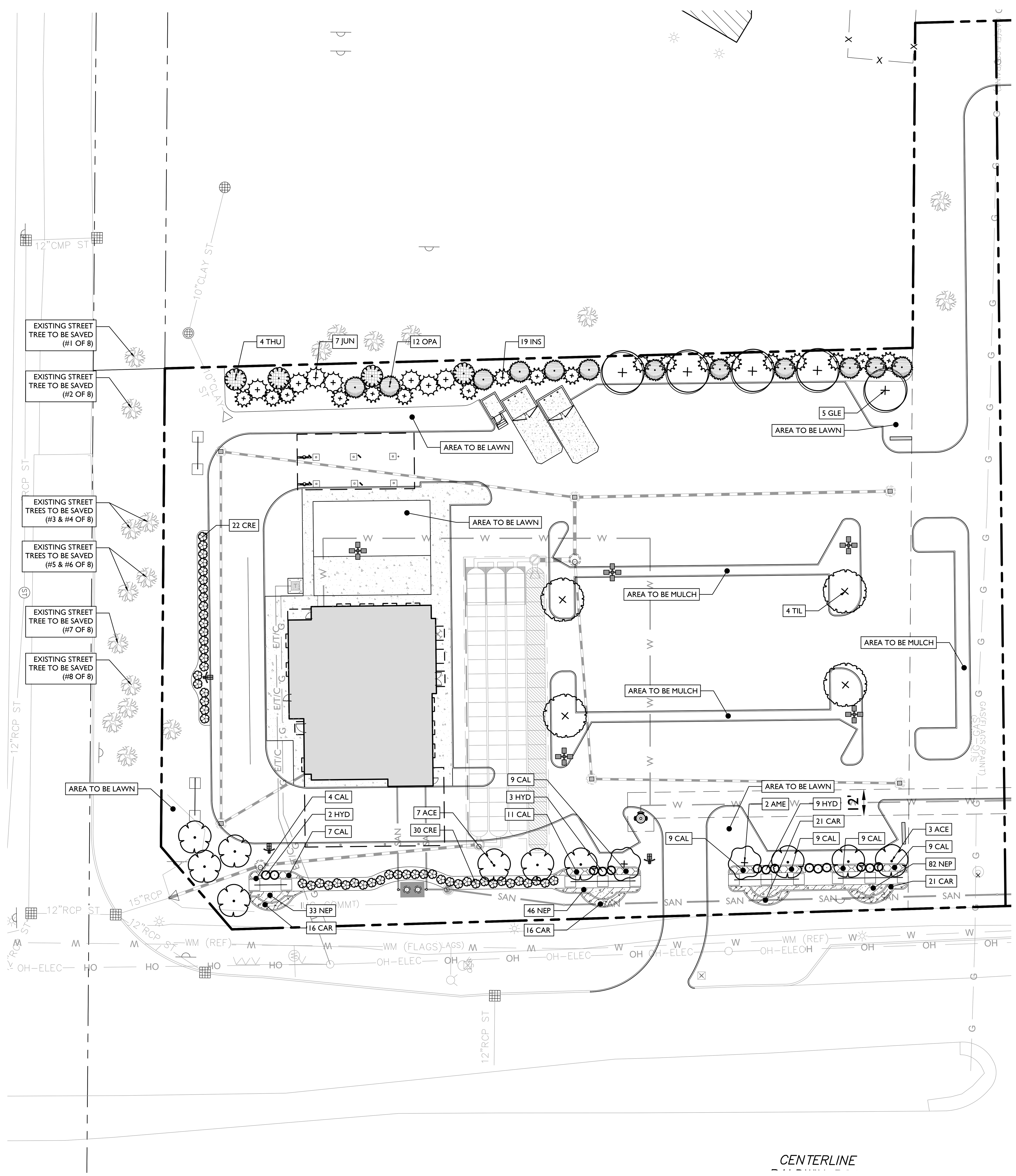
LANDSCAPING PLAN (OVERALL)

DRAWING:

C-12

V:\DET\2021\DET-210395-ALNG-VIF\SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP MI\CADD\SITE\DP\12-17\LANDD.DWG

Know what's **below**
Call before you dig.



CODE SECTION	REQUIRED	PROPOSED
	BROWN ROAD INNOVATION ZONE LANDSCAPING REQUIREMENTS	
	STREET FRONTAGE LANDSCAPING	
§ 34.03.T.1.a.	WHERE TYPE USE B ABUTS A PUBLIC ROAD, A 20 FT GREENBELT SHALL BE PROVIDED TO SCREEN PARKING AREAS FRONTING ON PUBLIC ROADWAYS	SOUTH BALDWIN ROAD: 29.72 FT PROVIDED MORGAN ROAD: 20.06 FT PROVIDED
	1 SHADE TREE FOR EVERY 30 LF OF FRONTAGE	
	MORGAN ROAD: 221 FT	
	(221 FT) * (1 TREE / 30 FT FRONTAGE) = 8 TREES	8 EXISTING TREES TO REMAIN
	SOUTH BALDWIN ROAD: 336 FT	
	(336 FT) * (1 TREE / 30 FT FRONTAGE) = 12 TREES	12 TREES PROPOSED
	1 SHRUB FOR EVERY 10 LF OF FRONTAGE	
	MORGAN ROAD: 221 FT	
	(221 FT) * (1 SHRUB / 10 FT FRONTAGE) = 22 SHRUBS	22 SHRUBS PROPOSED
	SOUTH BALDWIN ROAD: 336 FT	
	(336 FT) * (1 SHRUB / 10 FT FRONTAGE) = 34 SHRUBS	34 SHRUBS PROPOSED
	A 24-30 INCH BERM OR A 30" KNEE HIGH WALL SHALL BE PROVIDED	DECORATIVE KNEE WALL AND PLANTINGS PROVIDED
§ 34.03.T.1.c.	ORNAMENTAL TREES SHALL BE LOCATED ON EACH SIDE OF THE ENTRANCE DRIVE AND SHALL NOT BE LOCATED WITHIN THE SIGHT TRIANGLE LIMITS	COMPLIES
	ALL UNDERSTORY LANDSAPING SHALL BE LOCATED IN FRONT OF THE ORNAMENTAL TREES	COMPLIES
	ALL UNDERSTORY LANDSCAPING SHALL BE MAXIMUM 30 INCHES HIGH	COMPLIES
	GENERAL LANDSCAPING	
§ 34.03.U.1.a.	ALL UNDEVELOPED PORTIONS OF THE SITE SHALL BE PLANTED WITH GRASS, GROUNDCOVER, LANDSCAPE MULCH, SHRUBBERY, LANDSCAPE STONE, OR OTHER SUITABLE PLANT MATERIAL	COMPLIES
§ 34.03.U.1.b.	WHENEVER AN EVERGREEN OR LANDSCAPE SCREEN IS REQUIRED, SCREENING SHALL CONSIST OF CLOSELY SPACED EVERGREEN PLANTINGS EXTENDED TO FORM AN 80% VISUAL BARRIER IN THE SUMMER AND A 60% VISUAL BARRIER IN THE WINTER	COMPLIES

PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	ACE	10	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2" - 2.5" CAL	B&B
	GLE	5	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	2" - 2.5" CAL	B&B
	TIL	4	TILIA CORDATA `GREENSPIRE`	GREENSPIRE LITTLELEAF LINDEN	2" - 2.5" CAL	B&B
EVERGREEN TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	OPA	12	ILEX OPACA 'JERSEY KNIGHT'	JERSEY KNIGHT AMERICAN HOLLY	5` - 6` HT	B&B
	INS	19	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY	5` - 6` HT	B&B
	JUN	7	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	3` - 4` HT	B&B
	THU	4	THUJA OCCIDENTALIS `GREEN GIANT`	GREEN GIANT ARBORVITAE	3` - 4` HT	B&B
FLOWERING TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	AME	2	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	1.5" - 2" CAL	B&B
SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	HYD	14	HYDRANGEA MACROPHYLLA `ENDLESS SUMMER`	BAILMER HYDRANGEA	24" - 30"	POT
EVERGREEN SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	CRE	52	ILEX CRENATA `COMPACTA`	DWARF JAPANESE HOLLY	30" - 36"	B&B
PERENNIALS AND GRASSES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPACING	CONTAINER
	CAL	67	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	24" o.c.	1 GAL. POT
	CAR	74	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	24" o.c.	1 GAL. POT
	NEP	161	NEPETA X FAASSENII	CATMINT	18" o.c.	1 GAL. POT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

LANDSCAPING AND BUFFER REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
	PARKING LOT SCREENING	
§ 27.04.A.3.e.	ALL OFF-STREET PARKING AREAS SHALL BE SCREENED FROM VIEW OF ANY ADJOINING RESIDENTIAL PROPERTY	PROVIDED
	SCREENING SHALL CONSIST OF EARTH BERMS, PERMANENT WALLS, OR EVERGREEN LANDSCAPING	PROVIDED
	LANDSCAPING REQUIREMENTS	
§ 27.05.A.3.a.i.	ALL PORTIONS OF LANDSCAPED AREAS SHALL BE PLANTED WITH GRASS, GROUNDCOVER, SHRUBBERY, OR OTHER PLANT MATERIAL	COMPLIES
§ 27.05.A.3.a.ii.	A MIXTURE OF EVERGREEN AND DECIDUOUS TREES SHALL BE PLANTED THROUGHOUT THE LANDSCAPED AREAS	COMPLIES
	1 TREE FOR EVERY 3,000 SF OF LANDSCAPED AREA	
	(38,017 SF) * (1 TREE / 3,000 SF) = 13 TREES	13 TREES PROPOSED
	PARKING LOT LANDSCAPING	
§ 27.05.A.4.	A GREENBELT SEPARATION AREA IS REQUIRED BETWEEN THE RIGHT OF WAY PROPERTY LINE AND THE NEAREST PORTION OF ANY OFF-STREET PARKING AREA FOR PARCELS FRONTING ROADS	COMPLIES
	MINIMUM 20 FT WIDE	29.72 FT PROVIDED
§ 27.05.A.4.a.	1 TREE FOR EVERY 30 LF OF FRONTAGE	
	MORGAN ROAD: 221 FT	
	(221 FT) * (1 TREE / 30 FT FRONTAGE) = 8 TREES	8 EXISTING TREES TO REMAIN
	SOUTH BALDWIN ROAD: 336 FT	
	(336 FT) * (1 TREE / 30 FT FRONTAGE) = 12 TREES	12 TREES PROPOSED
§ 27.05.A.4.b.	A HEDGE, WALL, DECORATIVE METAL FENCE, BERM, OR OTHER LANDSCAPE ELEMENTS WITH A MINIMUM HEIGHT OF 30 INCHES SHALL BE REQUIRED TO REDUCE THE VISUAL EFFECT OF PARKED CARS	DECORATIVE FENCE PROVIDED
	1 SHRUB FOR EVERY 10 LF OF WALL OR FENCE SHALL BE PLANTED ON THE STREET SIDE OF THE WALL	
	(165 FT) * (1 SHRUB / 10 LF OF WALL) = 17 SHRUBS	17 SHRUBS PROPOSED
§ 27.05.A.4.c.	THE REMAINDER OF THE REQUIRED LANDSCAPE AREA SHALL BE PLANTED WITH GRASS, GROUNDCOVER, OR OTHER LANDSCAPE MATERIAL	COMPLIES
§ 27.05.A.4.e.	AREAS ADJACENT TO REQUIRED LANDSCAPED AREAS AND GREENBELTS SHALL BE PLANTED WITH GRASS OR OTHER SUITABLE GROUNDCOVER	COMPLIES
	RESIDENTIAL SCREENING	
§ 27.04.A.5.	WHERE NON-RESIDENTIAL USES ABUT RESIDENTIAL USES A GREENBELT BUFFER, BERM, OR OBSCURING WALL MAY BE REQUIRED TO PROVIDE SCREENING	N/A
§ 27.04.A.5.a.ii.	GREENBELT BUFFER SHALL BE PLANTED WITH GRASS OR GROUNDCOVER	
§ 27.04.A.5.a.iii.	1 TREE FOR EVERY 30 LF OF GREENBELT	N/A
	(385 FT) * (1 TREE / 30 FT) = 13 TREES	N/A
	INTERIOR PARKING LOT LANDSCAPING	
§ 27.05.A.6.a.	OFF-STREET PARKING AREAS WITH MORE THAN 20 PARKING SPACES SHALL PROVIDE MINIMUM 20 SF OF INTERIOR LANDSCAPING PER PARKING SPACE	
	(91 SPACES) * (20 SF) = 1,820 SF	4,160 SF PROVIDED
	MINIMUM 33% OF THE TREES REQUIRED FOR SCREENING SHALL BE PLACED ON THE INTERIOR OF THE PARKING AREA	
	(9 TREES) * (0.33) = 3 TREES	3 TREES PROPOSED
	THE REMAINING TREES MAY BE PLACED ON THE PERIMETER WITHIN 10 FT OF THE PARKING AREA	COMPLIES
§ 27.05.A.6.b.	1 TREE FOR EVERY 200 SF OF INTERIOR PARKING LOT LANDSCAPING REQUIRED	
	(1,820 SF) * (1 TREE / 200 SF) = 9 TREES	9 TREES PROPOSED
	MINIMUM 50% OF EACH INTERIOR LANDSCAPED AREA SHALL BE COVERED BY SOD, SHRUBS, GROUNDCOVER, OR TREES	COMPLIES
§ 27.05.A.6.c.	MINIMUM 10 FT WIDE IN ANY SINGLE DIMENSION	4.00 FT (W)
	MINIMUM 200 SF IN ANY SINGLE LANDSCAPE AREA	141 SF (W)

N/A NOT APPLICABLE
(W) WAIVER

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION, DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD
engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
J. REID COOKSEY, P.E.
LICENSED PROFESSIONAL ENGINEER

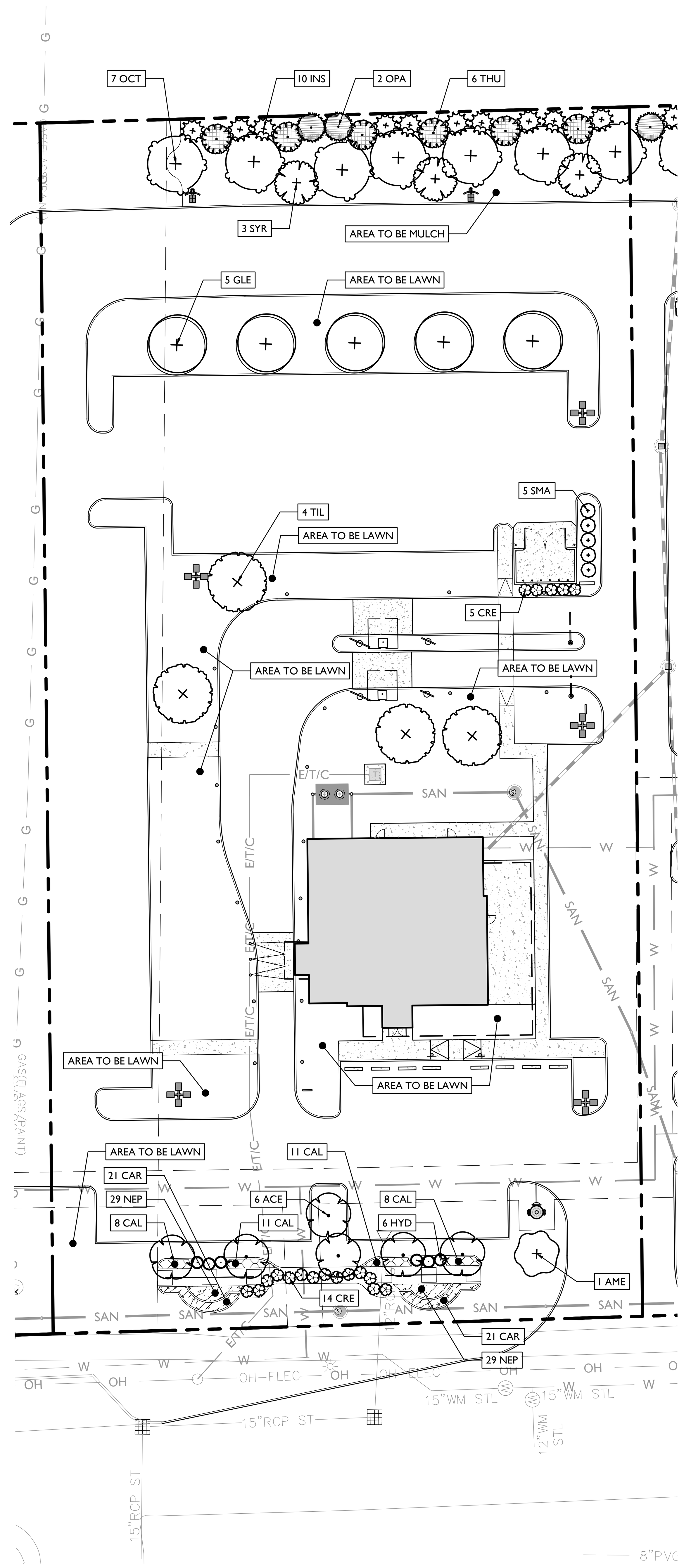
STONEFIELD
engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210395

TITLE:
LANDSCAPING PLAN (SOUTH RESTAURANT W/ DRIVE THRU)

DRAWING:
C-13

Know what's **below**
Call before you dig.



BROWN ROAD INNOVATION ZONE LANDSCAPING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
	STREET FRONTAGE LANDSCAPING	
§ 34.03.T.1.a.	WHERE TYPE USE B ABUTS A PUBLIC ROAD, A 20 FT GREENBELT SHALL BE PROVIDED TO SCREEN PARKING AREAS FRONTING ON PUBLIC ROADWAYS	SOUTH BALDWIN ROAD: 27.35 FT PROVIDED
	1 SHADE TREE FOR EVERY 30 LF OF FRONTAGE	
	SOUTH BALDWIN ROAD: 199 FT	
	(199 FT) * (1 TREE / 30 FT FRONTAGE) = 7 TREES	7 TREES PROPOSED
	1 SHRUB FOR EVERY 10 LF OF FRONTAGE	
	SOUTH BALDWIN ROAD: 199 FT	
	(199 FT) * (1 SHRUB / 10 FT FRONTAGE) = 20 SHRUBS	20 SHRUBS PROPOSED
	A 24-30 INCH BERM OR A 30" KNEE HIGH WALL SHALL BE PROVIDED	DECORATIVE KNEE WALL AND PLANTINGS PROVIDED
§ 34.03.T.1.c.	ORNAMENTAL TREES SHALL BE LOCATED ON EACH SIDE OF THE ENTRANCE DRIVE AND SHALL NOT BE LOCATED WITHIN THE SIGHT TRIANGLE LIMITS	COMPLIES
	ALL UNDERSTORY LANDSAPING SHALL BE LOCATED IN FRONT OF THE ORNAMENTAL TREES	COMPLIES
	ALL UNDERSTORY LANDSCAPING SHALL BE MAXIMUM 30 INCHES HIGH	COMPLIES
	SCREENING REQUIREMENTS	
§ 34.03.T.2.a.	WHERE A RESIDENTIAL USE ABUTS A NON-RESIDENTIAL USE, A 30 FT BUFFER SHALL BE PROVIDED	
	1 SHADE TREE FOR EVERY 30 LF OF FRONTAGE	
	(199 FT) * (1 TREE / 30 FT FRONTAGE) = 7 TREES	7 TREES PROPOSED
	1 FLOWERING TREE FOR EVERY 75 LF OF FRONTAGE	
	(199 FT) * (1 TREE / 75 FT FRONTAGE) = 3 TREES	3 TREES PROPOSED
	A WALL, FENCE, OR BERM 6 FT HIGH REQUIRED	DOES NOT COMPLY (W)
	1 SHRUB FOR EVERY 5 LF OF WALL, FENCE, OR BERM	DOES NOT COMPLY (W)
	GENERAL LANDSCAPING	
§ 34.03.U.1.a.	ALL UNDEVELOPED PORTIONS OF THE SITE SHALL BE PLANTED WITH GRASS, GROUNDCOVER, LANDSCAPE MULCH, SHRUBBERY, LANDSCAPE STONE, OR OTHER SUITABLE PLANT MATERIAL	COMPLIES
§ 34.03.U.1.b.	WHENEVER AN EVERGREEN OR LANDSCAPE SCREEN IS REQUIRED, SCREENING SHALL CONSIST OF CLOSELY SPACED EVERGREEN PLANTINGS EXTENDED TO FORM AN 80% VISUAL BARRIER IN THE SUMMER AND A 60% VISUAL BARRIER IN THE WINTER	COMPLIES

(W) WAIVER

LANDSCAPING AND BUFFER REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
	PARKING LOT SCREENING REQUIREMENTS	
§ 27.04.A.3.e.	ALL OFF-STREET PARKING AREAS SHALL BE SCREENED FROM VIEW OF ANY ADJOINING RESIDENTIAL PROPERTY	PROVIDED
	SCREENING SHALL CONSIST OF EARTH BERMS, PERMANENT WALLS, OR EVERGREEN LANDSCAPING	PROVIDEDTBD
	LANDSCAPING REQUIREMENTS	
§ 27.05.A.3.a.i.	ALL PORTIONS OF LANDSCAPED AREAS SHALL BE PLANTED WITH GRASS, GROUNDCOVER, SHRUBBERY, OR OTHER PLANT MATERIAL	COMPLIES
§ 27.05.A.3.a.ii.	A MIXTURE OF EVERGREEN AND DECIDUOUS TREES SHALL BE PLANTED THROUGHOUT THE LANDSCAPED AREAS	COMPLIES
	1 TREE FOR EVERY 3,000 SF OF LANDSCAPED AREA	
	(30,178 SF) * (1 TREE / 3,000 SF) = 10 TREES	10 TREES PROPOSED
	PARKING LOT LANDSCAPING	
§ 27.05.A.4.	A GREENBELT SEPARATION AREA IS REQUIRED BETWEEN THE RIGHT OF WAY PROPERTY LINE AND THE NEAREST PORTION OF ANY OFF-STREET PARKING AREA FOR PARCELS FRONTING ROADS	COMPLIES
	MINIMUM 20 FT WIDE	27.35 FT PROVIDED
§ 27.05.A.4.a.	1 TREE FOR EVERY 30 LF OF FRONTAGE	
	SOUTH BALDWIN ROAD: 199 FT	
	(199 FT) * (1 TREE / 30 FT FRONTAGE) = 7 TREES	7 TREES PROPOSED
§ 27.05.A.4.b.	A HEDGE, WALL, DECORATIVE METAL FENCE, BERM, OR OTHER LANDSCAPE ELEMENTS WITH A MINIMUM HEIGHT OF 30 INCHES SHALL BE REQUIRED TO REDUCE THE VISUAL EFFECT OF PARKED CARS	DECORATIVE FENCE PROVIDED
	1 SHRUB FOR EVERY 10 LF OF WALL OR FENCE SHALL BE PLANTED ON THE STREET SIDE OF THE WALL	
	(70 FT) * (1 SHRUB / 10 FT FRONTAGE) = 7 SHRUBS	7 SHRUBS PROPOSED
§ 27.05.A.4.c.	THE REMAINDER OF THE REQUIRED LANDSCAPE AREA SHALL BE PLANTED WITH GRASS, GROUNDCOVER, OR OTHER LANDSCAPE MATERIAL	COMPLIES
§ 27.05.A.4.e.	AREAS ADJACENT TO REQUIRED LANDSCAPED AREAS AND GREENBELTS SHALL BE PLANTED WITH GRASS OR OTHER SUITABLE GROUNDCOVER	COMPLIES
	RESIDENTIAL SCREENING	
§ 27.05.A.5.	WHERE NON-RESIDENTIAL USES ABUT RESIDENTIAL USES A GREENBELT BUFFER, BERM, OR OBSCURING WALL MAY BE REQUIRED TO PROVIDE SCREENING	COMPLIES
§ 27.05.A.5.a.ii.	GREENBELT BUFFER SHALL BE PLANTED WITH GRASS OR GROUNDCOVER	COMPLIES
§ 27.05.A.5.a.iii.	1 TREE FOR EVERY 30 LF OF GREENBELT	
	(199 FT) * (1 TREE / 30 FT) = 7 TREES	7 TREES PROPOSED
	INTERIOR PARKING LOT LANDSCAPING	
§ 27.05.A.6.a.	OFF-STREET PARKING AREAS WITH MORE THAN 20 PARKING SPACES SHALL PROVIDE MINIMUM 20 SF OF INTERIOR LANDSCAPING PER PARKING SPACE	
	(83 SPACES) * (20 SF) = 1,660 SF	4,890 SF PROVIDED
	MINIMUM 33% OF THE TREES REQUIRED FOR SCREENING SHALL BE PLACED ON THE INTERIOR OF THE PARKING AREA	
	(9 TREES) * (0.33) = 3 TREES	3 TREES PROPOSED
	THE REMAINING TREES MAY BE PLACED ON THE PERIMETER WITHIN 10 FT OF THE PARKING AREA	COMPLIES
§ 27.05.A.6.b.	1 TREE FOR EVERY 200 SF OF INTERIOR PARKING LOT LANDSCAPING REQUIRED	
	(1,660 SF) * (1 TREE / 200 SF) = 9 TREES	9 TREES PROPOSED
	MINIMUM 50% OF EACH INTERIOR LANDSCAPED AREA SHALL BE COVERED BY SOD, SHRUBS, GROUNDCOVER, OR TREES	COMPLIES
§ 27.05.A.6.c.	MINIMUM 10 FT WIDE IN ANY SINGLE DIMENSION	5.00 FT (W)
	MINIMUM 200 SF IN ANY SINGLE LANDSCAPE AREA	COMPLIES

(W) WAIVER

PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	OCT	7	ACER RUBRUM `OCTOBER GLORY`	OCTOBER GLORY RED MAPLE	2" - 2.5" CAL	B&B
	ACE	6	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2" - 2.5" CAL	B&B
	GLE	5	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	2" - 2.5" CAL	B&B
	TIL	4	TILIA CORDATA `GREENSPIRE`	GREENSPIRE LITTLELEAF LINDEN	2" - 2.5" CAL	B&B
EVERGREEN TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	OPA	2	ILEX OPACA 'JERSEY KNIGHT'	JERSEY KNIGHT AMERICAN HOLLY	5` - 6` HT	B&B
	INS	10	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY	5` - 6` HT	B&B
	THU	6	THUJA OCCIDENTALIS `GREEN GIANT`	GREEN GIANT ARBORVITAE	3` - 4` HT	B&B
	SMA	5	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	3` - 4` HT	B&B
FLOWERING TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	AME	1	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	1.5" - 2" CAL	B&B
	SYR	3	SYRINGA RETICULATA	JAPANESE TREE LILAC	1.5" - 2" CAL	B&B
SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	HYD	6	HYDRANGEA MACROPHYLLA `ENDLESS SUMMER`	BAILMER HYDRANGEA	24" - 30"	POT
EVERGREEN SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	CRE	19	ILEX CRENATA `COMPACTA`	DWARF JAPANESE HOLLY	30" - 36"	B&B
PERENNIALS AND GRASSES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPACING	CONTAINER
	CAL	38	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	24" o.c.	1 GAL. POT
	CAR	42	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	24" o.c.	1 GAL. POT
	NEP	58	NEPETA X FAASSENII	CATMINT	18" o.c.	1 GAL. POT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION, DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD
engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS
BALDWIN VILLAGE
PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA
PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
PROFESSIONAL ENGINEER

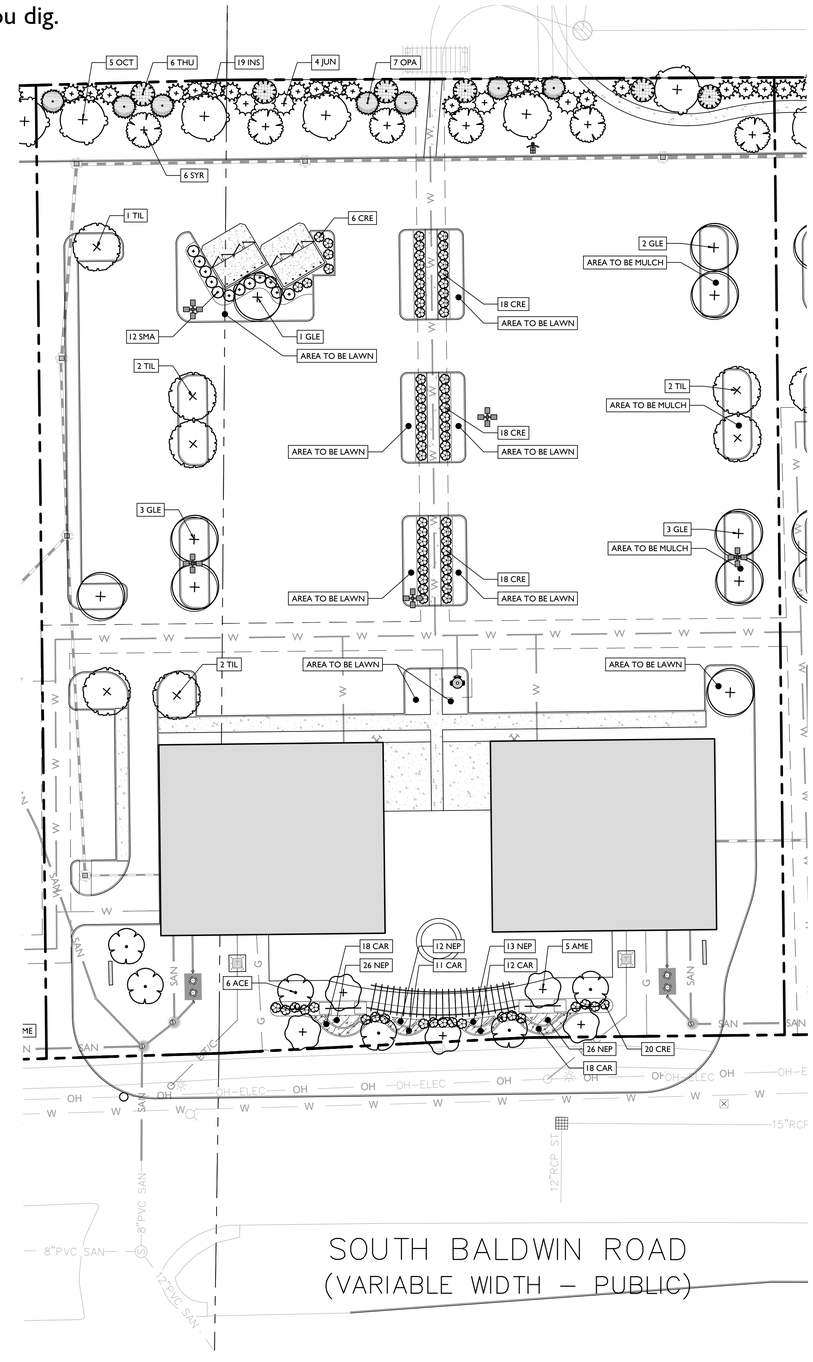
STONEFIELD
engineering & design

SCALE: 1" = 30' PROJECT ID: DET-210395

TITLE:
LANDSCAPING PLAN (RESTAURANT W/ DRIVE THRU)

DRAWING:
C-14

Know what's **below**
Call before you dig.



GINGELLVILLE VILLAGE CENTER OVERLAY DISTRICT LANDSCAPING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 33.02.B.3.	OPEN SPACE REQUIREMENT ALL NON-RESIDENTIAL DEVELOPMENT SHALL PROVIDE AT LEAST 10% OPEN SPACE LOT AREA: 125,245 FT (125,245 SF) * (0.10) = 12,525 SF	26,611 SF (21.2%) PROVIDED

PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	OCT	5	ACER RUBRUM `OCTOBER GLORY`	OCTOBER GLORY RED MAPLE	2" - 2.5" CAL	B&B
	ACE	6	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2" - 2.5" CAL	B&B
	GLE	9	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	2" - 2.5" CAL	B&B
	TIL	7	TILIA CORDATA `GREENSPIRE`	GREENSPIRE LITTLELEAF LINDEN	2" - 2.5" CAL	B&B
EVERGREEN TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**
	OPA	7	ILEX OPACA 'JERSEY KNIGHT'	JERSEY KNIGHT AMERICAN HOLLY	5' - 6' HT	B&B
	INS	19	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY	5' - 6' HT	B&B
	JUN	4	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	3' - 4' HT	B&B
	THU	6	THUJA OCCIDENTALIS `GREEN GIANT`	GREEN GIANT ARBORVITAE	3' - 4' HT	B&B
	SMA	12	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	3' - 4' HT	B&B
FLOWERING TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**
	AME	5	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	1.5" - 2" CAL	B&B
	SYR	6	SYRINGA RETICULATA	JAPANESE TREE LILAC	1.5" - 2" CAL	B&B
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**
	CRE	80	ILEX CRENATA `COMPACTA`	DWARF JAPANESE HOLLY	30" - 36"	B&B
PERENNIALS AND GRASSES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SPACING**	**CONTAINER**
	CAL	45	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	24" o.c.	1 GAL. POT
	NEP	77	NEPETA X FAASSENII	CATMINT	18" o.c.	1 GAL. POT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

LANDSCAPING AND BUFFER REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 27.04.A.3.e.	PARKING LOT SCREENING REQUIREMENTS ALL OFF-STREET PARKING AREAS SHALL BE SCREENED FROM VIEW OF ANY ADJOINING RESIDENTIAL PROPERTY SCREENING SHALL CONSIST OF EARTH BERMS, PERMANENT WALLS, OR EVERGREEN LANDSCAPING	PROVIDED PROVIDED
§ 27.05.A.3.a.i.	LANDSCAPING REQUIREMENTS ALL PORTIONS OF LANDSCAPED AREAS SHALL BE PLANTED WITH GRASS, GROUNDCOVER, SHRUBBERY, OR OTHER PLANT MATERIAL	COMPLIES
§ 27.05.A.3.a.ii.	A MIXTURE OF EVERGREEN AND DECIDUOUS TREES SHALL BE PLANTED THROUGHOUT THE LANDSCAPED AREAS 1 TREE FOR EVERY 3,000 SF OF LANDSCAPED AREA (35,484 SF) * (1 TREE / 3,000 SF) = 12 TREES	COMPLIES 12 TREES PROPOSED
§ 27.05.A.4.	PARING LOT LANDSCAPING A GREENBELT SEPARATION AREA IS REQUIRED BETWEEN THE RIGHT OF WAY PROPERTY LINE AND THE NEAREST PORTION OF ANY OFF-STREET PARKING AREA FOR PARCELS FRONTING ROADS MINIMUM 20 FT WIDE	COMPLIES 55.08 FT PROVIDED
§ 27.05.A.4.a.	1 TREE FOR EVERY 30 LF OF FRONTAGE SOUTH BALDWIN ROAD: 310 FT (310 FT) * (1 TREE / 30 FT FRONTAGE) = 11 TREES	11 TREES PROPOSED
§ 27.05.A.4.b.	A HEDGE, WALL, DECORATIVE METAL FENCE, BERM, OR OTHER LANDSCAPE ELEMENTS WITH A MINIMUM HEIGHT OF 30 INCHES SHALL BE REQUIRED TO REDUCE THE VISUAL EFFECT OF PARKED CARS 1 SHRUB FOR EVERY 10 LF OF WALL OR FENCE SHALL BE PLANTED ON THE STREET SIDE OF THE WALL (103 FT) * (1 SHRUB / 10 FT FRONTAGE) = 11 SHRUBS	DECORATIVE FENCE PROVIDED 11 SHRUBS PROPOSED
§ 27.05.A.4.c.	THE REMAINDER OF THE REQUIRED LANDSCAPE AREA SHALL BE PLANTED WITH GRASS, GROUNDCOVER, OR OTHER LANDSCAPE MATERIAL	COMPLIES
§ 27.05.A.4.e.	AREAS ADJACENT TO REQUIRED LANDSCAPED AREAS AND GREENBELTS SHALL BE PLANTED WITH GRASS OR OTHER SUITABLE GROUNDCOVER	COMPLIES
§ 27.05.A.5.	RESIDENTIAL SCREENING WHERE NON-RESIDENTIAL USES ABUT RESIDENTIAL USES A GREENBELT BUFFER, BERM, OR OBSCURING WALL MAY BE REQUIRED TO PROVIDE SCREENING	COMPLIES
§ 27.05.A.5.a.ii.	GREENBELT BUFFER SHALL BE PLANTED WITH GRASS OR GROUNDCOVER	COMPLIES
§ 27.05.A.5.a.iii.	1 TREE FOR EVERY 30 LF OF GREENBELT (310 FT) * (1 TREE / 30 FT) = 11 TREES	11 TREES PROPOSED
§ 27.05.A.6.a.	INTERIOR PARKING LOT LANDSCAPING OFF-STREET PARKING AREAS WITH MORE THAN 20 PARKING SPACES SHALL PROVIDE MINIMUM 20 SF OF INTERIOR LANDSCAPING PER PARKING SPACE (154 SPACES) * (20 SF) = 3,080 SF MINIMUM 33% OF THE TREES REQUIRED FOR SCREENING SHALL BE PLACED ON THE INTERIOR OF THE PARKING AREA (16 TREES) * (0.33) = 6 TREES THE REMAINING TREES MAY BE PLACED ON THE PERIMETER WITHIN 10 FT OF THE PARKING AREA	7,770 SF PROVIDED 6 TREES PROPOSED COMPLIES
§ 27.05.A.6.b.	1 TREE FOR EVERY 200 SF OF INTERIOR PARKING LOT LANDSCAPING REQUIRED (3,080 SF) * (1 TREE / 200 SF) = 16 TREES MINIMUM 50% OF EACH INTERIOR LANDSCAPED AREA SHALL BE COVERED BY SOD, SHRUBS, GROUNDCOVER, OR TREES	16 TREES PROPOSED COMPLIES
§ 27.05.A.6.c.	MINIMUM 10 FT WIDE IN ANY SINGLE DIMENSION MINIMUM 200 SF IN ANY SINGLE LANDSCAPE AREA	5.00 FT (W) COMPLIES

(W) WAIVER

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION, DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN D. COOKSEY
ENGINEER
No. 6201058
JONATHAN D. COOKSEY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 30' | PROJECT ID: DET-210395

TITLE:
LANDSCAPING PLAN (COMMERCIAL BUILDINGS)

DRAWING:
C-15

V:\DET\2021\DET-210395-ALANG-M\SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CADD\PLOT\DP-13-17-LAND.DWG

Know what's **below**
Call before you dig.

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION, DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.

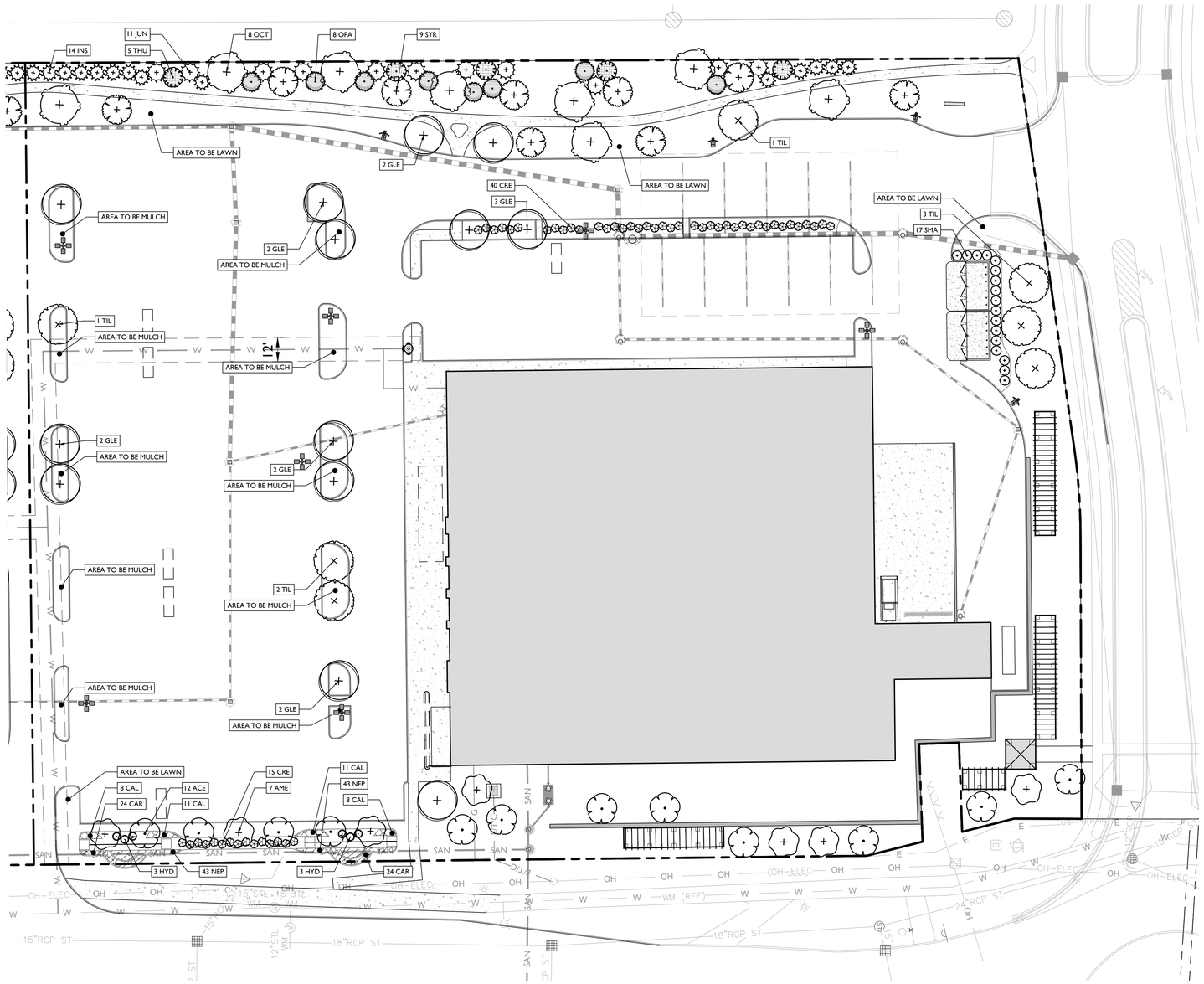
PLANT SCHEDULE

FLOWERING TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	AME	7	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	1.5" - 2" CAL	B&B
	SYR	3	SYRINGA RETICULATA	JAPANESE TREE LILAC	1.5" - 2" CAL	B&B
SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	HYD	6	HYDRANGEA MACROPHYLLA `ENDLESS SUMMER`	BAILMER HYDRANGEA	24" - 30"	POT
EVERGREEN SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	CRE	55	ILEX CRENATA `COMPACTA`	DWARF JAPANESE HOLLY	30" - 36"	B&B
PERENNIALS AND GRASSES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPACING	CONTAINER
	CAL	38	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	24" o.c.	1 GAL. POT
	CAR	48	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	24" o.c.	1 GAL. POT
	NEP	86	NEPETA X FAASSENII	CATMINT	18" o.c.	1 GAL. POT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

GINGELLVILLE VILLAGE CENTER OVERLAY DISTRICT LANDSCAPING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 33.02.B.3.	OPEN SPACE REQUIREMENT ALL NON-RESIDENTIAL DEVELOPMENT SHALL PROVIDE AT LEAST 10% OPEN SPACE LOT AREA: 204,915 FT (204,915 SF) * (0.10) = 20,492 SF	39,905 SF (19.5%) PROVIDED



LANDSCAPING AND BUFFER REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
	PARKING LOT SCREENING REQUIREMENTS	
§ 27.04.A.3.e.	ALL OFF-STREET PARKING AREAS SHALL BE SCREENED FROM VIEW OF ANY ADJOINING RESIDENTIAL PROPERTY	PROVIDED
	SCREENING SHALL CONSIST OF EARTH BERMS, PERMANENT WALLS, OR EVERGREEN LANDSCAPING	PROVIDED
	LANDSCAPING REQUIREMENTS	
§ 27.05.A.3.a.i.	ALL PORTIONS OF LANDSCAPED AREAS SHALL BE PLANTED WITH GRASS, GROUNDCOVER, SHRUBBERY, OR OTHER PLANT MATERIAL	COMPLIES
§ 27.05.A.3.a.ii.	A MIXTURE OF EVERGREEN AND DECIDUOUS TREES SHALL BE PLANTED THROUGHOUT THE LANDSCAPED AREAS	COMPLIES
	1 TREE FOR EVERY 3,000 SF OF LANDSCAPED AREA	
	(39,863 SF) * (1 TREE / 3,000 SF) = 14 TREES	14 TREES PROPOSED
	PARING LOT LANDSCAPING	
§ 27.05.A.4.	A GREENBELT SEPARATION AREA IS REQUIRED BETWEEN THE RIGHT OF WAY PROPERTY LINE AND THE NEAREST PORTION OF ANY OFF-STREET PARKING AREA FOR PARCELS FRONTING ROADS	COMPLIES
	MINIMUM 20 FT WIDE	20 FT PROVIDED
§ 27.05.A.4.a.	1 TREE FOR EVERY 30 LF OF FRONTAGE	
	SOUTH BALDWIN ROAD: 527 FT	
	(527 FT) * (1 TREE / 30 FT FRONTAGE) = 18 TREES	18 TREES PROPOSED
§ 27.05.A.4.b.	A HEDGE, WALL, DECORATIVE METAL FENCE, BERM, OR OTHER LANDSCAPE ELEMENTS WITH A MINIMUM HEIGHT OF 30 INCHES SHALL BE REQUIRED TO REDUCE THE VISUAL EFFECT OF PARKED CARS	DECORATIVE FENCE PROVIDED
	1 SHRUB FOR EVERY 10 LF OF WALL OR FENCE SHALL BE PLANTED ON THE STREET SIDE OF THE WALL	
	(164 FT) * (1 SHRUB / 10 FT FRONTAGE) = 17 SHRUBS	17 SHRUBS PROPOSED
§ 27.05.A.4.c.	THE REMAINDER OF THE REQUIRED LANDSCAPE AREA SHALL BE PLANTED WITH GRASS, GROUNDCOVER, OR OTHER LANDSCAPE MATERIAL	COMPLIES
§ 27.05.A.4.e.	AREAS ADJACENT TO REQUIRED LANDSCAPED AREAS AND GREENBELTS SHALL BE PLANTED WITH GRASS OR OTHER SUITABLE GROUNDCOVER	COMPLIES
	RESIDENTIAL SCREENING	
§ 27.05.A.5.	WHERE NON-RESIDENTIAL USES ABUT RESIDENTIAL USES A GREENBELT BUFFER, BERM, OR OBSCURING WALL MAY BE REQUIRED TO PROVIDE SCREENING	COMPLIES
§ 27.05.A.5.a.ii.	GREENBELT BUFFER SHALL BE PLANTED WITH GRASS OR GROUNDCOVER	COMPLIES
§ 27.05.A.5.a.iii.	1 TREE FOR EVERY 30 LF OF GREENBELT	
	(494 FT) * (1 TREE / 30 FT) = 17 TREES	17 TREES PROPOSED
	INTERIOR PARKING LOT LANDSCAPING	
§ 27.05.A.6.a.	OFF-STREET PARKING AREAS WITH MORE THAN 20 PARKING SPACES SHALL PROVIDE MINIMUM 20 SF OF INTERIOR LANDSCAPING PER PARKING SPACE	
	(197 SPACES) * (20 SF) = 3,940 SF	5,992 SF PROVIDED
	MINIMUM 33% OF THE TREES REQUIRED FOR SCREENING SHALL BE PLACED ON THE INTERIOR OF THE PARKING AREA	
	(20 TREES) * (0.33) = 7 TREES	7 TREES PROPOSED
	THE REMAINING TREES MAY BE PLACED ON THE PERIMETER WITHIN 10 FT OF THE PARKING AREA	COMPLIES
§ 27.05.A.6.b.	1 TREE FOR EVERY 200 SF OF INTERIOR PARKING LOT LANDSCAPING REQUIRED	
	(3,940 SF) * (1 TREE / 200 SF) = 20 TREES	20 TREES PROPOSED
	MINIMUM 50% OF EACH INTERIOR LANDSCAPED AREA SHALL BE COVERED BY SOD, SHRUBS, GROUNDCOVER, OR TREES	COMPLIES
§ 27.05.A.6.c.	MINIMUM 10 FT WIDE IN ANY SINGLE DIMENSION	6.50 FT (W)
	MINIMUM 200 SF IN ANY SINGLE LANDSCAPE AREA	142 SF (W)

(W) WAIVER

PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	OCT	2	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2" - 2.5" CAL	B&B
	ACE	12	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2" - 2.5" CAL	B&B
	GLE	13	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	2" - 2.5" CAL	B&B
	TIL	6	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LITTLELEAF LINDEN	2" - 2.5" CAL	B&B
EVERGREEN TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	OPA	2	ILEX OPACA 'JERSEY KNIGHT'	JERSEY KNIGHT AMERICAN HOLLY	5' - 6' HT	B&B
	INS	9	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY	5' - 6' HT	B&B
	JUN	3	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	3' - 4' HT	B&B
	THU	1	THUJA OCCIDENTALIS `GREEN GIANT`	GREEN GIANT ARBORVITAE	3' - 4' HT	B&B
	SMA	17	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	3' - 4' HT	B&B

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

30' 0' 30' 60'
GRAPHIC SCALE IN FEET
1" = 30'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE
PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COORSEY
ENGINEER
JONATHAN REID COORSEY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

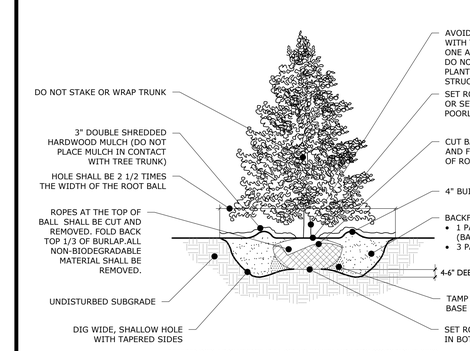
SCALE: 1" = 30' | PROJECT ID: DET-210395

TITLE:
LANDSCAPING PLAN (NEIGHBORHOOD GROCERY STORE)

DRAWING:
C-16

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX



REFERENCES ARCHITECTURAL GRAPHIC STANDARDS COPYRIGHT 2000

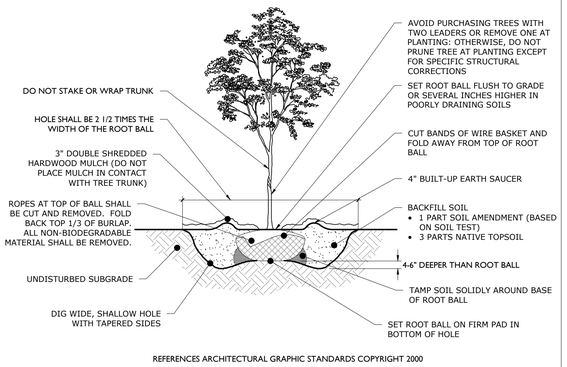
EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

1

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX



REFERENCES ARCHITECTURAL GRAPHIC STANDARDS COPYRIGHT 2000

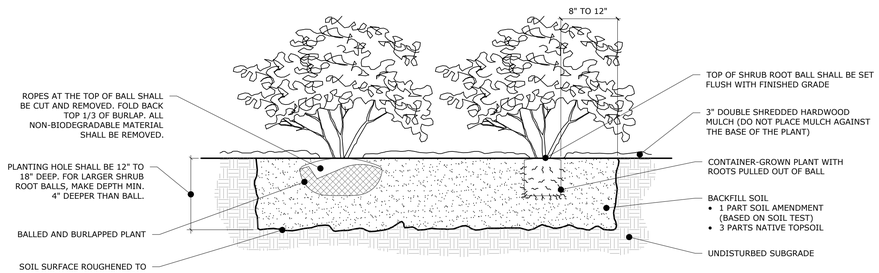
DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

2

NOTES:

1. FOR THE CONTAINER-GROWN SHRUBS, USE FINGERS OR SMALL HAND TOOL TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE SHRUB ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL



REFERENCES ARCHITECTURAL GRAPHIC STANDARDS COPYRIGHT 2000

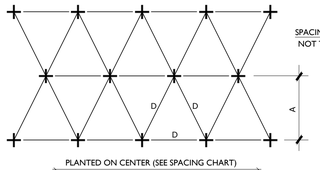
DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE

3

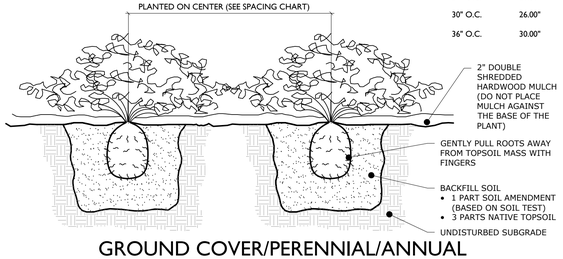
NOTES:

1. THOROUGHLY SOAK THE GROUND COVER ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
2. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILDS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX
3. ALL GROUND COVER AREAS SHALL BE TREATED WITH A PRE-EMERGENT PER MANUFACTURER'S SPECIFICATIONS



SPACING CHART
NOT TO SCALE

SPACING "D"	ROW "A"
6" O.C.	5.20"
8" O.C.	6.93"
10" O.C.	8.66"
12" O.C.	10.40"
15" O.C.	13.00"
18" O.C.	15.60"
24" O.C.	20.80"
30" O.C.	26.00"
36" O.C.	30.00"



GROUND COVER/PERENNIAL/ANNUAL PLANTING DETAIL

NOT TO SCALE

4

V:\DET2021\DET-210395-ALINGH SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CADD\PLOT\DEP-12-17-LANDSHEE

GENERAL LANDSCAPING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH THESE SPECIFICATIONS, APPROVED OR FINAL DRAWINGS, AND INSTRUCTIONS PROVIDED BY THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIALS, OR OWNER/OWNER'S REPRESENTATIVE. ALL WORK COMPLETED AND MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH THE INTENTION OF THE SPECIFICATIONS, DRAWINGS, AND INSTRUCTIONS AND EXECUTED WITH THE STANDARD LEVEL OF CARE FOR THE LANDSCAPE INDUSTRY.
2. WORK MUST BE CARRIED OUT ONLY DURING WEATHER CONDITIONS FAVORABLE TO LANDSCAPE CONSTRUCTION AND TO THE HEALTH AND WELFARE OF PLANTS. THE SUITABILITY OF SUCH WEATHER CONDITIONS SHALL BE DETERMINED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL.
3. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR, BEFORE ORDERING OR PURCHASING MATERIALS, TO PROVIDE SAMPLES OF THOSE MATERIALS TO THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL FOR APPROVAL, IF SO REQUESTED.
4. IF SAMPLES ARE REQUESTED, THE LANDSCAPE CONTRACTOR IS TO SUBMIT CERTIFICATION TAGS FROM TREES, SHRUBS AND SEED VERIFYING TYPE AND PURITY.
5. UNLESS OTHERWISE AUTHORIZED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL, THE LANDSCAPE CONTRACTOR SHALL PROVIDE NOTICE AT LEAST FORTY-EIGHT HOURS (48 HRS.) IN ADVANCE OF THE ANTICIPATED DELIVERY DATE OF ANY PLANT MATERIALS TO THE PROJECT SITE. A LEGIBLE COPY OF THE INVOICE, SHOWING VARIETIES AND SIZES OF MATERIALS INCLUDED FOR EACH SHIPMENT SHALL BE FURNISHED TO THE PROJECT LANDSCAPE DESIGNER, OR GOVERNING MUNICIPAL OFFICIAL.
6. THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL RESERVES THE RIGHT TO INSPECT AND REJECT PLANTS AT ANY TIME AND AT ANY PLACE.

PROTECTION OF EXISTING VEGETATION NOTES:

1. BEFORE COMMENCING WORK, ALL EXISTING VEGETATION WHICH COULD BE IMPACTED AS A RESULT OF THE PROPOSED CONSTRUCTION ACTIVITIES MUST BE PROTECTED FROM DAMAGE BY THE INSTALLATION OF TREE PROTECTION FENCING. FENCING SHALL BE LOCATED AT THE DRIP-LINE OR LIMIT OF DISTURBANCE AS DEPICTED WITHIN THE APPROVED OR FINAL PLAN SET, ESTABLISHING THE TREE PROTECTION ZONE. FENCE INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE PROTECTION FENCE DETAIL." NO WORK MAY BEGIN UNTIL THIS REQUIREMENT IS FULFILLED. THE FENCING SHALL BE INSPECTED REGULARLY BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
2. IN ORDER TO AVOID DAMAGE TO ROOTS, BARK OR LOWER BRANCHES, NO VEHICLE, EQUIPMENT, DEBRIS, OR OTHER MATERIALS SHALL BE DRIVEN, PARKED OR PLACED WITHIN THE TREE PROTECTION ZONE. ALL ON-SITE CONTRACTORS SHALL USE ANY AND ALL PRECAUTIONARY MEASURES WHEN PERFORMING WORK AROUND TREES, WALKS, PAVEMENTS, UTILITIES, AND ANY OTHER FEATURES EITHER EXISTING OR PREVIOUSLY INSTALLED UNDER THIS CONTRACT.
3. IN RARE INSTANCES WHERE EXCAVATING, FILL, OR GRADING IS REQUIRED WITHIN THE DRIP-LINE OF TREES TO REMAIN, THE WORK SHALL BE PERFORMED AS FOLLOWS:
   - TRENCHING: WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT, BUT THE TRENCH SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND DIGGING AND WITHOUT INJURY TO THE ROOTS. NO ROOTS, LIMBS, OR WOODS ARE TO HAVE ANY PAINT OR MATERIAL APPLIED TO ANY SURFACE.
   - RAISING GRADES: WHEN THE GRADE AT AN EXISTING TREE IS BELOW THE NEW FINISHED GRADE, AND FILL NOT EXCEEDING 6 INCHES (6") IS REQUIRED, CLEAN, WASHED GRAVEL FROM ONE TO TWO INCHES (1" - 2") IN SIZE SHALL BE PLACED DIRECTLY AROUND THE TREE TRUNK. THE GRAVEL SHALL EXTEND OUT FROM THE TRUNK ON ALL SIDES A MINIMUM OF 18 INCHES (18") AND FINISH APPROXIMATELY TWO INCHES (2") ABOVE THE FINISH GRADE AT TREE. INSTALL GRAVEL BEFORE ANY EARTH FILL IS PLACED. NEW EARTH FILL SHALL NOT BE LEFT IN CONTACT WITH THE TRUNK OF ANY TREE REQUIRING FILL. WHERE FILL EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID TREE WELL SHALL BE CONSTRUCTED. IF APPLICABLE, TREE WELL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE WELL DETAIL."
   - LOWERING GRADES: EXISTING TREES LOCATED IN AREAS WHERE THE NEW FINISHED GRADE IS TO BE LOWERED, SHALL HAVE RE-GRADING WORK DONE BY HAND TO THE INDICATED ELEVATION, NO GREATER THAN SIX INCHES (6"). ROOTS SHALL BE CUT CLEANLY THREE INCHES (3") BELOW FINISHED GRADE UNDER THE DIRECTION OF A LICENSED ARBORIST. WHERE CUT EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID RETAINING WALL SHALL BE CONSTRUCTED. IF APPLICABLE, THE RETAINING WALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE RETAINING WALL DETAIL."

SOIL PREPARATION AND MULCH NOTES:

1. LANDSCAPE CONTRACTOR SHALL OBTAIN A SOIL TEST OF THE IN-SITU TOPSOIL BY A CERTIFIED SOIL LABORATORY PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL ALLOW FOR A TWO WEEK TURNAROUND TIME FROM SUBMITTAL OF SAMPLE TO NOTIFICATION OF RESULTS.
2. BASED ON SOIL TEST RESULTS, ADJUST THE RATES OF LIME AND FERTILIZER THAT SHALL BE MIXED INTO THE TOP SIX INCHES (6") OF TOPSOIL. THE LIME AND FERTILIZER RATES PROVIDED WITHIN THE "SEED SPECIFICATION" OR "SOD SPECIFICATION" IS APPROXIMATE AND FOR BIDDING PURPOSES ONLY. IF ADDITIONAL AMENDMENTS ARE NECESSARY, ADJUST THE TOPSOIL AS FOLLOWS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM.
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
3. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMING CHARACTER, WITHOUT ADMIXTURE OF SUBSOIL MATERIAL OBTAINED FROM A WELL-DRAINED ARABLE SITE, FREE FROM ALL CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, ROOTS, STICKS, AND OTHER FOREIGN MATERIAL GREATER THAN ONE INCH (1").
4. TOPSOIL SHALL HAVE A PH RANGE OF 5.0-7.0 AND SHALL NOT CONTAIN MORE THAN 6% ORGANIC MATTER BY WEIGHT.
5. OBTAIN TOPSOIL ONLY FROM LOCAL SOURCES OR FROM AREAS HAVING SIMILAR SOIL CHARACTERISTICS TO THAT FOUND AT THE PROJECT SITE.
6. CONTRACTOR SHALL PROVIDE A SIX INCH (6") DEEP LAYER OF TOPSOIL IN ALL PLANTING AREAS. TOPSOIL SHALL BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN SOIL CONDITIONS.
7. UNLESS OTHERWISE NOTED IN THE CONTRACT, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBED AREA OF THE SITE.
8. LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE SUB-GRADE ELEVATION MEETS THE FINISHED GRADE ELEVATION (LESS THE REQUIRED TOPSOIL), IN ACCORDANCE WITH THE APPROVED OR FINAL GRADING PLAN.
9. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THE APPROVED OR FINAL CONSTRUCTION SET UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE DESIGNER OR MUNICIPAL OFFICIAL.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SURFACE AND SUBSURFACE PLANT BED DRAINAGE PRIOR TO THE INSTALLATION OF PLANTINGS. IF POOR DRAINAGE CONDITIONS EXIST, CORRECTIVE ACTION SHALL BE TAKEN PRIOR TO INSTALLATION. ALL PLANTING AND LAWN AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW A FREE FLOW OF SURFACE WATER.
11. DOUBLE SHREDDED HARDWOOD MULCH OR APPROVED EQUAL SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL SHRUB PLANTING BEDS AND AROUND ALL TREES PLANTED BY LANDSCAPE CONTRACTOR. GROUND COVER, PERENNIAL, AND ANNUAL PLANTING BEDS SHALL BE MULCHED WITH A TWO INCH (2") TOP DRESSING. SINGLE TREES OR SHRUBS SHALL BE MULCHED TO AVOID CONTACT WITH TRUNK OR PLANT STEM. MULCH SHALL BE OF SUFFICIENT CHARACTER AS NOT TO BE EASILY DISPLACED BY WIND OR WATER RUNOFF.
12. WHENEVER POSSIBLE, THE SOIL PREPARATION AREA SHALL BE CONNECTED FROM PLANTING TO PLANTING.
13. SOIL SHALL BE LOOSENED WITH A BACKHOE OR OTHER LARGE COARSE-TILING EQUIPMENT UNLESS THE SOIL IS FROZEN OR EXCESSIVELY WET. TILING THAT PRODUCES LARGE, COARSE CHUNKS OF SOIL IS PREFERABLE TO TILING THAT RESULTS IN FINE GRAINS UNIFORM IN TEXTURE. AFTER THE AREA IS LOOSENED IT SHALL NOT BE DRIVEN OVER BY ANY VEHICLE.
14. APPLY PRE-EMERGENT WEED CONTROL TO ALL PLANT BEDS PRIOR TO MULCHING. ENSURE COMPATIBILITY BETWEEN PRODUCT AND PLANT MATERIAL.
15. ALL PLANTING SOIL SHALL BE AMENDED WITH THE FOLLOWING:

MYCRO® TREE SAVER - A DRY GRANULAR MYCORRHIZAL FUNGI INOCULANT THAT IS MIXED IN THE BACKFILL WHEN PLANTING TREES AND SHRUBS. IT CONTAINS SPORES OF BOTH ECTOMYCORRHIZAL AND VA MYCORRHIZAL FUNGI (VAM), BENEFICIAL RHIZOSPHERE BACTERIA, TERRA-SORB SUPERABSORBENT HYDROGEL TO REDUCE WATER LEACHING, AND SELECTED ORGANIC MICROBIAL NUTRIENTS.

- DIRECTIONS FOR USE: USE 3-OZ PER EACH FOOT DIAMETER OF THE ROOT BALL, OR 3-OZ PER INCH CALIPER. MIX INTO THE BACKFILL WHEN TRANSPLANTING TREES AND SHRUBS. MIX PRODUCT IN A RING-SHAPED VOLUME OF SOIL AROUND THE UPPER PORTION OF THE ROOT BALL, EXTENDING FROM THE SOIL SURFACE TO A DEPTH OF ABOUT 8 INCHES, AND EXTENDING OUT FROM THE ROOT BALL ABOUT 8 INCHES INTO THE BACKFILL. APPLY WATER TO SOIL SATURATION.
- MYCOR® TREE SAVER® IS EFFECTIVE FOR ALL TREE AND SHRUB SPECIES EXCEPT RHODODENDRONS, AZALEAS, AND MOUNTAIN LAUREL, WHICH REQUIRE ERICOID MYCORRHIZAE.
- SOIL PH: THE FUNGI IN THIS PRODUCT WERE CHOSEN BASED ON THEIR ABILITY TO SURVIVE AND COLONIZE PLANT ROOTS IN A PH RANGE OF 3 TO 9.
- FUNGICIDES: THE USE OF CERTAIN FUNGICIDES CAN HAVE A DETRIMENTAL EFFECT ON THE INOCULATION PROGRAM. SOIL APPLICATION OF ANY FUNGICIDE IS NOT RECOMMENDED FOR TWO WEEKS AFTER APPLICATION.
- OTHER PESTICIDES: HERBICIDES AND INSECTICIDES DO NOT NORMALLY INTERFERE WITH MYCORRHIZAL FUNGAL DEVELOPMENT, BUT MAY INHIBIT THE GROWTH OF SOME TREE AND SHRUB SPECIES IF NOT USED PROPERLY.

HEALTHY START MACRO TABS 12-8-8

- FERTILIZER TABLETS ARE PLACED IN THE UPPER 4 INCHES OF BACKFILL SOIL WHEN PLANTING TREES AND SHRUBS.
- TABLETS ARE FORMULATED FOR LONG-TERM RELEASE BY SLOW BIODEGRADATION, AND LAST UP TO 2 YEARS AFTER PLANTING. TABLETS CONTAIN 12-8-8 NPK FERTILIZER, AS WELL AS A MINIMUM OF SEVEN PERCENT (7%) HUMIC ACID BY WEIGHT, MICROBIAL NUTRIENTS DERIVED FROM SEA KELP, PROTEIN BYPRODUCTS, AND YUCCA SCHIDIGERA, AND A COMPLEMENT OF BENEFICIAL RHIZOSPHERE BACTERIA. THE STANDARD 21 GRAM TABLET IS SPECIFIED HERE. DIRECTIONS FOR USE: FOR PLANTING BALLED & BURLAPPED (B&B) TREES AND SHRUBS, MEASURE THE THICKNESS OF THE TRUNK, AND USE ABOUT 1 TABLET (21-G) PER HALF-INCH. PLACE THE TABLETS DIRECTLY NEXT TO THE ROOT BALL. EVENLY DISTRIBUTED AROUND ITS PERIMETER, AT A DEPTH OF ABOUT 4 INCHES.

PLANT QUALITY AND HANDLING NOTES:

1. ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004) OR LATEST REVISION AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. IN ALL CASES, BOTANICAL NAMES LISTED WITHIN THE APPROVED OR FINAL PLANT LIST SHALL TAKE PRECEDENCE OVER COMMON NAMES.
3. ALL PLANTS SHALL BE OF SELECTED SPECIMEN QUALITY, EXCEPTIONALLY HEAVY, TIGHTLY KNIT, SO TRAINED OR FAVORED IN THEIR DEVELOPMENT AND APPEARANCE AS TO BE SUPERIOR IN FORM, NUMBER OF BRANCHES, COMPACTNESS AND SYMMETRY. ALL PLANTS SHALL HAVE A NORMAL HABIT OR SOUND, HEALTHY, VIGOROUS PLANTS WITH WELL DEVELOPED ROOT SYSTEM. PLANTS SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS OR LARVAE.
4. PLANTS SHALL NOT BE PRUNED BEFORE DELIVERY. TREES WITH ABRASION OF THE BARK, SUNSCALDS, DISFIGURING KNOTS OR FRESH CUTS OF LIMBS OVER ONE AND ONE-FOURTH INCHES (1-1/4") WHICH HAVE NOT COMPLETELY CALLOUSED SHALL BE REJECTED.
5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH AND BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE.
6. THE ROOT SYSTEM OF EACH PLANT SHALL BE WELL PROVIDED WITH FIBROUS ROOTS. ALL PARTS SHALL BE SOUND, HEALTHY, VIGOROUS, WELL-BRANCHED AND DENSELY FOLIATED WHEN IN LEAF.
7. ALL PLANTS DESIGNATED BALL AND BURLAP (B&B) MUST BE MOVED WITH THE ROOT SYSTEM AS SOLID UNITS WITH BALLS OF EARTH FIRMLY WRAPPED WITH BURLAP. THE DIAMETER AND DEPTH OF THE BALLS OF EARTH MUST BE SUFFICIENT TO ENCOMPASS THE FIBROUS ROOT FEEDING SYSTEMS NECESSARY FOR THE HEALTHY DEVELOPMENT OF THE PLANT. NO PLANT SHALL BE ACCEPTED WHEN THE BALL OF EARTH SURROUNDING ITS ROOTS HAS BEEN BADLY CRACKED OR BROKEN PREPARATORY TO OR DURING THE PROCESS OF PLANTING. THE BALLS SHALL REMAIN INTACT DURING ALL OPERATIONS. ALL PLANTS THAT CANNOT BE PLANTED AT ONCE MUST BE HEELED-IN BY SETTING IN THE GROUND AND COVERING THE BALLS WITH SOIL OR MULCH AND THEN WATERING. HEMP BURLAP AND TWINE IS PREFERABLE TO TREATED. IF TREATED BURLAP IS USED, ALL TWINE IS TO BE CUT FROM AROUND THE TRUNK AND ALL BURLAP IS TO BE REMOVED.
8. PLANTS TRANSPORTED TO THE PROJECT IN OPEN VEHICLES SHALL BE COVERED WITH TARPS OR OTHER SUITABLE COVERS SECURELY FASTENED TO THE BODY OF THE VEHICLE TO PREVENT INJURY TO THE PLANTS. CLOSED VEHICLES SHALL BE ADEQUATELY VENTILATED TO PREVENT OVERHEATING OF THE PLANTS. EVIDENCE OF INADEQUATE PROTECTION FOLLOWING DIGGING, CARELESSNESS WHILE IN TRANSIT, OR IMPROPER HANDLING OR STORAGE SHALL BE CAUSE FOR REJECTION OF PLANT MATERIAL. ALL PLANTS SHALL BE KEPT MOIST, FRESH, AND PROTECTED. SUCH PROTECTION SHALL ENCOMPASS THE ENTIRE PERIOD DURING WHICH THE PLANTS ARE IN TRANSIT, BEING HANDLED, OR ARE IN TEMPORARY STORAGE.
9. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE CORRESPONDING LANDSCAPE PLAN AND PLANTING DETAILS.
10. LANDSCAPE CONTRACTOR SHALL MAKE BEST EFFORT TO INSTALL PLANTINGS ON THE SAME DAY AS DELIVERY. IF PLANTS ARE NOT PLANTED IMMEDIATELY ON SITE, PROPER CARE SHALL BE TAKEN TO PLACE THE PLANTINGS IN PARTIAL SHADE WHEN POSSIBLE. THE ROOT BALL SHALL BE KEPT MOIST AT ALL TIME AND COVERED WITH MOISTENED MULCH OR ACCEPTED WOODCHIPS. PROPER IRRIGATION SHALL BE SUPPLIED SO AS TO NOT ALLOW THE ROOT BALL TO DRY OUT. PLANTINGS SHALL BE UNTIED AND PROPER SPACING SHALL BE ALLOTTED FOR AIR CIRCULATION AND TO PREVENT DISEASE, WILTING, AND LEAF LOSS. PLANTS THAT REMAIN UNPLANTED FOR A PERIOD OF TIME GREATER THAN THREE (3) DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH AND WATERED AS REQUIRED TO PRESERVE ROOT MOISTURE.
11. NO PLANT MATERIAL SHALL BE PLANTED IN MUDDY OR FROZEN SOIL.
12. PLANTS WITH INJURED ROOTS OR BRANCHES SHALL BE PRUNED PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY DISEASED OR INJURED PLANTS SHALL BE REMOVED.
13. IF ROCK OR OTHER UNDERGROUND OBSTRUCTION IS ENCOUNTERED, THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO RELOCATE OR ENLARGE PLANTING PITS OR DELETE PLANT MATERIAL FROM THE CONTRACT.
14. IF PLANTS ARE PROPOSED WITHIN SIGHT TRIANGLES, TREES SHALL BE LIMBED AND MAINTAINED TO A HEIGHT OF EIGHT FEET (8') ABOVE GRADE, AND SHRUBS, GROUND COVER, PERENNIALS, AND ANNUALS SHALL BE MAINTAINED TO A HEIGHT NOT TO EXCEED TWO FEET (2') ABOVE GRADE UNLESS OTHERWISE NOTED OR SPECIFIED BY THE GOVERNING MUNICIPALITY OR AGENCY.
15. INSTALLATION SHALL OCCUR DURING THE FOLLOWING SEASONS:
    PLANTS (MARCH 15 - DECEMBER 15)
    LAWNS (MARCH 15 - JUNE 15 OR SEPTEMBER 1 - DECEMBER 1)
16. THE FOLLOWING TREES ARE SUSCEPTIBLE TO TRANSPLANT SHOCK AND SHALL NOT BE PLANTED DURING THE FALL SEASON (STARTING SEPTEMBER 15):

ABIES CONCOLOR	CORNUS VARIETIES	OSTRYA VIRGINIANA
ACER BUERGERIANUM	CRATAEGUS VARIETIES	PINUS NIGRA
ACER FREEMANII	CUPRESSOCYPARIS LEYLANDII	PLATANUS VARIETIES
ACER RUBRUM	FAGUS VARIETIES	POPULUS VARIETIES
ACER SACCHARINUM	HALESIA VARIETIES	PRUNUS VARIETIES
BETULA VARIETIES	ILEX X FOSTERII	PYRUS VARIETIES
CARPINUS VARIETIES	ILEX NELLIE STEVENS	QUERCUS VARIETIES (NOT Q. PALUSTRIS)
CEDRUS DEODARA	ILEX OPACA	SALIX WEEPING VARIETIES
CELTIS VARIETIES	JUNIPERUS VIRGINIANA	SORBUS VARIETIES
CERCIDIPHYLLUM VARIETIES	KOELREUTERIA PANICULATA	TAXODIUM VARIETIES
CERCIS CANADENSIS	LIQUIDAMBAR VARIETIES	TAXUX B REPANDENS
CORNUS VARIETIES	LIRIODENDRON VARIETIES	TILIA TOMENTOSA VARIETIES
CRATAEGUS VARIETIES	MALUS IN LEAF	ULMUS PARVIFOLIA VARIETIES
	NYSSA SYLVATICA	ZELKOVA VARIETIES

17. IF A PROPOSED PLANT IS UNATTAINABLE OR ON THE FALL DIGGING HAZARD LIST, AN EQUIVALENT SPECIES OF THE SAME SIZE MAY BE REQUESTED FOR SUBSTITUTION OF THE ORIGINAL PLANT. ALL SUBSTITUTIONS SHALL BE APPROVED BY THE PROJECT LANDSCAPE DESIGNER OR MUNICIPAL OFFICIAL PRIOR TO ORDERING AND INSTALLATION.
18. DURING THE COURSE OF CONSTRUCTION/PLANT INSTALLATION, EXCESS AND WASTE MATERIALS SHALL BE CONTINUOUSLY AND PROMPTLY REMOVED AT THE END OF EACH WORK DAY. ALL DEBRIS, MATERIALS, AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF AND ALL PAVED AREAS SHALL BE CLEANED.
19. THE LANDSCAPE CONTRACTOR SHALL DISPOSE OF ALL RUBBISH AND EXCESS SOIL AT HIS EXPENSE TO AN OFF-SITE LOCATION AS APPROVED BY THE LOCAL MUNICIPALITY.
20. A 90-DAY MAINTENANCE PERIOD SHALL BEGIN IMMEDIATELY AFTER ALL PLANTS HAVE BEEN SATISFACTORILY INSTALLED.
21. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, REPLACING MULCH THAT HAS BEEN DISPLACED BY EROSION OR OTHER MEANS, REPAIRING AND RESHAPING WATER RINGS OR SAUCERS, MAINTAINING STAKES AND GUYS IF ORIGINALLY REQUIRED, WATERING WHEN N

GENERAL LIGHTING NOTES

1. THE LIGHTING LEVELS DEPICTED WITHIN THE PLAN SET ARE CALCULATED UTILIZING DATA OBTAINED FROM THE LISTED MANUFACTURER. ACTUAL ILLUMINATION LEVELS AND PERFORMANCE OF ANY PROPOSED LIGHTING FIXTURE MAY VARY DUE TO UNCONTROLLABLE VARIABLES SUCH ARE WEATHER, VOLTAGE SUPPLY, LAMP TOLERANCE, EQUIPMENT SERVICE LIFE AND OTHER VARIABLE FIELD CONDITIONS.
2. WHERE APPLICABLE, THE EXISTING LIGHT LEVELS DEPICTED WITHIN THE PLAN SET SHALL BE CONSIDERED APPROXIMATE. THE EXISTING LIGHT LEVELS ARE BASED ON FIELD OBSERVATIONS AND THE MANUFACTURER'S DATA OF THE ASSUMED OR MOST SIMILAR LIGHTING FIXTURE MODEL.
3. UNLESS NOTED ELSEWHERE WITHIN THIS PLAN SET, THE LIGHT LOSS FACTORS USED IN THE LIGHTING ANALYSIS ARE AS FOLLOWS:
   - LIGHT EMITTING DIODES (LED): 0.90
   - HIGH PRESSURE SODIUM: 0.72
   - METAL HALIDE: 0.72
4. THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY PROPOSED LIGHTING LOCATIONS THAT CONFLICT WITH EXISTING/ PROPOSED DRAINAGE, UTILITY, OR OTHER IMPROVEMENTS.
5. THE CONTRACTOR IS RESPONSIBLE TO PREPARE A WIRING PLAN AND PROVIDE ELECTRIC SERVICE TO ALL PROPOSED LIGHTING FIXTURES. THE CONTRACTOR IS REQUIRED TO PREPARE AN AS-BUILT PLAN OF WIRING AND PROVIDE COPIES TO THE OWNER AND STONEFIELD ENGINEERING & DESIGN, LLC.

LIGHTING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 27.11-E.1.a	MAXIMUM ILLUMINATION(*): TOTAL SITE: 20 FC	18.3 FC
	RESIDENTIAL PROPERTY LINE: 0.3 FC	0.3 FC
	NON-RESIDENTIAL PROPERTY LINE: 1.0 FC	1.0 FC
	MINIMUM ILLUMINATION(*): ANYWHERE TO BE ILLUMINATED: 0.3 FC	0.3 FC
	AVERAGE PARKING LOT ILLUMINATION(**): LARGE (100 + SPACES): 0.9 FC	4.7 FC
§ 27.11- E.1.d	MAXIMUM POLE HEIGHT: 20 FT	20 FT

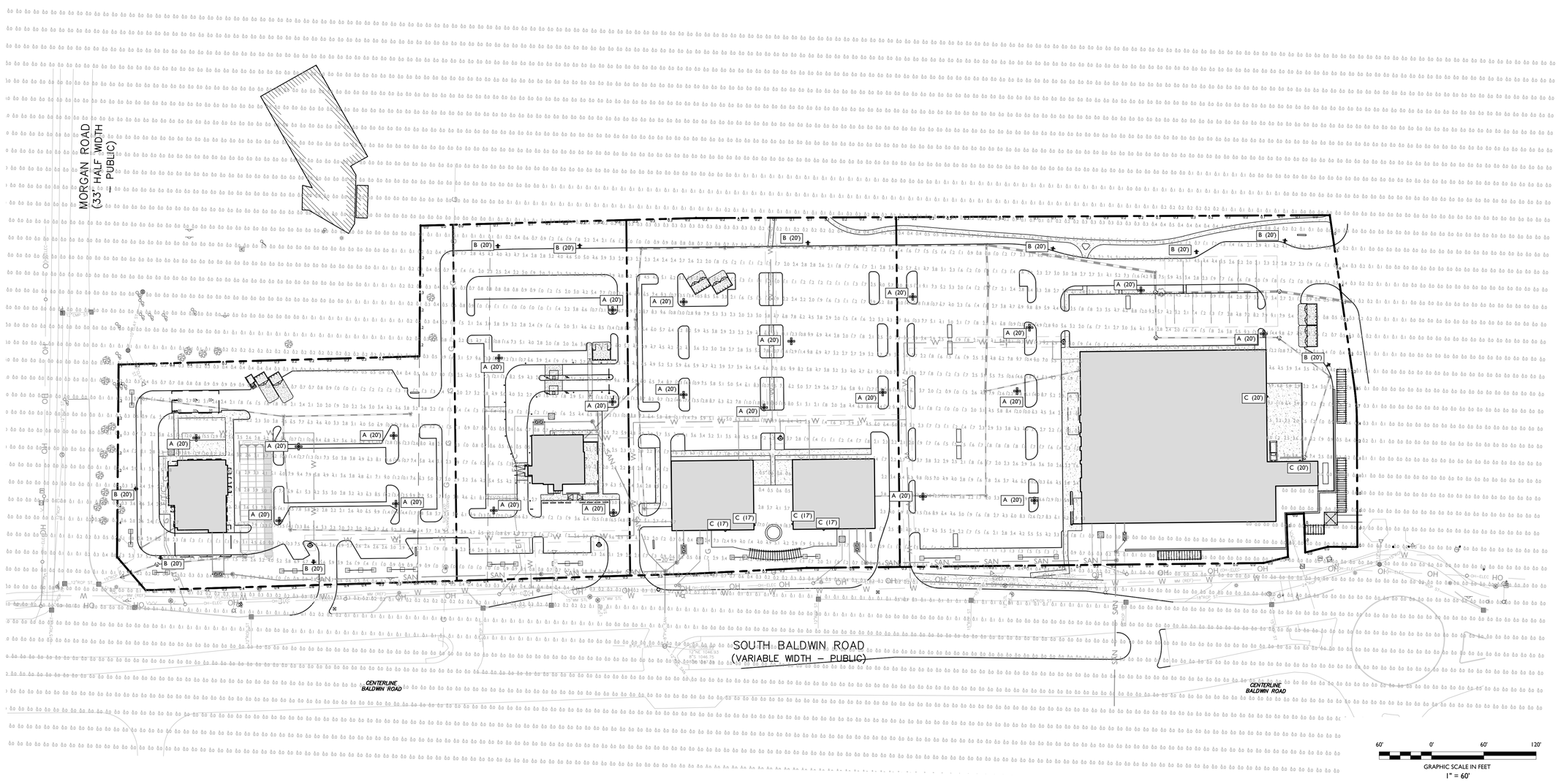
(*) MEASURED AT GROUND LEVEL

(**) MEASURED AT 5 FT ABOVE GROUND LEVEL

PROPOSED LUMINAIRE SCHEDULE

SYMBOL	LABEL	QUANTITY	SECURITY LIGHTING	DISTRIBUTION	LLF	MANUFACTURER	IES FILE
	A	22	EATON LUMARK PREVAIL AND FIXTURE COMBO QUAD 90 DEG	TYPE IV	0.9	EATON	PRV-C60-D-UNV-T4-BZ-7030
	B	10	EATON LUMARK PREVAIL AND FIXTURE COMBO WITH HOUSE SIDE SHIELD	TYPE III	0.9	EATON	PRV-C40-D-UNV-T3-BZ-7030-HSS
	C	6	EATON LUMARK XTOR CORSSTOUR MAXX LED	TYPE IV	0.9	EATON	XTOR12B-W

SYMBOL	DESCRIPTION
	PROPOSED CALCULATION AREA
	PROPOSED ISOMETRIC LINE
A (XX')	PROPOSED LIGHTING FIXTURE (MOUNTING HEIGHT)
X.X	PROPOSED LIGHTING INTENSITY (FOOTCANDLES)
	PROPOSED AREA LIGHT
	PROPOSED BUILDING MOUNTED LIGHT



ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN FRED COOKSEY
ENGINEER
JONATHAN F. COOKSEY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 60'
PROJECT ID: DET-210395

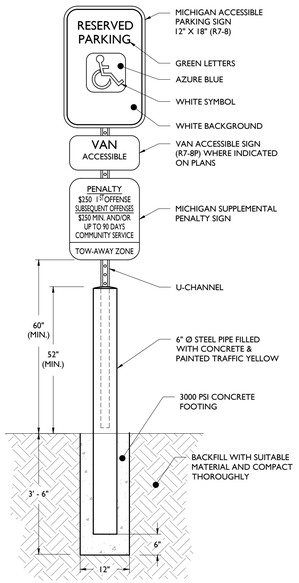
TITLE:

LIGHTING PLAN

DRAWING:

C-18

V:\DET2021\DET-210395 ALINCAP\SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CAD\PLOT\C01-18-LIGHT.DWG

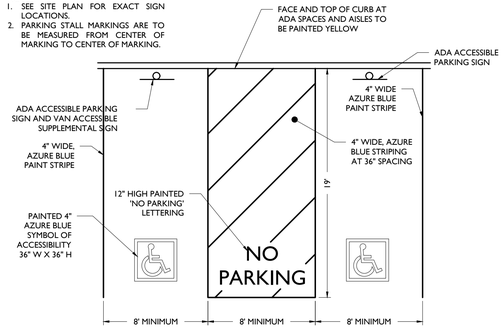


ACCESSIBLE PARKING SIGN WITH BOLLARD DETAIL

NOT TO SCALE

1

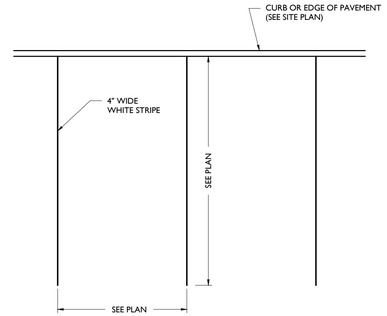
NOTES:
1. SEE SITE PLAN FOR EXACT SIGN LOCATIONS.
2. PARKING STALL MARKINGS ARE TO BE MEASURED FROM CENTER OF MARKING TO CENTER OF MARKING.



ACCESSIBLE PARKING STALL MARKINGS

NOT TO SCALE

2



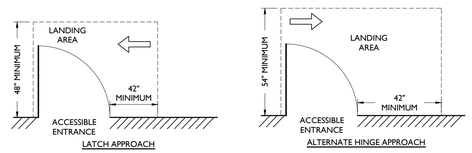
PARKING STALL MARKINGS

NOT TO SCALE

3

PAVEMENT STRIPING & MARKINGS NOTES:
1. ALL SIGNING AND STRIPING IN EXISTING CONDITION IN CONFLICT WITH THE PROPOSED DESIGN PLAN SHALL BE REMOVED.
2. ALL PROPOSED SIGNING AND STRIPING SHALL CONFORM TO THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
3. PAVEMENT STRIPING AND MARKINGS SHALL BE INSTALLED IN CONFORMANCE WITH ALL APPLICABLE LOCAL, COUNTY AND STATE REQUIREMENTS.
4. UNLESS OTHERWISE SPECIFIED, ALL STRIPING AND MARKINGS IN THE PUBLIC RIGHT-OF-WAY SHALL BE OF THERMOPLASTIC PAINT OR PREFORMED THERMOPLASTIC MARKINGS.
5. UNLESS OTHERWISE SPECIFIED, ON SITE PARKING STALL STRIPING, FIRE LANE STRIPING AND DIRECTIONAL ARROWS SHALL BE EPOXY PAINT. ON SITE STOP BARS, "DO NOT ENTER" BARS, AND ASSOCIATED LETTERING SHALL BE THERMOPLASTIC PAINT OR PREFORMED THERMOPLASTIC MARKINGS.

4

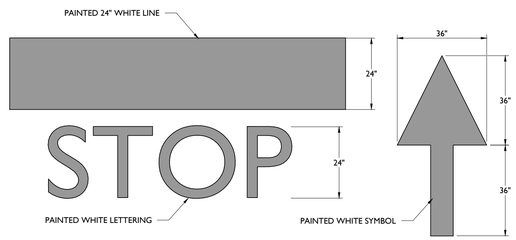


ACCESSIBLE ENTRANCE LANDING DETAIL

NOT TO SCALE

NOTES:
1. MAXIMUM SLOPE ON LANDING SHALL BE 1:50 IN ALL DIRECTIONS.
2. DIMENSIONS SHOWN HERE ARE THE MINIMUM DIMENSIONS REQUIRED FOR AN ADA COMPLIANT LANDING AT THE ACCESSIBLE ENTRANCE. REFER TO SITE PLAN FOR SITE SPECIFIC DIMENSIONS THAT MAY SPECIFY A LARGER LANDING AREA.
3. CONTRACTOR SHALL CONTACT THE ENGINEER BEFORE CONSTRUCTION IF THE ACCESSIBLE ENTRANCE ON SITE DOES NOT MATCH THE SCENARIO SHOWN ABOVE.

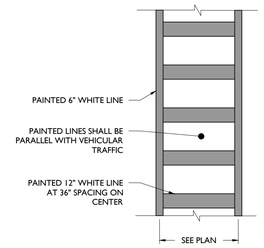
5



STOP BAR & ARROW DETAILS

NOT TO SCALE

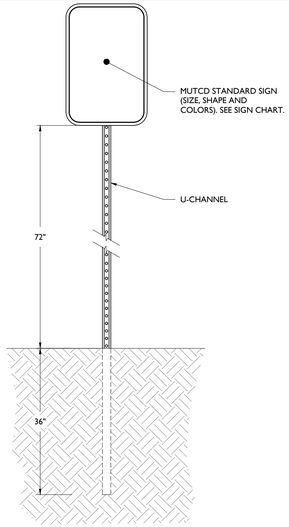
6



CROSSWALK DETAIL

NOT TO SCALE

7



SIGN POST DETAIL

NOT TO SCALE

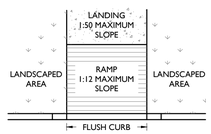
M.U.T.C.D. NUMBER	TEXT	COLOR		SIZE OF SIGN (WIDTH X HEIGHT)	TYPE OF MOUNT
		LEGEND	BACKGROUND		
STOP SIGN (R1-1)	STOP	WHITE	RED	36"x36"	GROUND

NOTE:
1. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), EXCEPT AS NOTED.
2. ALL SIGNS SHALL BE MOUNTED AS TO NOT OBSTRUCT THE SHAPE OF "STOP" (R1-1) AND "YIELD" (R1-2) SIGNS.

SIGN DATA TABLE

NOT TO SCALE

8

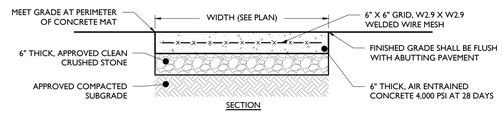


CURB RAMP DETAIL

NOT TO SCALE

NOTES:
1. CROSS SLOPE ON RAMP SHALL NOT EXCEED 2%
2. A FLUSH CURB SHALL HAVE A MINIMUM WIDTH OF 36". SEE PLAN FOR EXACT WIDTH.
3. RAMP SHALL HAVE A MAXIMUM RISE OF 6" WITHOUT A HANDRAIL

9

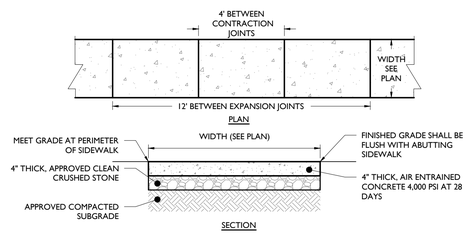


REINFORCED 6" CONCRETE MAT

NOT TO SCALE

NOTES:
1. ½" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
2. 1" DEEP BY ¼" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION JOINTS OR 6' INTERVALS MAX.
3. CONCRETE SHALL RECEIVE BROOM FINISH.
4. ALL EXPOSED CORNERS TO HAVE 12" CHAMFER.

10

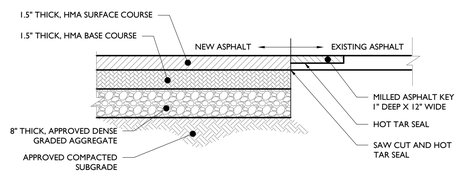


CONCRETE WALKWAY DETAIL

NOT TO SCALE

NOTES:
1. MAXIMUM CROSS SLOPE SHALL BE ¼" PER FOOT.
2. ½" EXPANSION JOINTS SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM THE SURFACE.
3. 1" DEEP BY ¼" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT 4' INTERVALS.
4. EXPANSION JOIN SHALL BE PROVIDED WHERE ADJACENT TO A BUILDING.

11

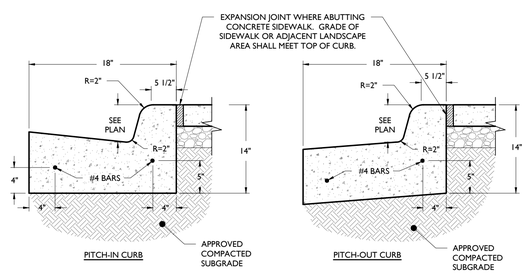


FULL DEPTH ASPHALT PAVEMENT DETAIL

NOT TO SCALE

NOTE:
HMA MIX AND DENSE GRADED AGGREGATE SHALL CONFORM TO STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

12



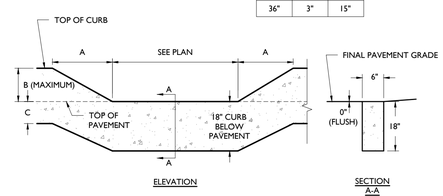
CONCRETE CURB AND GUTTER DETAIL

NOT TO SCALE

NOTES:
1. CONCRETE SHALL BE 3500 PSI AT 28 DAYS, AIR-ENTRAINED.
2. TRANSVERSE EXPANSION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ¼" FROM SURFACE.
3. HALF DEPTH CONTRACTION JOINTS SHALL BE PROVIDED AT 10 FOOT INTERVALS.
4. 14" CURB DEPTH SHALL BE MAINTAINED AT DEPRESSED OR FLUSH CURBED AREAS.

13

FLUSH CURB DIMENSIONS		
A	B	C
72"	6"	12"
60"	5"	13"
48"	4"	14"
36"	3"	15"



FLUSH CURB DETAIL

NOT TO SCALE

14

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COONSEY
ENGINEER
LICENSED PROFESSIONAL ENGINEER
JONATHAN REID COONSEY, P.E.

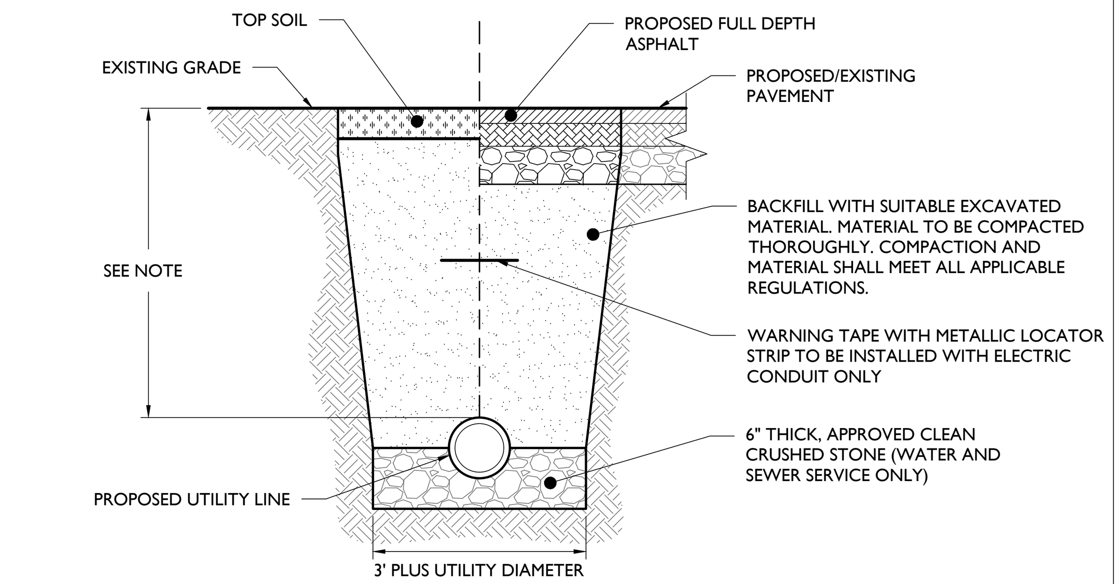
STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210395

TITLE: CONSTRUCTION DETAILS

DRAWING: C-19

V:\DET2021\DET-210395-AUSC-H SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CADD\PLOTTER-19-20-DETL.DWG



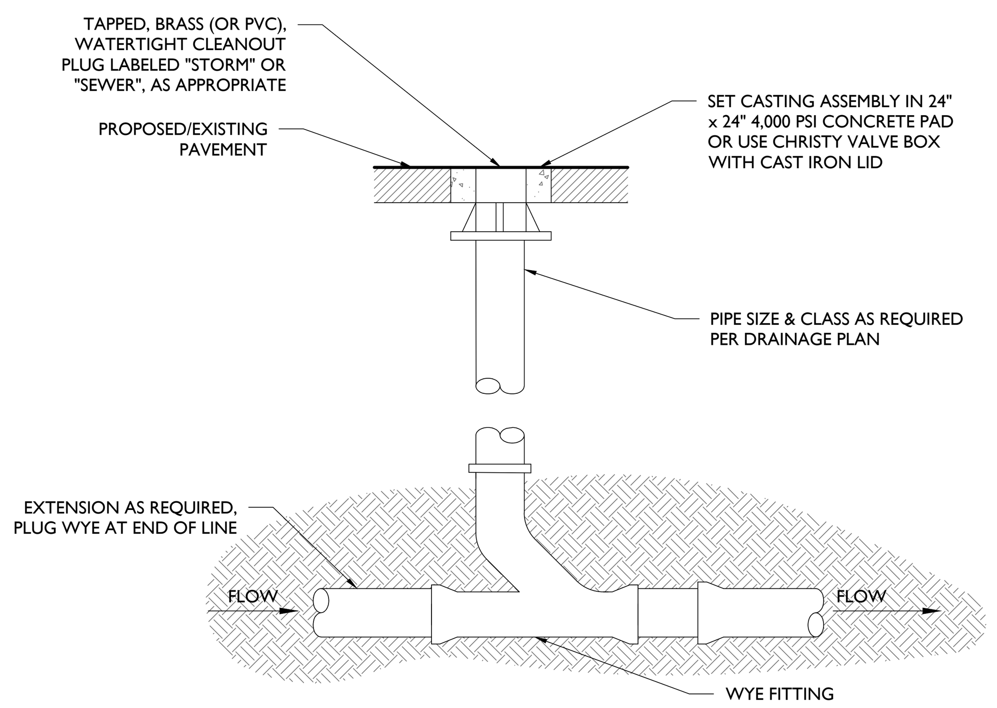
UTILITY TRENCH DETAIL

NOT TO SCALE

NOTE:

MINIMUM PIPE COVER SHALL BE AS FOLLOW:
- ELECTRIC SERVICE - PER APPLICABLE UTILITY AUTHORITY
- GAS SERVICE - PER APPLICABLE UTILITY AUTHORITY
- SEWER SERVICE - 36" MINIMUM
- WATER SERVICE - 48" MINIMUM

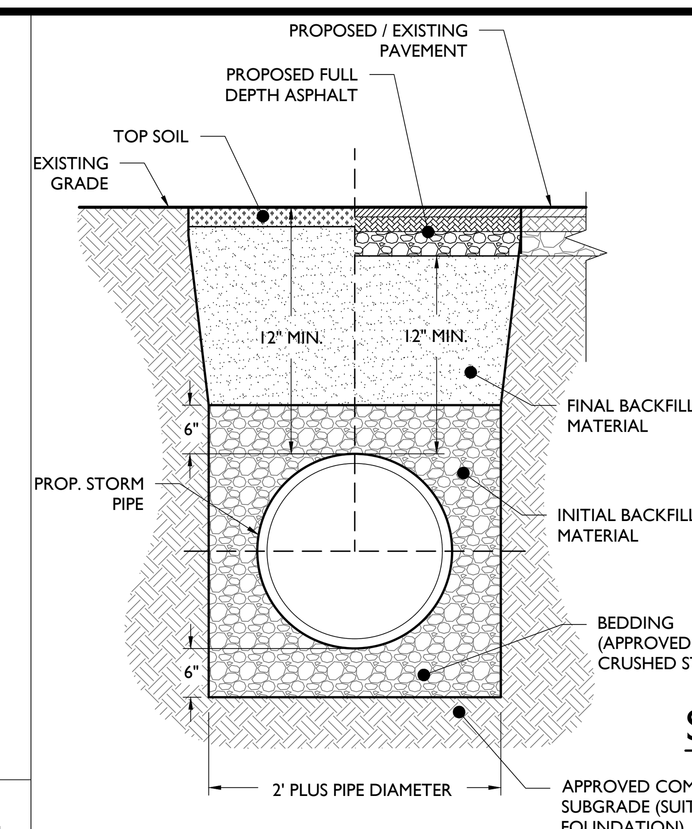
1



HARDSCAPE CLEAN-OUT

NOT TO SCALE

2



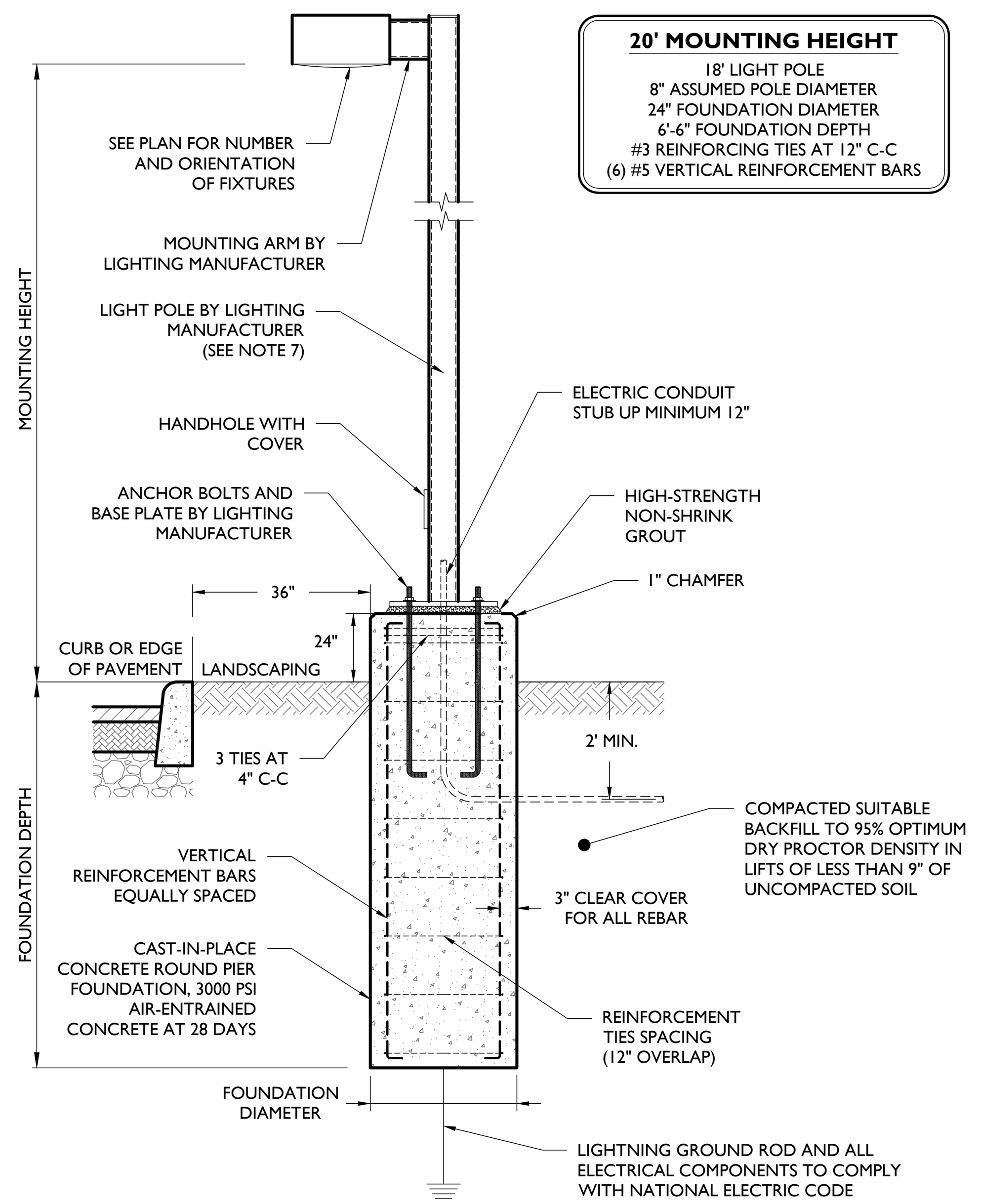
NOTES:

1. ALL PIPE SYSTEM INSTALLATIONS SHALL MEET ALL APPLICABLE STANDARDS AND SPECIFICATIONS.
2. ALL HDPE PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS" (LATEST EDITION).
3. ALL RCP PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C76-15, "STANDARD SPECIFICATION FOR REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE" (LATEST EDITION).
4. FOR NON HDPE OR RCP PIPE INSTALLATIONS, CONTRACTOR SHALL INSTALL PIPE IN ACCORDANCE WITH ALL APPLICABLE STANDARDS AND SPECIFICATIONS.
5. WHERE THE TRENCH BOTTOM IS UNSTABLE, CONTRACTOR SHALL PROVIDE SUITABLE BACKFILL MATERIAL AS REQUIRED BY ENGINEER OR PER GEOTECH RECOMMENDATIONS.
6. MINIMUM COVER IN TRAFFIC AREAS IS 12" UP TO 48" DIAMETER PIPE AND 24" FOR 54" - 60" DIAMETER PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.
7. CONTRACTOR SHALL INSTALL SUITABLE MATERIAL FOR INITIAL AND FINAL BACKFILL. BACKFILL COMPACTION SHOULD MEET ALL APPLICABLE STANDARDS AND SPECIFICATIONS.

STORM TRENCH DETAIL

NOT TO SCALE

3



LIGHT POLE INSTALLATION DETAIL (22')

NOT TO SCALE

NOTES:
1. MINIMUM SOIL BEARING PRESSURE OF 1500 PSF, SOIL FRICTION ANGLE OF 30 DEGREES, AND SOIL DRY UNIT WEIGHT OF 120 PCF SHALL BE CONFIRMED IN THE FIELD BY A QUALIFIED PROFESSIONAL.
2. CAST-IN-PLACE CONCRETE SHALL BE CONSOLIDATED USING VIBRATOR.
3. ALL REBAR TO BE NEW GRADE 60 STEEL.
4. PRE-CAST PIERS ACCEPTABLE UPON WRITTEN APPROVAL OF SHOP DRAWING BY ENGINEER.
5. CONCRETE TO BE INSTALLED A MINIMUM OF 7 DAYS PRIOR TO INSTALLING LIGHT POLE. POURED CONCRETE MIX REQUIRED TO OBTAIN 80% OF DESIGN STRENGTH PRIOR TO INSTALLING LIGHT POLE.
6. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" (WITHIN 1" TOLERANCE).
7. POLE SHALL BE RATED FOR 10 MPH HIGHER THAN MAXIMUM WIND SPEED 33FT ABOVE GROUND FOR THE AREA BASED ON ANSI/ASCE 7-93.
8. POUR TO BE TERMINATED AT A FORM.
9. WORK SHALL CONFORM TO ACI BEST PRACTICES FOR APPROPRIATE TEMPERATURE AND WEATHER CONDITIONS.
10. CONTRACTOR TO TEMPORARILY SUPPORT ADJACENT SOIL AND STRUCTURES DURING EXCAVATION IF REQUIRED.

4

Lumark

DESCRIPTION

The Prevail™ LED pole and fixture combination makes selection and installation of poles and fixtures simple. Included is the die-cast Prevail area, site and roadway luminaire with standard mounting arm, square straight steel pole, anchor bolts, base cover, template and hardware. Stock configurations are available in single and dual fixture combinations. The Prevail luminaire delivers a new level of versatility and value in patent pending, architectural design that delivers energy savings greater than 85% and replaces 150-450W metal halide fixtures. The Prevail fixture and pole combo is ideal for general area/site lighting applications.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
Construction is comprised of a heavy-duty, single-piece die-cast aluminum housing in dark bronze polyester powder paint. The die-cast aluminum door is tethered to provide easy access to the driver if replacement is required. The optics is mounted on a versatile, aluminum plate that dissipates heat from the LEDs resulting in longer life of the fixture. The fixture is IP66 and 3G vibration rated (ANSI C136.31).

Optics
Available in Type III and IV distributions with lumen packages ranging from 7,000 to 20,000 nominal lumens. Light engine configurations consist of 1 or 2 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L91/50,000 hours at 25°C) per IESNA TM-21. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed.

Electrical
Available in 120-277V 50/60Hz. 10kV/10kA surge protection standard. 0-10V dimming driver is standard with leads external to the fixture to accommodate controls capability such as dimming and occupancy. Suitable for ambient temperatures from -40°C to 40°C.

Mounting
The versatile, patent pending, standard mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the standard mounting arm enables wiring of the fixture without having to access the driver compartment. A knock-out on the standard mounting arm enables round pole mounting.

Pole
Shaft is one-piece construction ASTM A500 grade "B" steel, shot blasted and finished in dark bronze polyester powder coat. Anchor base is fabricated from ASTM grade steel. ASTM A366 steel full base cover is provided to enclose base plate and anchor bolts. Anchor bolts are per ASTM A576 with two nuts, two flat washers, and one lock washer. Hardware and threaded portion of bolt are hot dip galvanized. 3" hook for 3/4" bolt. 4" hook for 1" bolt.

Finish
Housing and cast parts finished in five-stage super TGIC polyester bronze powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear.

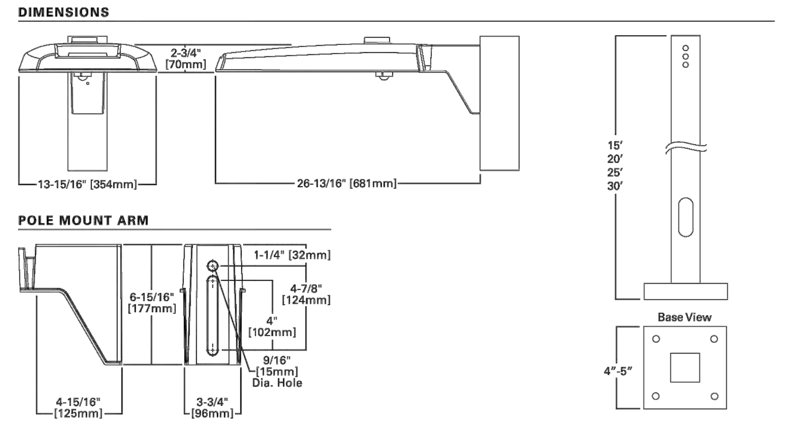
Warranty
Five-year warranty.

PFPRV PREVAIL POLE AND FIXTURE COMBO

LED

POLE AND FIXTURE COMBO

DIMENSIONS



CERTIFICATION DATA
UL and cUL Wet Location Listed
IP66 Rated
3G Vibration Rated
ISO 9001

ENERGY DATA
Electronic LED Driver

EPA

SHIPPING DATA

EATON
Powering Business Worldwide

TD500029EN
October 16, 2018 11:09 AM

LIGHT FIXTURE SPECIFICATION (A & B)

NOT TO SCALE

5

Lumark

DESCRIPTION

The patented Lumark Crosstour™ MAXX LED wall pack series of luminaries provides low-profile architectural style with super bright, energy-efficient LEDs. The rugged die-cast aluminum construction, back box with secure lock hinges, stainless steel hardware along with a sealed and gasketed optical compartment make Crosstour impervious to contaminants. The Crosstour MAXX wall luminaire is ideal for wall/surface, inverted mount for facade/canopy illumination, perimeter and site lighting. Typical applications include pedestrian walkways, building entrances, multi-use facilities, industrial facilities, perimeter parking areas, storage facilities, institutions, schools and loading docks.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
Low-profile LED design with rugged one-piece, die-cast aluminum back box and hinged removable door. Matching housing styles incorporate both a full cutoff and refractive lens design. Full cutoff and refractive lens models are available in 58W, 81W and 102W. Patent pending secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes four 1/2" NPT threaded conduit entry points. The back box is secured by four lag bolts (supplied by others). External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Not recommended for car wash applications.

Optical
Silicone sealed optical LED chamber incorporates a custom engineered reflector providing high-efficiency illumination. Full cutoff models integrate an impact-resistant molded refractive prism optical lens assembly meeting requirements for Dark Sky compliance. Refractive lens models incorporate a molded lens assembly designed for maximum forward throw. Solid state LED Crosstour MAXX luminaires are thermally optimized with eight lumen packages in cool 5000K, neutral 4000K, or warm 3000K LED color temperature (CCT).

Electrical
LED driver is mounted to the die-cast aluminum housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 58W, 81W and 102W models operate in -40°C to 40°C [-40°F to 104°F]. High ambient 50°C [122°F] models available in 58W and 81W models only. Crosstour MAXX luminaires maintain greater than 89% of initial light output after 72,000 hours of operation. Four half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz, 480V 60Hz, or 347V 60Hz electrical operation. 480V is compatible for use with 480V Wye systems only.

Emergency Egress
Optional integral cold weather battery emergency egress includes emergency operation test switch (available in 58W and 81W models only), an AC-ON indicator light and a premium extended rated sealed maintenance-free nickel-metal hydride battery pack. The separate emergency lighting LEDs are wired to provide redundant emergency lighting. Listed to UL Standard 924, Emergency Lighting.

Area and Site Pole Mounting
Optional extruded aluminum 6-1/2" arm features internal bolt guides for supplied twin support rods, allowing for easy positioning of the fixture during installation to pole. Supplied with round plate adapter plate. Optional tenon adapter fits 2-3/8" or 3-1/2" O.D. Tenon.

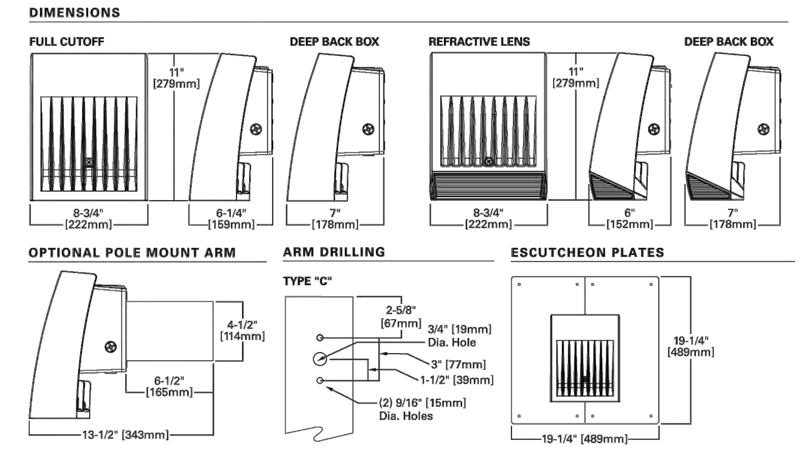
Finish
Crosstour MAXX is protected with a super TGIC carbon bronze or summit white polyester powder coat paint. Super TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

Warranty
Five-year warranty.

XTOR CROSSTOUR MAXX LED

APPLICATIONS:
WALL / SURFACE
INVERTED
SITE LIGHTING

DIMENSIONS



CERTIFICATION DATA
UL/cUL Wet Location Listed
LM79 / LM80 Compliant
ROHS Compliant
NOM Compliant Models
3G Vibration Tested
UL924 Listed (CBP Models)
IP66 Rated
DesignLights Consortium® Qualified*

TECHNICAL DATA
40°C Ambient Temperature
External Supply Wiring 90°C Minimum

EPA

SHIPPING DATA

EATON
Powering Business Worldwide

*www.designlights.org

TD514005EN
September 17, 2018 3:03 PM

LIGHT FIXTURE SPECIFICATION (C)

NOT TO SCALE

6

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD
engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN FRED COOKSEY
ENGINEER
LICENSED PROFESSIONAL ENGINEER

JONATHAN F. COOKSEY, P.E.
LICENSED PROFESSIONAL ENGINEER

STONEFIELD
engineering & design

SCALE: AS SHOWN | PROJECT ID: DET-210395

TITLE:
CONSTRUCTION DETAILS

DRAWING:
C-20

V:\DET\2021\DET-210395-ALRG-W SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CADD\PLOTS\DP-19-20-DETL.DWG

S:\PROJECTS\2018\2018-346 BALDWIN VILLAGE -jbt\SURVEY-DEPT\18346BND\DWG\18346-ALTA-COMMERCIAL.dwg

LEGAL DESCRIPTION
(Per PEA Group)

PROPOSED COMMERCIAL PARCEL
A parcel of land over part of the Southwest 1/4 of Section 32, Town 4 North, Range 10 East, Orion Township, Oakland County, Michigan, more particularly described as follows:

Commencing at the West 1/4 corner of said section 32; thence along the west line of said section, S00°01'58"W, 878.45 feet; thence S89°52'06"E, 780.14 feet to the POINT OF BEGINNING;
thence N00°38'07"W, 839.93 feet to the east-west 1/4 line of said Section 32;
thence along said east-west 1/4 line, S87°00'01"E, 379.58 feet to the west line of Baldwin Road (variable width), as recorded in Liber 49504, Page 823, Oakland County Records;
thence along said west line the following ten (10) courses:
1) S00°46'00"E, 13.34 feet;
2) S00°26'01"E, 74.96 feet;
3) S14°44'02"E, 26.81 feet
4) S87°22'00"W, 44.67 feet;
5) S02°38'00"E, 20.00 feet;
6) N87°22'00"E, 48.95 feet;
7) S14°44'02"E, 28.84 feet;
8) S01°12'37"E, 321.60 feet;
9) S01°10'56"E, 202.42 feet and
10) S03°57'38"E, 135.47 feet;
thence continuing along the west line of said Baldwin Road and the north line of Morgan Road (33 foot half width), as recorded in Liber 49604, Page 574, Oakland County Records, the following three (3) courses:
1) S01°56'50"E, 627.77 feet;
2) S49°02'08"W, 50.30 feet and
3) N89°54'37"W, 221.05 feet;
thence N01°56'50"W, 345.22 feet;
thence N89°54'37"W, 150.00 feet;
thence N01°56'49"W, 315.91 feet to the POINT OF BEGINNING.
Containing 12.57 acres of land, more or less.

SCHEDULE B EXCEPTIONS
(Per Fidelity National Title Insurance Company, Commitment #A0741518 Revision 2, Dated November 2, 2021)

12. Rights of the public to any portion of the Land lying within the bounds of any street, road, alley or highway.

13. Right(s) of Way and/or Easement(s) and rights incidental thereto, as granted in documents:
Granted to: Consumers Power Company (now known as Consumers Energy) successor to Iosco Land Company
Recording Nos: Liber 36 of Miscellaneous Records, Page 153, and Liber 36 of Miscellaneous Records, Page 395.
As affected by Deed recorded at Liber 1030, Page 589. [Not plottable. The 1930 & 1935 documents describes land that includes the proposed subject parcel for gas main purposes.]

(14.) Right(s) of Way and/or Easement(s) and rights incidental thereto, as granted in documents:
Granted to: Michigan Gas Storage Company
Recording No: Liber 2750, Page 135.
As further disclosed by Notice of Claim thereto recorded at Liber 9714, Page 598. [As plotted.]

15. Terms, Covenants, and Conditions of Deed as set forth below: Recording No: Liber 4157, Page 123. [Not plottable. The 1960 documents describes land that includes the proposed subject parcel.]

16. Right(s) of Way and/or Easement(s) and rights incidental thereto, as granted in a document:
Granted to: Michigan Bell Telephone Company Recording No: Liber 6580, Page 676.
[Not plotted. Easement area lies within the existing Baldwin Road right-of-way.]

17. Right(s) of Way and/or Easement(s) and rights incidental thereto as set forth in a document:
In favor of: Charter Township of Orion
Recording No: Liber 19999, Page 90. [Not plotted. Easement area lies within the existing Baldwin Road right-of-way.]

(18.) Right(s) of Way and/or Easement(s) and rights incidental thereto as set forth in documents:
In favor of: Board of County Road Commissioners of the County of Oakland
Recording Nos: Liber 49604, Page 574, and Liber 49684, Page 709. [As shown - Highway easement & acquisition for public highway. Documents also grant temporary grading easements - not shown.]

SCHEDULE B EXCEPTIONS
(Per Fidelity National Title Insurance Company, Commitment #A0742572 Revision 2, Dated November 2, 2022)

10. No liability is assumed by the Company for tax increase occasioned by retroactive revaluation or change in land usage or loss of any Principal Residence Exemption status for the Land.

11. Rights of the public to any portion of the Land lying within the bounds of any street, road, alley or highway.

12. Rights of tenants under unrecorded leases and any and all parties claiming by, through and thereunder.

13. Right(s) of Way and/or Easement(s) and rights incidental thereto as set forth in a document: In favor of: Iosco Land Company Recording No: Liber 36 Miscellaneous Records, Page 153 [Not plottable. The 1930 document describes overall parcel that encompasses the proposed subject parcel.]

14. Declaration of Taking for Water and Sewer Improvements
Recording Date: March 10, 1999 Recording No.: Liber 19654, Page 452 [Not plotted. Easement area lies within the existing Baldwin Road right-of-way.]

15. Consent Judgment for public water main
Recording Date: September 25, 2000
Recording No.: Liber 21841, Page 173 [Not plotted. Easement area lies within the existing Baldwin Road right-of-way.]

16. Permanent Easement for Storm Sewer
Recording Date: November 4, 2002
Recording No.: Liber 26989, Page 38 [Not plotted. Easement area lies within the existing Baldwin Road right-of-way, lying north of the subject parcel.]

17. Intentionally deleted.

[18.] Declaration of Taking for Baldwin Road
Recording Date: June 23, 2016
Recording No.: Liber 49504, Page 823 AND
Recording Date: July 21, 2016
Recording No.: Liber 49604, Page 574 [As shown - Highway easement & acquisition for public highway. Documents also grant temporary grading easements - not shown.]

[19.] Possession and Use Agreement
Executed by: The Road Commission for the County of Oakland and Gingelville Land Company, L.L.C., a
Michigan limited liability company
Recording Date: July 21, 2016
Recording No.: Liber 49604, Page 621 [As shown - Highway easement & acquisition for public highway. Documents also grant temporary grading easements - not shown.]

20. Consent Judgment Oakland County Circuit Court Case 2016-154105-CC
Recording Date: June 19, 2017
Recording No.: Liber 50778, Page 390 [Not plottable. Document states any easement rights by Consumers Energy be preserved and not altered by the Road Commission of Oakland County taking of any highway easement rights.]

BENCHMARKS
(GPS DERIVED - NAVD88)

BM #300
ARROW ON HYDRANT, WEST SIDE OF BALDWIN, JUST NORTH OF MORGAN ROAD.
ELEV. - 1055.30

BM #301
ARROW ON HYDRANT, WEST SIDE OF BALDWIN ROAD, ACROSS FROM SOUTH BOUND BALDWIN ROAD TURN AROUND.
ELEV. - 1061.57

BM #302
ARROW ON HYDRANT, WEST SIDE OF BALDWIN ROAD, JUST SOUTH OF JUDAH ROAD.
ELEV. - 1045.86

FLOODPLAIN NOTE:
BY GRAPHICAL PLOTTING, SITE IS WITHIN ZONE 'X', AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBER 26125C0358F, DATED SEPTEMBER 29, 2006.

SURVEYOR'S NOTES:

A As of the date of this survey, there are no known right-of-way changes.

CERTIFICATE OF SURVEY

To: FIDELITY NATIONAL TITLE
RED SHALOM, LLC
SHALOM BAPTIST CHURCH OF PONTIAC
ALRIG USA

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 5, 8, 13 and 17 of Table A thereof. The field work was completed on February 16, 2022.

____
Kevin T. Roach, PS No. 4001047971
(kroach@peagroup.com) Agent for PEA Group

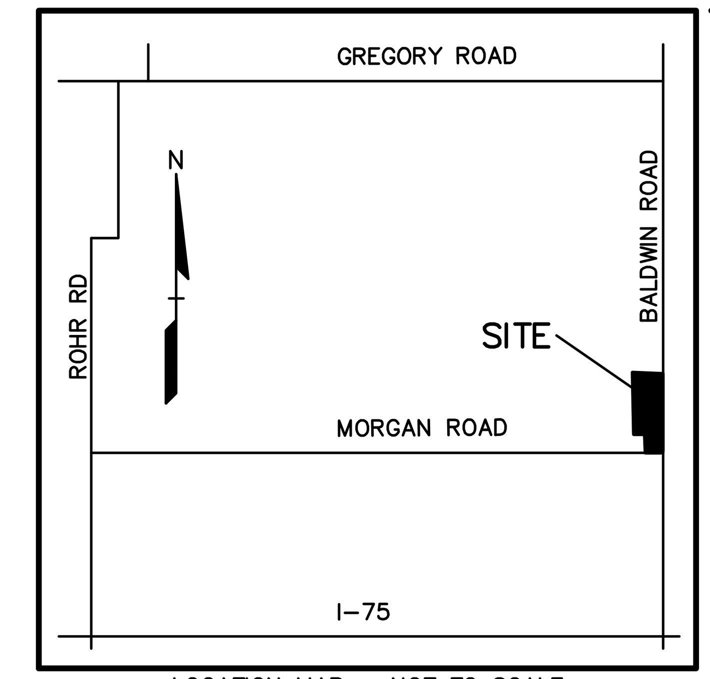
N

LEGEND

IRON FOUND
IRON SET
NAIL FOUND
NAIL & CAP SET
BRASS PLUG SET
MONUMENT FOUND
MONUMENT SET
SEC. CORNER FOUND
R RECORDED
M MEASURED
C CALCULATED

EXISTING

ELEC., PHONE OR CABLE TV O.H. LINE, POLE & GUY WIRE
UNDERGROUND CABLE TV, CATV PEDESTAL
TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE
ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE
GAS MAIN, VALVE & GAS LINE MARKER
WATERMAIN, HYD., GATE VALVE, TAPPING SLEEVE & VALVE
SANITARY SEWER, CLEANOUT & MANHOLE
STORM SEWER, CLEANOUT & MANHOLE
COMBINED SEWER & MANHOLE
SQUARE, ROUND & BEEHIVE CATCH BASIN, YARD DRAIN
POST INDICATOR VALVE
WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF
MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE
UNIDENTIFIED STRUCTURE
SPOT ELEVATION
CONTOUR LINE
FENCE
GUARD RAIL
STREET LIGHT
SIGN



LOCATION MAP - NOT TO SCALE

PEA GROUP
t: 844.813.2949
www.peagroup.com

REFERENCE DRAWINGS

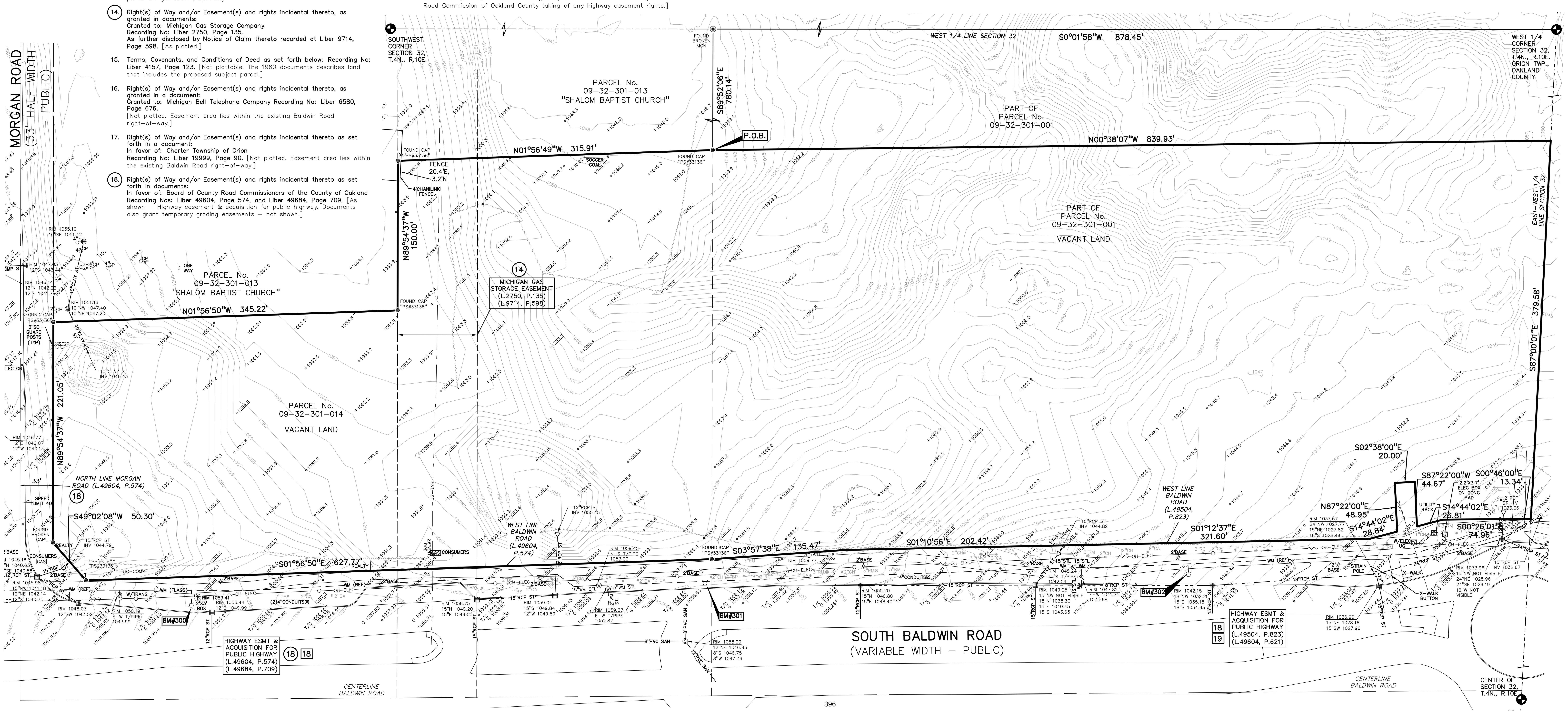
WATER MAIN	"BALDWIN ROAD RECONSTRUCTION MORGAN ROAD TO GREGORY ROAD TO CONSTRUCTION PLAN STA 8+50 TO STA 16+00", OHM, JOB NO. 0170-13-0040, SHEET 55, DATED 3/24/17
SANITARY SEWER	"BALDWIN ROAD RECONSTRUCTION MORGAN ROAD TO GREGORY ROAD TO CONSTRUCTION PLAN STA 8+50 TO STA 16+00", OHM, JOB NO. 0170-13-0040, SHEET 55, DATED 3/24/17
STORM SEWER	"BALDWIN ROAD RECONSTRUCTION MORGAN ROAD TO GREGORY ROAD TO CONSTRUCTION PLAN STA 8+50 TO STA 16+00", OHM, JOB NO. 0170-13-0040, SHEET 55, DATED 3/24/17
FLOOD PLAIN	FEMA F.I.R.M. MAP #26125C0358F, DATED 9/29/06

0 25 50 100
SCALE: 1" = 50'

811 Know what's below. Call before you dig.

PRELIMINARY

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



CLIENT
ALRIG USA
21 E. LONG LAKE ROAD, SUITE 101
BLOOMFIELD HILLS, MI 48304

PROJECT TITLE
BALDWIN VILLAGE - COMMERCIAL PARCEL
BALDWIN ROAD
ORION TOWNSHIP, MI

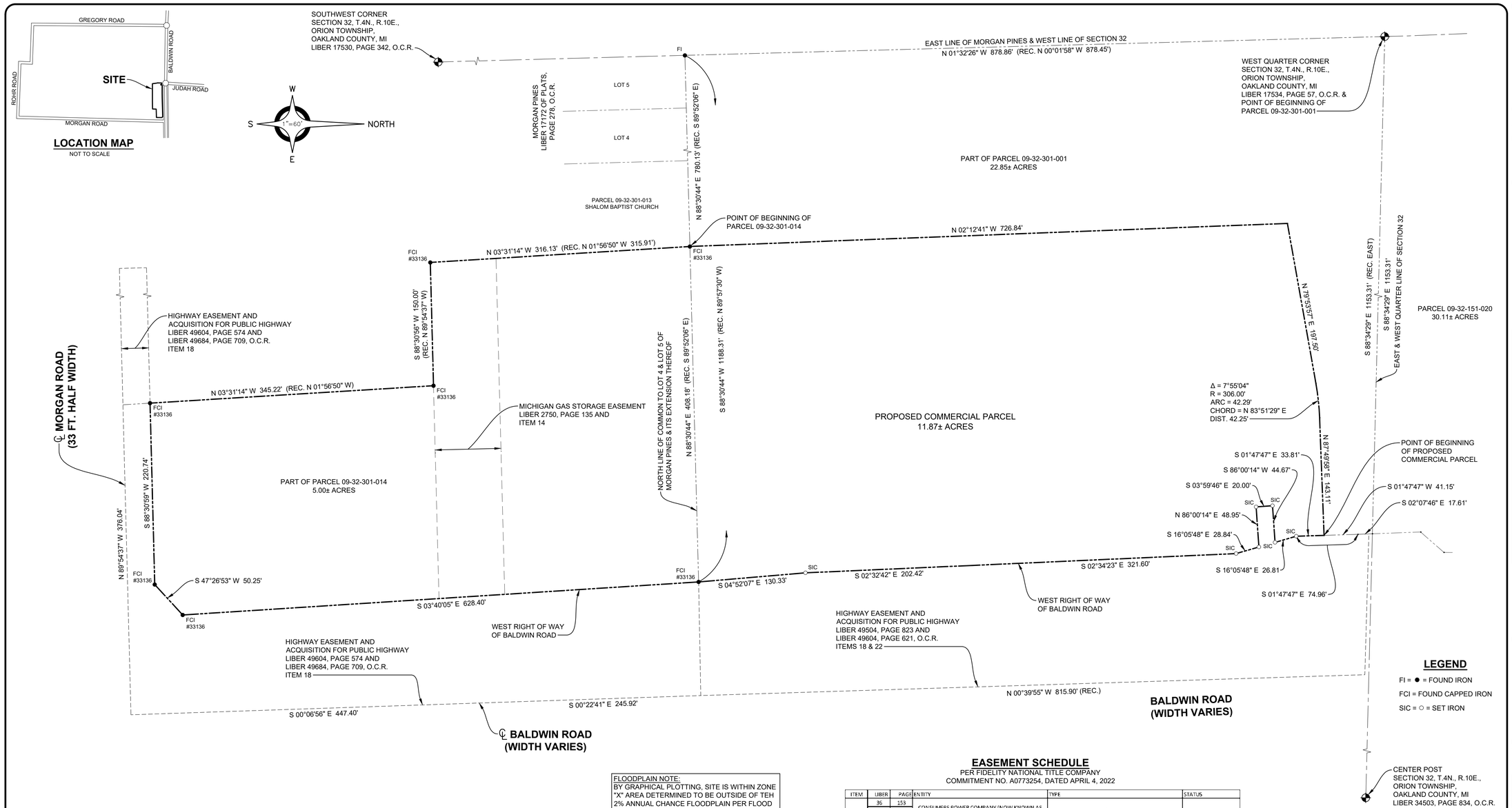
REVISIONS

ORIGINAL ISSUE DATE:
MARCH 11, 2022

DRAWING TITLE
TOPOGRAPHIC ALTA/NSPS LAND TITLE SURVEY

PEA JOB NO.	2018-346
P.M.	JBT
DN.	LR/EH
SUR.	KTR

DRAWING NUMBER:
ALTA



LEGEND

FI = ● = FOUND IRON

FCI = FOUND CAPPED IRON

SIC = ○ = SET IRON

FLOODPLAIN NOTE:
BY GRAPHICAL PLOTTING, SITE IS WITHIN ZONE "X" AREA DETERMINED TO BE OUTSIDE OF TEH 2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBER 26125C0358F, DATED SEPTEMBER 29, 2006

LEGAL DESCRIPTION

PARCEL No. 09-32-301-014

PART OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 32, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS: BEGINNING AT A POINT LOCATED SOUTH 00 DEGREES 01 MINUTES 58 SECONDS WEST 878.45 FEET AND SOUTH 89 DEGREES 52 MINUTES 06 SECONDS EAST 780.14 FEET FROM THE WEST QUARTER CORNER, SECTION 32, TOWN 4 NORTH, RANGE 10 EAST; THENCE 89 DEGREES 52 MINUTES 06 SECONDS EAST 547.10 FEET TO THE CENTERLINE OF BALDWIN ROAD (VARIABLE WIDTH); THENCE SOUTH 00 DEGREES 22 MINUTES 41 SECONDS EAST 245.92 FEET ALONG SAID CENTERLINE; THENCE SOUTH 00 DEGREES 06 MINUTES 56 SECONDS EAST 447.40 FEET ALONG SAID CENTERLINE TO THE CENTERLINE OF MORGAN ROAD (33 FEET HALF WIDTH); THENCE NORTH 89 DEGREES 54 MINUTES 37 SECONDS WEST 376.04 FEET ALONG SAID CENTERLINE OF MORGAN ROAD; THENCE NORTH 01 DEGREES 58 MINUTES 50 SECONDS WEST 378.24 FEET; THENCE NORTH 89 DEGREES 54 MINUTES 37 SECONDS WEST 150.00 FEET; THENCE NORTH 01 DEGREES 56 MINUTES 50 SECONDS WEST 315.91 FEET TO THE POINT OF BEGINNING.

DESCRIPTION
AS-SURVEYED PARCEL No. 09-32-301-014

PART OF THE SOUTHWEST QUARTER OF SECTION 32, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

COMMENCING AT THE WEST QUARTER CORNER OF SECTION 32; THENCE ALONG THE WEST LINE OF SECTION 32 SOUTH 01 DEGREES 32 MINUTES 26 SECONDS EAST 878.86 FEET (RECORD SOUTH 00 DEGREES 01 MINUTES 58 SECONDS WEST 878.45 FEET) TO THE NORTH LINE COMMON TO LOT 4 AND LOT 5 OF MORGAN PINES AS RECORDED IN LIBER 17172 OF PLATS, PAGE 278, OAKLAND COUNTY RECORDS; THENCE ALONG THE NORTH LINE COMMON TO LOT 4 AND LOT 5 OF MORGAN PINES AND ITS EXTENSION THEREOF NORTH 88 DEGREES 30 MINUTES 44 SECONDS EAST (RECORD SOUTH 89 DEGREES 52 MINUTES 06 SECONDS EAST) 780.13 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 88 DEGREES 30 MINUTES 44 SECONDS EAST (RECORD SOUTH 89 DEGREES 52 MINUTES 06 SECONDS EAST) 408.18 FEET TO THE WESTERLY RIGHT OF WAY LINE OF BALDWIN ROAD (WIDTH VARIES); THENCE ALONG THE WESTERLY RIGHT OF WAY LINE OF BALDWIN ROAD AND THE NORTHERLY RIGHT OF WAY LINE OF MORGAN ROAD THE FOLLOWING THREE (3) COURSES: SOUTH 03 DEGREES 40 MINUTES 05 SECONDS EAST 628.40 FEET, SOUTH 47 DEGREES 26 MINUTES 53 SECONDS WEST 50.25 FEET AND SOUTH 88 DEGREES 30 MINUTES 59 SECONDS WEST 220.74 FEET; THENCE NORTH 03 DEGREES 31 MINUTES 14 SECONDS WEST (RECORD NORTH 01 DEGREES 56 MINUTES 50 SECONDS WEST) 345.22 FEET; THENCE SOUTH 88 DEGREES 30 MINUTES 56 SECONDS WEST (RECORD NORTH 89 DEGREES 54 MINUTES 37 SECONDS WEST) 150.00 FEET; THENCE NORTH 03 DEGREES 31 MINUTES 14 SECONDS WEST 316.13 FEET (RECORD NORTH 01 DEGREES 56 MINUTES 50 SECONDS WEST 315.91 FEET) TO THE POINT OF BEGINNING. CONTAINING 5.00 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.

LEGAL DESCRIPTION

PARCEL No. 09-32-301-001

PART OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 32, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS: BEGINNING AT THE WEST QUARTER CORNER, THENCE SOUTH 00 DEGREES 23 MINUTES 30 SECONDS EAST 878.86 FEET, THENCE SOUTH 89 DEGREES 57 MINUTES 30 SECONDS EAST 1324.80 FEET, THENCE NORTH 00 DEGREES 39 MINUTES 55 SECONDS WEST 815.90 FEET, THENCE WEST TO THE BEGINNING.

DESCRIPTION
AS-SURVEYED PARCEL No. 09-32-301-001

PART OF THE SOUTHWEST QUARTER OF SECTION 32, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

BEGINNING AT THE WEST QUARTER CORNER OF SECTION 32; THENCE ALONG THE EAST AND WEST QUARTER LINE OF SECTION 32 SOUTH 88 DEGREES 34 MINUTES 29 SECONDS EAST (RECORD EAST) 1153.31 FEET TO THE WESTERLY RIGHT OF WAY LINE OF BALDWIN ROAD (WIDTH VARIES) THE FOLLOWING TEN (10) COURSES: SOUTH 02 DEGREES 07 MINUTES 46 SECONDS EAST 17.61 FEET, SOUTH 01 DEGREES 47 MINUTES 47 SECONDS EAST 74.96 FEET, SOUTH 16 DEGREES 05 MINUTES 48 SECONDS EAST 26.81 FEET, SOUTH 86 DEGREES 00 MINUTES 14 SECONDS WEST 44.67 FEET, SOUTH 03 DEGREES 59 MINUTES 46 SECONDS EAST 20.00 FEET, NORTH 86 DEGREES 00 MINUTES 14 SECONDS EAST 48.95 FEET, SOUTH 16 DEGREES 05 MINUTES 48 SECONDS EAST 28.84 FEET, SOUTH 02 DEGREES 34 MINUTES 23 SECONDS EAST 321.60 FEET, SOUTH 02 DEGREES 32 MINUTES 42 SECONDS EAST 202.42 FEET AND SOUTH 04 DEGREES 52 MINUTES 07 SECONDS EAST 130.33 FEET; THENCE ALONG THE NORTH LINE COMMON TO LOT 4 AND LOT 5 OF MORGAN PINES AND ITS EXTENSION THEREOF AS RECORDED IN LIBER 17172 OF PLATS, PAGE 278, OAKLAND COUNTY RECORDS SOUTH 88 DEGREES 30 MINUTES 44 SECONDS WEST (RECORD NORTH 89 DEGREES 57 MINUTES 30 SECONDS WEST) 1188.31 FEET TO THE EAST LINE OF MORGAN PINES AND THE WEST LINE OF SECTION 32; THENCE ALONG THE EAST LINE OF MORGAN PINES AND THE WEST LINE OF SECTION 32 NORTH 01 DEGREES 32 MINUTES 26 SECONDS WEST (RECORD NORTH 00 DEGREES 23 MINUTES 30 SECONDS WEST) 878.86 FEET TO THE WEST QUARTER CORNER OF SECTION 32 AND THE POINT OF BEGINNING. CONTAINING 22.85 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.

LEGAL DESCRIPTION

PROPOSED COMMERCIAL PARCEL
PARCEL No. 09-32-301-014 AND PART OF PARCEL No. 09-32-301-001

PART OF THE SOUTHWEST QUARTER OF SECTION 32, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

COMMENCING AT THE WEST QUARTER CORNER OF SECTION 32; THENCE ALONG THE EAST AND WEST QUARTER LINE OF SECTION 32 SOUTH 88 DEGREES 34 MINUTES 29 SECONDS EAST 1153.31 FEET TO THE WEST RIGHT OF WAY LINE OF BALDWIN ROAD (WIDTH VARIES); THENCE ALONG THE WEST RIGHT OF WAY LINE OF BALDWIN ROAD THE FOLLOWING TWO (2) COURSES: SOUTH 02 DEGREES 07 MINUTES 46 SECONDS EAST 17.61 FEET AND SOUTH 01 DEGREES 47 MINUTES 47 SECONDS WEST 41.15 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG THE WESTERLY RIGHT OF WAY LINE OF BALDWIN ROAD AND THE NORTHERLY RIGHT OF WAY LINE OF MORGAN ROAD THE FOLLOWING TWELVE (12) COURSES: SOUTH 01 DEGREES 47 MINUTES 47 SECONDS EAST 33.81 FEET, SOUTH 16 DEGREES 05 MINUTES 48 SECONDS EAST 26.81 FEET, SOUTH 86 DEGREES 00 MINUTES 14 SECONDS WEST 44.67 FEET, SOUTH 03 DEGREES 59 MINUTES 46 SECONDS EAST 20.00 FEET, NORTH 86 DEGREES 00 MINUTES 14 SECONDS EAST 48.95 FEET, SOUTH 16 DEGREES 05 MINUTES 48 SECONDS EAST 28.84 FEET, SOUTH 02 DEGREES 34 MINUTES 23 SECONDS EAST 321.60 FEET, SOUTH 02 DEGREES 32 MINUTES 42 SECONDS EAST 202.42 FEET, SOUTH 04 DEGREES 52 MINUTES 07 SECONDS EAST 130.33 FEET, SOUTH 03 DEGREES 40 MINUTES 05 SECONDS EAST 628.40 FEET, SOUTH 47 DEGREES 26 MINUTES 53 SECONDS WEST 50.25 FEET AND SOUTH 88 DEGREES 30 MINUTES 59 SECONDS WEST 220.74 FEET; THENCE NORTH 03 DEGREES 31 MINUTES 14 SECONDS WEST 345.22 FEET; THENCE NORTH 88 DEGREES 30 MINUTES 56 SECONDS WEST 150.00 FEET; THENCE NORTH 03 DEGREES 31 MINUTES 14 SECONDS WEST 316.13 FEET (RECORD NORTH 01 DEGREES 56 MINUTES 50 SECONDS WEST 315.91 FEET) TO THE POINT OF BEGINNING. CONTAINING 11.87 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.

EASEMENT SCHEDULE

PER FIDELITY NATIONAL TITLE COMPANY
COMMITMENT NO. A0773254, DATED APRIL 4, 2022

ITEM	LIBER	PAGE	ENTITY	TYPE	STATUS
13	36 36 1030	153 395 589	CONSUMERS POWER COMPANY (NOW KNOWN AS CONSUMERS ENERGY)	RIGHTS OF WAY AND/OR EASEMENTS AND RIGHTS	NOT PLOTTABLE
14	2750	135	MICHIGAN GAS STORAGE COMPANY	GAS EASEMENT	PLOTTED
15	4157	123	MICHIGAN STATE HIGHWAY DEPARTMENT	WARRANTY DEED	NOT PLOTTABLE
16	6580	676	MICHIGAN BEIL TELEPHONE COMPANY	RIGHTS OF WAY AND/OR EASEMENTS AND RIGHTS	NOT PLOTTED - EASEMENT LIES WITHIN THE EXISTING BALDWIN ROAD RIGHT OF WAY
17	19999	90	CHARTER TOWNSHIP OF ORION	RIGHTS OF WAY AND/OR EASEMENTS AND RIGHTS	NOT PLOTTED - EASEMENT LIES WITHIN THE EXISTING BALDWIN ROAD RIGHT OF WAY
18	49504 49604 49684	823 574 709	BOARD OF COUNTY ROAD COMMISSIONERS OF THE COUNTY OF OAKLAND	RIGHTS OF WAY AND/OR EASEMENTS AND RIGHTS	PLOTTED
19	19654	452	CHARTER TOWNSHIP OF ORION	DECLARATION OF TAKING FOR WATER AND SEWER IMPORVEMENTS	NOT PLOTTED - EASEMENT LIES WITHIN THE EXISTING BALDWIN ROAD RIGHT OF WAY
20	21841	173	CHARTER TOWNSHIP OF ORION	EASEMENT AND RIGHTS OF WAY	NOT PLOTTED - EASEMENT LIES WITHIN THE EXISTING BALDWIN ROAD RIGHT OF WAY
21	26989	38	R & H DEVELOPMENT COMPANY	PERMANENT EASEMENT FOR STORM SEWER	NOT PLOTTED - EASEMENT LIES WITHIN THE EXISTING BALDWIN ROAD RIGHT OF WAY
22	49604	621	THE ROAD OF COMMISSION FOR THE COUNTY OF OAKLAND	HIGHWAY EASEMENT AND ACQUISITION FOR PUBLIC HIGHWAY	PLOTTED
23	50778	390	CONSUMERS ENERGY	PRESERVE EASEMENT RIGHTS BY CONSUMERS ENERGY	NOT PLOTTABLE

TO: FIDELITY NATIONAL TITLE COMMITMENT No. A0773254, DATED APRIL 4, 2022,

SILVERMAN ACQUISITIONS, LLC,

GINGELVILLE LAND COMPANY, LLC,

RED EQUITIES,

ALRIG USA ACQUISTIONS, LLC

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS: 2, 3, 4, 8, 13 AND 17 OF TABLE A THEROF. THE FIELDWORK WAS COMPLETED ON 5-23-2021.

PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE STATE OF MICHIGAN, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.

DATE OF PLAT OR MAP: JUNE 1, 2022

MICHAEL A. TRUAX, PS #4001060863

STATE OF MICHIGAN
MICHAEL ALBERT TRUAX
PROFESSIONAL SURVEYOR
No. 4001060863
LICENSED PROFESSIONAL SURVEYOR

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 397

BALDWIN VILLAGE

SHEET TITLE:

ALTA SURVEY

COMMERCIAL PARCEL

CLIENT:
ORCO INVESTMENTS, INC.

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
MJS	MAT	JUNE 2022

SCALE: 1" = 60'
0 30 60 120

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0519-0052

M:\0519\0519-0052\DWG\CIVIL\ALTA SURVEY-COMMERCIAL.DWG
01_ALTA-Commercial--6/7/2022 4:54:24 PM

SHEET NO.
1

COPYRIGHT, 2022, ANDERSON, ECKSTEIN AND WESTRICK, INC.

Tree Survey For:
Baldwin Village Commercial, Orion Township

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark Tree (2)	To Remain	Within Development Area
1312	*Ulmus pumila*	Siberian elm	24.3	12.1	8.6	Fair		Y	N
1313	*Morus alba*	Common mulberry	12.0	6.2		Fair		Y	N
1335	*Robinia pseudoacacia*	Black locust	8.9			Fair		Y	N
1461	*Rhamnus cathartica*	European buckthorn	7.9	6.6		Fair		Y	N
1462	*Acer negundo*	Boxelder	4.6			Fair		Y	N
1463	*Ulmus americana*	American elm	5.5			Fair		Y	N
1464	*Rhamnus cathartica*	European buckthorn	7.4			Fair		Y	N
1465	*Prunus serotina*	Black cherry	9.8			Fair		Y	N
1466	*Ulmus americana*	American elm	31.3			Fair		Y	N
1467	*Morus alba*	Common mulberry	8.4			Fair		Y	N
1468	*Morus alba*	Common mulberry	4.4			Fair		Y	N
1469	*Prunus serotina*	Black cherry	19.8			Fair		Y	N
1470	*Robinia pseudoacacia*	Black locust	18.4			Fair		Y	N
1471	*Robinia pseudoacacia*	Black locust	20.8	14.2		Fair		Y	N
1472	*Robinia pseudoacacia*	Black locust	17.4			Fair		Y	N
1473	*Robinia pseudoacacia*	Black locust	17.2			Fair		Y	N
1474	*Acer negundo*	Boxelder	8.2			Fair		Y	N
1475	*Acer negundo*	Boxelder	9.5	8.7	8.6	Fair		Y	N
1476	*Robinia pseudoacacia*	Black locust	22.0			Fair		Y	N

(1) Condition as per ISA Health Ratings, 9th Edition
(2) Landmark as per Charter Township of Orion Zoning Ordinance Section 27.12

TREES TO REMAIN

Tree Survey For:
Baldwin Village Commercial, Orion Township

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark Tree (2)	To Remain	Within Development Area
1033	*Robinia pseudoacacia*	Black locust	37.5			Fair	X	N	Y
1055	*Quercus rubra*	Red oak	26.4			Fair	X	N	Y
1243	*Prunus serotina*	Black cherry	28.5			Fair	X	N	Y
1244	*Prunus serotina*	Black cherry	26.3	24.2	22.3	Fair	X	N	Y
1443	*Juniperus virginiana*	Eastern red cedar	12.1			Fair	X	N	Y
1445	*Populus deltoides*	Cottonwood	47.7			Fair	X	N	Y
1446	*Malus pumila*	Cultivated apple	12.2	11.6	11.0	Fair	X	N	Y

(1) Condition as per ISA Health Ratings, 9th Edition
(2) Landmark as per Charter Township of Orion Zoning Ordinance Section 27.12

LANDMARK TREES TO BE REMOVED
(REFERENCE LANDSCAPING PLAN FOR REPLACEMENT LOCATIONS)

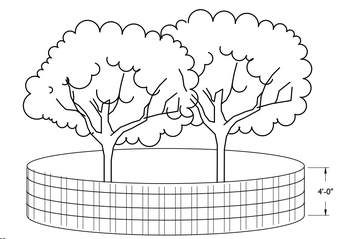
TREE REMOVAL NOTES

1. THIS EXHIBIT IS FOR REFERENCE ONLY & SHOULD NOT BE USED DURING TREE CLEARING
2. FULL TREE INVENTORY PREPARED BY BY BARR ENGINEERING CO. SHALL BE REFERENCED AS PART OF THIS EXHIBIT
3. TREE FENCING SHALL BE PROVIDED AROUND ALL TREES PROPOSED TO REMAIN
4. TREES PROPOSED TO REMAIN SHALL BE PROTECTED TO THE FULLEST EXTENT POSSIBLE. IF A TREE PROPOSED TO REMAIN IS KILLED DURING CONSTRUCTION IT SHALL BE REPLACED.

SYMBOL	DESCRIPTION
1234	TREE TO BE REMOVED WITHIN AREA OF DEVELOPMENT
1234	TREE TO BE REMAIN OUTSIDE AREA OF DEVELOPMENT W/ TREE FENCE
1234	LANDMARK TREE TO BE REMOVED

TREE REPLACEMENT REQUIREMENTS

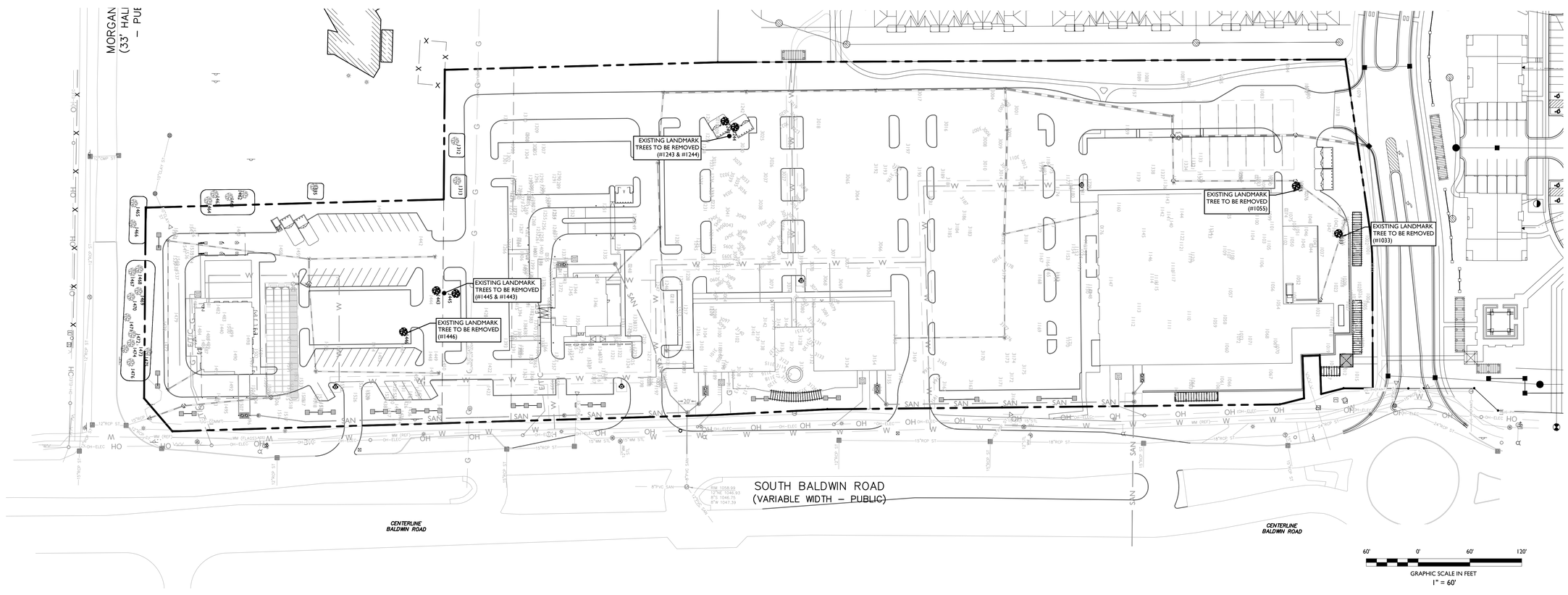
CODE SECTION	REQUIRED	PROPOSED
§ 27-12.H.2.d.	LANDMARK TREE REPLACEMENT: EACH LANDMARK TREE SHALL BE REPLACED AT A RATE OF 1" OF REPLACEMENT TREE FOR EVERY 1" OF LANDMARK TREE REMOVED 238 TOTAL CALIPER INCHES ON SITE TO BE REMOVED	(101) TREES AT 2" CAL (148) EVERGREENS AT 2" CAL TOTAL: 498 CALIPER INCHES PROPOSED



NOTES:

1. SNOW FENCING IS TO BE 4'-0" HIGH AND SELF SUPPORTED.
2. DO NOT STOCKPILE MATERIALS OR STORE EQUIPMENT WITHIN THE TREE PROTECTION FENCING.
3. SNOW FENCE TO BE INSTALLED AT DRIP LINE OF EXISTING TREE OR TREE CLUSTER TO BE PROTECTED OR NO CLOSER THAN 6' FROM TREE TRUNK IF NECESSARY.
4. IF THE PROJECT AREA ENCOMPASSES A PORTION OF THE DRIP LINE OF THE TREE, NO MORE THAN ONE THIRD OF THE OF THE TOTAL AREA OF WITHIN THE DRIP LINE SHOULD BE DISTURBED BY CONSTRUCTION OR REGRADING AND A 3" THICK LAYER OF MULCH SHALL BE INSTALLED OVER THE AREA OF THE DRIP LINE WHICH IS NOT PROTECTED BY FENCING TO PROVIDE A CUSHION.

TREE PROTECTION DETAIL



ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI - New York, NY - Princeton, NJ
Tampa, FL - Boston, MA - Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN FRED COOKSEY
ENGINEER
LICENSED PROFESSIONAL ENGINEER
JONATHAN D. COOKSEY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 60' | PROJECT ID: DET-210395

TITLE:
TREE REMOVAL EXHIBIT (OVERALL)

DRAWING:
EX-1

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)			Condition (1)	Landmark Tree (2)
			Trunk 1	Trunk 2	Trunk 3		
1001	*Quercus rubra*	Red oak	11.7			Fair	
1002	*Quercus rubra*	Red oak	12.1			Fair	
1003	*Quercus velutina*	Black oak	10.6			Fair	
1004	*Quercus velutina*	Black oak	10.9			Fair	
1005	*Quercus velutina*	Black oak	5.9			Fair	
1006	*Quercus rubra*	Red oak	5.0			Fair	
1007	*Quercus velutina*	Black oak	5.5	4.1		Fair	
1008	*Prunus serotina*	Black cherry	8.0			Fair	
1009	*Quercus rubra*	Red oak	14.0			Fair	
1010	*Quercus rubra*	Red oak	13.9			Fair	
1011	*Prunus serotina*	Black cherry	8.5			Fair	
1012	*Fraxinus pennsylvanica*	Green ash	6.3			Fair	
1013	*Quercus velutina*	Black oak	7.4			Fair	
1014	*Quercus velutina*	Black oak	15.2	5.1		Fair	
1015	*Prunus serotina*	Black cherry	18.3			Fair	
1016	*Quercus velutina*	Black oak	20.7			Fair	
1017	*Quercus velutina*	Black oak	8.0	12.0		Fair	
1018	*Quercus rubra*	Red oak	9.4			Fair	
1019	*Prunus serotina*	Black cherry	13.7	9.6		Fair	
1020	*Quercus velutina*	Black oak	16.4			Fair	
1021	*Quercus velutina*	Black oak	10.7			Fair	
1022	*Quercus velutina*	Black oak	14.3			Fair	
1023	*Quercus velutina*	Black oak	11.7			Fair	
1024	*Quercus velutina*	Black oak	7.7			Fair	
1025	*Quercus rubra*	Red oak	5.0			Fair	
1026	*Quercus velutina*	Black oak	8.4			Fair	
1027	*Quercus velutina*	Black oak	12.0			Fair	
1028	*Quercus velutina*	Black oak	16.3			Fair	
1029	*Quercus velutina*	Black oak	15.4			Fair	
1030	*Quercus velutina*	Black oak	12.7	7.6		Fair	
1031	*Prunus serotina*	Black cherry	6.5			Fair	
1032	*Quercus rubra*	Red oak	6.1			Fair	
1033	*Robinia pseudoacacia*	Black locust	37.5			Fair	X
1034	*Quercus velutina*	Black oak	10.2			Fair	
1035	*Quercus velutina*	Black oak	10.7			Fair	
1036	*Quercus velutina*	Black oak	10.8			Fair	
1037	*Quercus alba*	White oak	6.7	4.8		Fair	
1038	*Quercus velutina*	Black oak	15.5			Fair	
1039	*Quercus velutina*	Black oak	12.6			Fair	
1040	*Quercus rubra*	Red oak	8.9			Fair	
1041	*Quercus rubra*	Red oak	0.0			Fair	
1042	*Quercus velutina*	Black oak	6.9			Fair	
1043	*Rhamnus cathartica*	European buckthorn	4.8			Fair	
1044	*Quercus rubra*	Red oak	16.0			Fair	
1045	*Prunus serotina*	Black cherry	6.1			Fair	
1046	*Quercus velutina*	Black oak	11.0			Fair	
1047	*Quercus velutina*	Black oak	8.3	7.6		Fair	
1048	*Quercus velutina*	Black oak	12.7			Fair	
1049	*Quercus velutina*	Black oak	12.2	9.2		Fair	
1050	*Quercus velutina*	Black oak	12.8			Fair	
1051	*Quercus velutina*	Black oak	16.0			Fair	
1052	*Quercus velutina*	Black oak	17.8			Fair	
1053	*Quercus velutina*	Black oak	22.4			Fair	
1054	*Quercus velutina*	Black oak	8.3			Fair	
1055	*Quercus rubra*	Red oak	26.4			Fair	X
1056	*Prunus serotina*	Black cherry	10.0	9.1		Fair	
1057	*Ulmus americana*	American elm	9.8			Fair	
1058	*Prunus serotina*	Black cherry	13.8	6.8		Fair	
1059	*Prunus serotina*	Black cherry	9.6			Fair	
1060	*Quercus velutina*	Black oak	12.7			Fair	
1061	*Prunus serotina*	Black cherry	10.5	7.6		Fair	
1062	*Prunus serotina*	Black cherry	11.9			Fair	
1063	*Acer saccharinum*	Silver maple	6.5	6.3		Poor	
1064	*Quercus rubra*	Red oak	6.4			Fair	
1065	*Acer saccharinum*	Silver maple	9.4	8.0	7.0	Poor	
1066	*Prunus serotina*	Black cherry	14.8			Fair	
1067	*Prunus serotina*	Black cherry	8.1			Fair	
1068	*Prunus serotina*	Black cherry	12.6			Fair	
1069	*Prunus serotina*	Black cherry	11.3			Fair	
1070	*Robinia pseudoacacia*	Black locust	10.2			Fair	
1071	*Ulmus americana*	American elm	7.4			Fair	
1072	*Quercus velutina*	Black oak	19.4			Fair	
1073	*Quercus rubra*	Red oak	7.4	5.6		Fair	
1074	*Prunus serotina*	Black cherry	8.9			Fair	
1075	*Quercus velutina*	Black oak	5.3			Fair	
1076	*Quercus velutina*	Black oak	16.5			Fair	
1077	*Quercus velutina*	Black oak	16.2			Fair	
1078	*Robinia pseudoacacia*	Black locust	9.1			Fair	
1079	*Quercus velutina*	Black oak	23.6			Fair	
1080	*Quercus rubra*	Red oak	16.9			Fair	
1081	*Robinia pseudoacacia*	Black locust	17.6			Fair	
1082	*Robinia pseudoacacia*	Black locust	12.0			Fair	
1083	*Quercus velutina*	Black oak	23.9			Fair	
1084	*Robinia pseudoacacia*	Black locust	9.7			Fair	
1085	*Juglans nigra*	Black walnut	12.5	0	0	Fair	
1086	*Morus alba*	Common mulberry	5.6	4.9	3.7	Fair	
1087	*Populus deltoides*	Cottonwood	9.1	10.8		Fair	
1088	*Morus alba*	Common mulberry	5.5	5.2		Fair	
1089	*Morus alba*	Common mulberry	7.3			Fair	
1090	*Quercus rubra*	Red oak	10.6			Fair	
1091	*Quercus rubra*	Red oak	6.6			Fair	
1092	*Quercus velutina*	Black oak	17.1	17.5		Fair	
1093	*Quercus velutina*	Black oak	10.0			Fair	
1094	*Quercus velutina*	Black oak	13.2			Fair	
1095	*Quercus rubra*	Red oak	15.9			Fair	
1096	*Quercus velutina*	Black oak	20.2			Fair	
1097	*Quercus rubra*	Red oak	4.4			Fair	
1098	*Quercus velutina*	Black oak	5.8			Fair	
1099	*Prunus serotina*	Black cherry	6.5			Fair	
1100	*Prunus serotina*	Black cherry	12.1			Fair	
1101	*Prunus serotina*	Black cherry	8.7	6.8		Fair	
1102	*Quercus velutina*	Black oak	10.7			Fair	
1103	*Prunus serotina*	Black cherry	5.1			Fair	
1104	*Prunus serotina*	Black cherry	6.7			Fair	
1105	*Ulmus americana*	American elm	6.7			Fair	
1106	*Prunus serotina*	Black cherry	6.6			Fair	
1107	*Prunus serotina*	Black cherry	4.4			Fair	
1108	*Prunus serotina*	Black cherry	7.5	6.9		Fair	
1109	*Prunus serotina*	Black cherry	4.4			Fair	
1110	*Robinia pseudoacacia*	Black locust	5.0			Fair	
1111	*Ulmus pumila*	Siberian elm	5.9			Fair	
1112	*Prunus serotina*	Black cherry	6.2	6.9		Fair	
1113	*Prunus serotina*	Black cherry	12.3	9.6		Fair	
1114	*Quercus rubra*	Red oak	11.1			Fair	
1115	*Malus pumila*	Cultivated apple	7.3	6.8		Poor	
1116	*Quercus rubra*	Red oak	8.6			Fair	
1117	*Quercus rubra*	Red oak	6.0	7.4		Fair	
1118	*Ulmus americana*	American elm	6.3			Fair	
1119	*Prunus serotina*	Black cherry	7.7			Fair	
1120	*Prunus serotina*	Black cherry	7.7			Fair	
1121	*Prunus serotina*	Black cherry	7.0			Fair	
1122	*Prunus serotina*	Black cherry	10.5	9.8		Fair	
1123	*Pinus sylvestris*	Scots pine	6.1			Fair	
1124	*Prunus serotina*	Black cherry	6.3			Fair	
1125	*Prunus serotina*	Black cherry	8.7			Fair	
1126	*Ulmus pumila*	Siberian elm	5.8	5.5		Fair	
1127	*Quercus rubra*	Red oak	5.2			Fair	
1128	*Prunus serotina*	Black cherry	7.6			Fair	
1129	*Quercus rubra*	Red oak	12.2			Fair	
1130	*Quercus rubra*	Red oak	10.0			Fair	
1131	*Malus pumila*	Cultivated apple	6.1			Fair	
1132	*Malus pumila*	Cultivated apple	4.4			Fair	
1133	*Prunus serotina*	Black cherry	10.4			Fair	
1134	*Ulmus americana*	American elm	8.0			Fair	
1135	*Prunus serotina*	Black cherry	14.8	12.8		Fair	
1136	*Prunus serotina*	Black cherry	10.6			Fair	
1137	*Prunus serotina*	Black cherry	10.1			Fair	
1138	*Populus deltoides*	Cottonwood	18.6			Fair	
1139	*Malus pumila*	Cultivated apple	4.0			Fair	
1140	*Pinus sylvestris*	Scots pine	6.9			Fair	
1141	*Prunus serotina*	Black cherry	5.3	4.5		Fair	
1142	*Prunus serotina*	Black cherry	4.3			Fair	
1143	*Prunus serotina*	Black cherry	6.3			Fair	
1144	*Acer negundo*	Boxelder	9.5	8.9		Fair	
1145	*Prunus serotina*	Black cherry	4.3			Fair	
1146	*Prunus serotina*	Black cherry	17.1	19.5		Fair	
1147	*Quercus rubra*	Red oak	5.9			Fair	
1148	*Prunus serotina*	Black cherry	8.1	8.3	9.2	Fair	
1149	*Prunus serotina*	Black cherry	8.0	10.0		Fair	
1150	*Prunus serotina*	Black cherry	7.6	5.9		Fair	
1151	*Prunus serotina*	Black cherry	6.4			Fair	
1152	*Quercus velutina*	Black oak	10.6			Fair	
1153	*Quercus rubra*	Red oak	16.9			Fair	
1154	*Quercus rubra*	Red oak	13.0			Fair	
1155	*Prunus serotina*	Black cherry	8.2			Fair	
1156	*Prunus serotina*	Black cherry	10.9			Fair	
1157	*Ulmus rubra*	Red elm	10.9	13.5		Fair	
1158	*Prunus serotina*	Black cherry	4.8			Fair	
1159	*Prunus serotina*	Black cherry	5.2	5.4	5.5	Fair	
1160	*Prunus serotina*	Black cherry	6.4	6.5		Fair	
1161	*Quercus velutina*	Black oak	18.3			Fair	
1162	*Quercus rubra*	Red oak	7.6			Fair	
1163	*Quercus rubra*	Red oak	4.3			Fair	
1164	*Prunus serotina*	Black cherry	9.7	10.3		Fair	
1165	*Prunus serotina*	Black cherry	10.2			Fair	
1166	*Quercus rubra*	Red oak	8.0			Fair	
1167	*Ulmus pumila*	Siberian elm	5.5			Fair	
1168	*Prunus serotina*	Black cherry	6.9			Fair	
1169	*Ulmus pumila*	Siberian elm	7.2			Fair	
1170	*Prunus serotina*	Black cherry	13.9			Fair	
1171	*Acer negundo*	Boxelder	5.6	6.6	5.3	Fair	
1172	*Prunus serotina*	Black cherry	7.8			Fair	
1173	*Prunus serotina*	Black cherry	6.3	5.0		Fair	
1174	*Quercus rubra*	Red oak	5.3			Fair	
1175	*Prunus serotina*	Black cherry	6.6			Fair	
1176	*Prunus serotina*	Black cherry	6.1			Fair	
1177	*Prunus serotina*	Black cherry	12.2			Fair	
1178	*Prunus serotina*	Black cherry	6.1	5.3		Fair	
1179	*Malus pumila*	Cultivated apple	5.1	4.6	5.2	Fair	
1180	*Quercus velutina*	Black oak	9.9			Fair	
1181	*Prunus serotina*	Black cherry	5.4			Fair	
1182	*Prunus serotina*	Black cherry	8.5	7.4		Fair	
1183	*Prunus serotina*	Black cherry	7.7	6.6		Fair	
1184	*Quercus velutina*	Black oak	6.4			Fair	
1185	*Prunus serotina*	Black cherry	7.4			Fair	
1186	*Rhamnus cathartica*	European buckthorn	5.5	4.8		Fair	
1187	*Ulmus pumila*	Siberian elm	9.2			Fair	
1188	*Rhamnus cathartica*	European buckthorn	4.6			Fair	
1189	*Acer negundo*	Boxelder	9.0			Fair	
1190	*Acer negundo*	Boxelder	6.6			Fair	
1191	*Malus pumila*	Cultivated apple	4.3			Fair	
1192	*Rhamnus cathartica*	European buckthorn	5.0			Fair	
1193	*Prunus serotina*	Black cherry	8.1			Fair	
1194	*Malus pumila*	Cultivated apple	6.8	4.7		Fair	
1195	*Prunus serotina*	Black cherry	6.5			Fair	
1196	*Prunus serotina*	Black cherry	6.5	4.8		Fair	
1197	*Prunus serotina*	Black cherry	5.5			Fair	
1198	*Robinia pseudoacacia*	Black locust	5.9			Fair	
1199	*Prunus serotina*	Black cherry	7.2			Fair	
1200	*Prunus serotina*	Black cherry	4.8			Fair	
1201	*Prunus serotina*	Black cherry	5.9			Fair	
1202	*Prunus serotina*	Black cherry	7.0			Fair	
1203	*Prunus serotina*	Black cherry	10.5			Fair	
1204	*Prunus serotina*	Black cherry	5.0			Fair	
1205	*Robinia pseudoacacia*	Black locust	12.0			Fair	
1206	*Prunus serotina*	Black cherry	9.9			Fair	
1207	*Prunus serotina*	Black cherry	6.4			Fair	
1208	*Morus alba*	Common mulberry	10.5			Fair	
1209	*Acer negundo*	Boxelder	5.7			Fair	
1210	*Robinia pseudoacacia*	Black locust	12.0			Fair	
1211	*Prunus serotina*	Black cherry	10.4			Fair	
1212	*Prunus serotina*	Black cherry	11.9			Fair	
1213	*Ulmus americana*	American elm	5.9			Fair	
1214	*Acer negundo*	Boxelder	13.2			Fair	
1215	*Acer negundo*	Boxelder	10.2			Fair	
1216	*Rhamnus cathartica*	European buckthorn	6.1	5.2	5.1	Fair	
1217	*Acer negundo*	Boxelder	8.3			Fair	
1218	*Robinia pseudoacacia*	Black locust	7.5			Fair	
1219	*Acer negundo*	Boxelder	12.4			Fair	
1220	*Rhamnus cathartica*	European buckthorn	5.1	4.7		Fair	
1221	*Rhamnus cathartica*	European buckthorn	7.1	6.4		Fair	
1222	*Rhamnus cathartica*	European buckthorn	5.0			Fair	
1223	*Pyrus communis*	Common pear	4.5			Fair	
1224	*Rhamnus cathartica*	European buckthorn	5.7			Fair	
1225	*Rhamnus cathartica*	European buckthorn	5.4	4.7		Fair	
1226	*Rhamnus cathartica*	European buckthorn	5.0	4.9		Fair	
1227	*Morus alba*	Common mulberry	8.0	5.7		Fair	
1228	*Morus alba*	Common mulberry	9.8	8.1		Fair	
1229	*Malus pumila*	Cultivated apple	10.7			Fair	
1230	*Malus pumila*	Cultivated apple	7.1	6.8		Fair	
1231	*Acer negundo*	Boxelder	16.5			Fair	
1232	*Rhamnus cathartica*	European buckthorn	12.3			Fair	
1233	*Morus alba*	Common mulberry	5.6			Fair	
1234	*Prunus avium*	Sweet cherry	10.4			Fair	
1235	*Morus alba*	Common mulberry	14.1			Fair	
1236	*Rhamnus cathartica*	European buckthorn	6.6			Fair	
1237	*Rhamnus cathartica*	European buckthorn	5.3	4.7		Fair	
1238	*Acer negundo*	Boxelder	5.4			Fair	
1239	*Morus alba*	Common mulberry	13.7			Fair	
1240	*Acer negundo*	Boxelder	5.8			Fair	
1241	*Morus alba*	Common mulberry	7.2			Fair	
1242	*Acer negundo*	Boxelder	19.3			Fair	
1243	*Prunus serotina*	Black cherry	28.5			Fair	X
1244	*Prunus serotina*	Black cherry	26.3	24.2	22.3	Fair	X
1245	*Rhamnus cathartica*	European buckthorn	5.2			Fair	
1246	*Morus alba*	Common mulberry	10.9			Fair	
1247	*Morus alba*	Common mulberry	14.3			Fair	
1248	*Robinia pseudoacacia*	Black locust	7.7	7.8		Fair	
1249	*Robinia pseudoacacia*	Black locust	4.7			Fair	
1250	*Robinia pseudoacacia*	Black locust	5.0			Fair	
1251	*Robinia pseudoacacia*	Black locust	5.1			Fair	
1252	*Prunus serotina*	Black cherry	12.5	7.2		Fair	
1253	*Juniperus virginiana*	Eastern red cedar	5.2	5.5		Fair	
1254	*Fraxinus pennsylvanica*	Green ash	6.1			Fair	
1255	*Prunus serotina*	Black cherry	7.5			Fair	
1256	*Prunus serotina*	Black cherry	8.0			Fair	
1257	*Prunus serotina*	Black cherry	4.5			Fair	
1258	*Prunus avium*	Sweet cherry	4.5			Fair	
1259	*Prunus serotina*	Black cherry	9.4			Fair	
1260	*Prunus serotina*	Black cherry	10.8			Fair	
1261	*Prunus serotina*	Black cherry	4.0			Fair	
1262	*Prunus serotina*	Black cherry	8.2			Fair	
1263	*Prunus serotina*	Black cherry	7.5			Fair	
1264	*Prunus serotina*	Black cherry	9.8	5.9		Fair	
1265	*Robinia pseudoacacia*	Black locust	7.2			Fair	
1266	*Juglans nigra*	Black walnut	9.5			Fair	
1267	*Prunus avium*	Sweet cherry	4.1			Fair	
1268	*Prunus serotina*	Black cherry	7.7	7.7		Fair	
1269	*Prunus avium*	Sweet cherry	4.5			Fair	
1270	*Prunus serotina*	Black cherry	6.4			Fair	
1271	*Prunus serotina*	Black cherry	4.0			Fair	
1272	*Prunus serotina*	Black cherry	6.6			Fair	
1273	*Prunus serotina*	Black cherry	5.7			Fair	
1274	*Prunus serotina*	Black cherry	6.8			Fair	
1275	*Prunus serotina*	Black cherry	14.5			Fair	
1276	*Prunus serotina*	Black cherry	4.7			Fair	
1277	*Prunus avium*	Sweet cherry	4.5			Fair	
1278	*Prunus serotina*	Black cherry	6.4			Fair	
1279	*Prunus serotina*	Black cherry	7.3			Fair	
1280	*Rhamnus cathartica*	European buckthorn	5.8			Fair	
1281	*Rhamnus cathartica*	European buckthorn	6.1			Fair	
1282	*Juglans nigra*	Black walnut	7.2			Fair	
1283	*Prunus serotina*	Black cherry	4.8			Fair	
1284	*Rhamnus cathartica*	European buckthorn	4.6			Fair	
1285	*Prunus serotina*	Black cherry	5.4			Fair	
1286	*Prunus serotina*	Black cherry	4.5			Fair	
1287	*Rhamnus cathartica*	European buckthorn	5.6			Fair	
1288	*Rhamnus cathartica*	European buckthorn	5.9			Fair	
1289	*Rhamnus cathartica*	European buckthorn	5.3			Fair	
1290	*Rhamnus cathartica*	European buckthorn	4.3	5.4	4.0	Fair	
1291	*Prunus avium*	Sweet cherry	4.6			Fair	
1292	*Rhamnus cathartica*	European buckthorn	4.5			Fair	
1293	*Rhamnus cathartica*	European buckthorn	5.5			Fair	
1294	*Rhamnus cathartica*	European buckthorn	4.9			Fair	
1295	*Rhamnus cathartica*	European buckthorn	5.2			Fair	
1296	*Prunus serotina*	Black cherry	8.2			Fair	
1297	*Prunus serotina*	Black cherry	5.5			Fair	
1298	*Rhamnus cathartica*	European buckthorn	5.1			Fair	
1299	*Rhamnus cathartica*	European buckthorn	5.0	4.4		Fair	
1300	*Prunus serotina*	Black cherry	10.6			Fair	
1301	*Acer negundo*	Boxelder	14.8			Fair	
1302	*Robinia pseudoacacia*	Black locust	6.6			Fair	
1303	*Rhamnus cathartica*	European buckthorn	13.3			Fair	
1304	*Prunus avium*	Sweet cherry	6.2			Fair	
1305	*Acer negundo*	Boxelder	4.1			Fair	
1306	*Prunus serotina*	Black cherry	15.5			Fair	
1307	*Prunus serotina*	Black cherry	6.7			Fair	
1308	*Acer negundo*	Boxelder	16.3			Fair	
1309	*Prunus serotina*	Black cherry	12.1			Fair	
1310	*Robinia pseudoacacia*	Black locust	9.3			Fair	
1311	*Ulmus rubra*	Red elm	13.6			Fair	
1312	*Ulmus pumila*	Siberian elm	24.3	12.1	8.6	Fair	
1313	*Morus alba*	Common mulberry	12.0	6.2		Fair	
1314	*Acer negundo*	Boxelder	7.1	6.3		Fair	
1315	*Robinia pseudoacacia*	Black locust	10.9			Fair	
1316	*Acer negundo*	Boxelder	7.6			Fair	
1317	*Acer negundo*	Boxelder	11.5			Fair	
1318	*Acer negundo*	Boxelder	7.4			Fair	
1319	*Ulmus pumila*	Siberian elm	11.7			Fair	
1320	*Acer negundo*	Boxelder	5.7			Fair	
1321	*Robinia pseudoacacia*	Black locust	13.6			Fair	
1322	*Robinia pseudoacacia*	Black locust	13.4			Fair	
1323	*Robinia pseudoacacia*	Black locust	8.8			Fair	
1324	*Robinia pseudoacacia*	Black locust	10.4			Fair	
1325	*Robinia pseudoacacia*	Black locust	14.0			Fair	
1326	*Prunus serotina*	Black cherry	7.6			Fair	
1327	*Ulmus americana*	American elm	4.6			Fair	
1328	*Robinia pseudoacacia*	Black locust	12.3	8.6		Fair	
1329	*Robinia pseudoacacia*	Black locust	9.8			Fair	
1330	*Robinia pseudoacacia*	Black locust	12.4			Fair	
1331	*Robinia pseudoacacia*	Black locust	8.6			Fair	
1332	*Robinia pseudoacacia*	Black locust	10.5			Fair	
1333	*Robinia pseudoacacia*	Black locust	17.9	11.5		Fair	
1334	*Morus alba*	Common mulberry	17.4			Fair	
1335	*Robinia pseudoacacia*	Black locust	8.9			Fair	
1336	*Robinia pseudoacacia*	Black locust	10.7			Fair	
1337	*Robinia pseudoacacia*	Black locust	18.7			Fair	
1338	*Prunus serotina*	Black cherry	7.0			Fair	
1339	*Ulmus americana*	American elm	8.5			Fair	
1340	*Ulmus americana*	American elm	8.8			Fair	
1341	*Prunus serotina*	Black cherry	5.1			Fair	
1342	*Prunus serotina*	Black cherry	5.0			Fair	
1343	*Prunus serotina*	Black cherry	8.6			Fair	
1344	*Robinia pseudoacacia*	Black locust	13.1			Fair	
1345	*Robinia pseudoacacia*	Black locust	9.3			Fair	
1346	*Robinia pseudoacacia*	Black locust	6.2	7.2		Fair	
1347	*Robinia pseudoacacia*	Black locust	7.4			Fair	
1348	*Robinia pseudoacacia*	Black locust	7.3			Fair	
1349	*Prunus serotina*	Black cherry	13.8			Fair	
1350	*Robinia pseudoacacia*	Black locust	27.0			Fair	
1351	*Ulmus americana*	American elm	11.6			Fair	
1352	*Prunus serotina*	Black cherry	11.1			Fair	
1353	*Acer negundo*	Boxelder	10.4			Fair	
1354	*Morus alba*	Common mulberry	10.8			Very Poor	
1355	*Acer negundo*	Boxelder	13.7			Fair	
1356	*Robinia pseudoacacia*	Black locust	15.1			Fair	
1357	*Acer negundo*	Boxelder	20.7			Fair	
1358	*Acer negundo*	Boxelder	11.4			Fair	
1359	*Morus alba*	Common mulberry	7.7			Fair	
1360	*Acer negundo*	Boxelder	6.1			Fair	
1361	*Robinia pseudoacacia*	Black locust	28.9			Fair	
1362	*Acer negundo*	Boxelder	19.8			Fair	
1363	*Acer negundo*	Boxelder	5.5			Very Poor	
1364	*Ulmus pumila*	Siberian elm	12.6			Fair	
1365	*Robinia pseudoacacia*	Black locust	7.5			Fair	
1366	*Acer negundo*	Boxelder	10.6			Fair	
1367	*Acer negundo*	Boxelder	6.2			Fair	
1368	*Acer negundo*	Boxelder	9.0			Fair	
1369	*Acer negundo*	Boxelder	11.3			Fair	
1370	*Populus deltoides*	Cottonwood	11.3			Fair	
1371	*Prunus serotina*	Black cherry	18.8			Fair	
1372	*Prunus serotina*	Black cherry	6.3			Fair	
1373	*Malus pumila*	Cultivated apple	5.8	5.8		Fair	
1374	*Robinia pseudoacacia*	Black locust	12.7	12.1		Fair	
1375	*Prunus serotina*	Black cherry	5.1			Fair	
1376	*Prunus serotina*	Black cherry	8.3			Fair	
1377	*Robinia pseudoacacia*	Black locust	11.0			Fair	
1378	*Robinia pseudoacacia*	Black locust	8.9			Fair	
1379	*Robinia pseudoacacia*	Black locust	12.8	8.9		Fair	
1380	*Robinia pseudoacacia*	Black locust	14.3			Fair	
1381	*Robinia pseudoacacia*	Black locust	6.6			Fair	
1382	*Robinia pseudoacacia*	Black locust	7.6			Fair	
1383	*Acer negundo*	Boxelder	5.8			Fair	
1384	*Acer negundo*	Boxelder	7.9			Fair	
1385	*Robinia pseudoacacia*	Black locust	10.9			Fair	
1386	*Acer negundo*	Boxelder	4.3			Fair	
1387	*Acer negundo*	Boxelder	8.3			Fair	
1388	*Acer negundo*	Boxelder	8.8			Fair	
1389	*Prunus serotina*	Black cherry	5.9			Fair	
1390	*Robinia pseudoacacia*	Black locust	10.8			Fair	
1391	*Ulmus pumila*	Siberian elm	4.8			Fair	
1392	*Acer negundo*	Boxelder	13.1			Fair	
1393	*Robinia pseudoacacia*	Black locust	22.2	23.0		Fair	
1394	*Robinia pseudoacacia*	Black locust	14.7	10.5		Fair	
1395	*Prunus serotina*	Black cherry	7.2			Fair	
1396	*Prunus serotina*	Black cherry	6.8			Fair	
1397	*Prunus serotina*	Black cherry	6.8			Fair	
1398	*Prunus serotina*	Black cherry	6.8			Fair	
1399	*Prunus serotina*	Black cherry	8.0			Fair	
1400	*Prunus serotina*	Black cherry	5.3			Fair	
1401	*Prunus serotina*	Black cherry	9.1			Fair	
1402	*Prunus serotina*	Black cherry	4.1			Fair	
1403	*Prunus serotina*	Black cherry	5.7			Fair	
1404	*Prunus serotina*	Black cherry	5.6			Fair	
1405	*Prunus serotina*	Black cherry	7.0			Fair	
1406	*Prunus serotina*	Black cherry	8.7			Fair	
1407	*Prunus serotina*	Black cherry	11.0			Fair	
1408	*Acer negundo*	Boxelder	9.8			Fair	
1409	*Prunus serotina*	Black cherry	6.4			Fair	
1410	*Prunus serotina*	Black cherry	5.6			Fair	
1411	*Prunus serotina*	Black cherry	6.1			Fair	
1412	*Prunus serotina*	Black cherry	5.9			Fair	
1413	*Robinia pseudoacacia*	Black locust	7.9			Fair	
1414	*Prunus serotina*	Black cherry	5.5			Fair	
1415	*Robinia pseudoacacia*	Black locust	12.6			Fair	
1416	*Robinia pseudoacacia*	Black locust	6.9			Fair	
1417	*Robinia pseudoacacia*	Black locust	12.1			Fair	
1418	*Robinia pseudoacacia*	Black locust	8.6			Fair	
1419	*Acer negundo*	Boxelder	15.6			Fair	
1420	*Robinia pseudoacacia*	Black locust	17.5			Fair	
1421	*Robinia pseudoacacia*	Black locust	21.7			Fair	
1422	*Robinia pseudoacacia*	Black locust	13.6			Fair	
1423	*Robinia pseudoacacia*	Black locust	21.6			Fair	
1424	*Robinia pseudoacacia*	Black locust	19.4	20.3		Fair	
1425	*Populus deltoides*	Cottonwood	11.5			Fair	
1426	*Robinia pseudoacacia*	Black locust	15.2			Fair	
1427	*Robinia pseudoacacia*	Black locust	8.5			Fair	
1428	*Robinia pseudoacacia*	Black locust	11.5			Fair	
1429	*Robinia pseudoacacia*	Black locust	9.4	5.7		Fair	
1430	*Robinia pseudoacacia*	Black locust	9.1			Fair	
1431	*Robinia pseudoacacia*	Black locust	9.2	9.1		Fair	
1432	*Robinia pseudoacacia*	Black locust	5.7			Fair	
1433	*Robinia pseudoacacia*	Black locust	14.4			Fair	
1434	*Robinia pseudoacacia*	Black locust	13.8			Fair	
1435	*Acer negundo*	Boxelder	4.7			Fair	
1436	*Acer negundo*	Boxelder	4.2			Fair	
1437	*Prunus serotina*	Black cherry	8.2			Fair	
1438	*Robinia pseudoacacia*	Black locust	24.2			Fair	
1439	*Populus deltoides*	Cottonwood	27.0			Fair	
1440	*Acer saccharum*	Sugar maple	13.4	15.3		Fair	
1441	*Robinia pseudoacacia*	Black locust	29.1			Fair	
1442	*Robinia pseudoacacia*	Black locust	30.3	27.7		Fair	
1443	*Juniperus virginiana*	Eastern red cedar	12.1			Fair	X
1444	*Morus alba*	Common mulberry	4.3			Fair	
1445	*Populus deltoides*	Cottonwood	47.7			Fair	X
1446	*Malus pumila*	Cultivated apple	12.2	11.6	11.0	Fair	X
1447	*Morus alba*	Common mulberry	14.4			Fair	
1448	*Ulmus pumila*	Siberian elm	13.8			Fair	
1449	*Robinia pseudoacacia*	Black locust	20.0			Fair	
1450	*Robinia pseudoacacia*	Black locust	19.2			Poor	
1451	*Robinia pseudoacacia*	Black locust	22.4			Fair	
1452	*Robinia pseudoacacia*	Black locust	15.8	7.4		Poor	
1453	*Ulmus pumila*	Siberian elm	25.7			Fair	
1454	*Robinia pseudoacacia*	Black locust	16.3			Fair	
1455	*Robinia pseudoacacia*	Black locust	29.1			Fair	
1456	*Robinia pseudoacacia*	Black locust	20.7			Fair	
1457	*Robinia pseudoacacia*	Black locust	23.6			Fair	
1458	*Robinia pseudoacacia*	Black locust	20.0	23.7		Fair	
1459	*Robinia pseudoacacia*	Black locust	26.2			Fair	
1460	*Robinia pseudoacacia*	Black locust	4.1			Fair	
1461	*Rhamnus cathartica*	European buckthorn	7.9	6.6		Fair	
1462	*Acer negundo*	Boxelder	4.6			Fair	
1463	*Ulmus americana*	American elm	5.5			Fair	
1464	*Rhamnus cathartica*	European buckthorn	7.4			Fair	
1465	*Prunus serotina*	Black cherry	9.8			Fair	
1466	*Ulmus americana*	American elm	31.3			Fair	
1467	*Morus alba*	Common mulberry	8.4			Fair	
1468	*Morus alba*	Common mulberry	4.4			Fair	
1469	*Prunus serotina*	Black cherry	19.8			Fair	
1470	*Robinia pseudoacacia*	Black locust	18.4			Fair	
1471	*Robinia pseudoacacia*	Black locust	20.8	14.2		Fair	
1472	*Robinia pseudoacacia*	Black locust	17.4			Fair	
1473	*Robinia pseudoacacia*	Black locust	17.2			Fair	
1474	*Acer negundo*	Boxelder	8.2			Fair	
1475	*Acer negundo*	Boxelder	9.5	8.7	8.6	Fair	
1476	*Robinia pseudoacacia*	Black locust	22.0			Fair	
1477	*Acer negundo*	Boxelder	7.6	7	6.2	Fair	
1478	*Morus alba*	Common mulberry	15.6	10.5	10.4	Fair	
1479	*Robinia pseudoacacia*	Black locust	20.3			Fair	
1480	*Robinia pseudoacacia*	Black locust	27.0			Fair	
1481	*Malus pumila*	Cultivated apple	5.9			Fair	
1482	*Acer negundo*	Boxelder	7.7			Fair	
1483	*Acer saccharum*	Sugar maple	17.6	14.3	9.6	Fair	
1484	*Quercus rubra*	Red oak	17.6			Fair	
1485	*Acer saccharum*	Sugar maple	18.1			Fair	
1486	*Acer saccharum*	Sugar maple	12.2			Fair	
1487	*Quercus rubra*	Red oak	21.2			Fair	
1488	*Quercus rubra*	Red oak	8.9			Fair	
1489	*Acer saccharum*	Sugar maple	10.8			Fair	
1490	*Acer negundo*	Boxelder	8.4			Fair	
1491	*Quercus palustris*	Pin oak	19.9			Fair	
1492	*Quercus palustris*	Pin oak	16.9			Fair	
1493	*Acer negundo*	Boxelder	6.2	5.4	4.1	Fair	
1494	*Acer negundo*	Boxelder	6.4	6.2		Fair	
1495	*Morus alba*	Common mulberry	6.2			Fair	
1496	*Robinia pseudoacacia*	Black locust	13.2			Fair	
1497	*Acer saccharum*	Sugar maple	13.9			Fair	
1498	*Prunus serotina*	Black cherry	16.6			Fair	
1499	*Acer saccharum*	Sugar maple	12.3			Fair	
1500	*Acer saccharum*	Sugar maple	9.1			Fair	
1501	*Acer saccharum*	Sugar maple	5.4			Fair	
1502	*Acer saccharum*	Sugar maple	17.8			Fair	
1503	*Acer saccharum*	Sugar maple	20.2			Fair	
1504	*Acer saccharum*	Sugar maple	15.2			Fair	
1505	*Acer saccharum*	Sugar maple	11.3			Fair	
1506	*Acer negundo*	Boxelder	13.5			Fair	
1507	*Quercus rubra*	Red oak	18.2			Fair	
1508	*Quercus palustris*	Pin oak	15.4			Fair	
1509	*Acer saccharum*	Sugar maple	8.6			Fair	
1510	*Quercus alba*	White oak	11.9			Fair	
1511	*Quercus alba*	White oak	8.7			Fair	
1512	*Acer saccharum*	Sugar maple	11.4	9.1		Fair	
1513	*Acer saccharum*	Sugar maple	8.3			Fair	
1514	*Acer saccharum*	Sugar maple	11.2			Fair	
1515	*Acer saccharum*	Sugar maple	18.2			Fair	
1516	*Acer saccharum*	Sugar maple	7.5	10.0		Fair	
1517	*Acer saccharum*	Sugar maple	12.9			Fair	
1518	*Acer saccharum*	Sugar maple	13.9			Fair	
1519	*Acer saccharum*	Sugar maple	8.4	9.6	7.1	Fair	
1520	*Acer saccharum*	Sugar maple	5.6	5.4	5.2	Fair	
1521	*Acer saccharum*	Sugar maple	8.1			Fair	
1522	*Acer saccharum*	Sugar maple	11.7			Fair	
1523	*Acer saccharum*	Sugar maple	14.6			Fair	
1524	*Acer saccharum*	Sugar maple	8.2			Fair	
1525	*Acer saccharum*	Sugar maple	10.0			Fair	
1526	*Robinia pseudoacacia*	Black locust	10.1			Fair	
1527	*Robinia pseudoacacia*	Black locust	5.1			Fair	
1528	*Robinia pseudoacacia*	Black locust	4.5			Fair	
1529	*Robinia pseudoacacia*	Black locust	15.4			Fair	
1530	*Acer negundo*	Boxelder	5.2			Fair	
1531	*Rhamnus cathartica*	European buckthorn	4.9			Fair	
1532	*Robinia pseudoacacia*	Black locust	9.6			Fair	
1533	*Malus pumila*	Cultivated apple	10.5	7.8		Fair	
1534	*Robinia pseudoacacia*	Black locust	10.5			Fair	
1535	*Ulmus americana*	American elm	7.0	6.5	6.2	Fair	
1536	*Populus deltoides*	Cottonwood	19.9			Fair	
1537	*Ulmus americana*	American elm	20.1			Very Poor	
1538	*Ulmus pumila*	Siberian elm	9.4			Fair	
1539	*Ulmus americana*	American elm	10.4			Fair	
1540	*Ulmus americana*	American elm	12.0			Fair	
1541	*Acer negundo*	Boxelder	4.7			Fair	
1542	*Ulmus americana*	American elm	6.2			Fair	
1543	*Populus deltoides*	Cottonwood	28.4			Fair	
1544	*Robinia pseudoacacia*	Black locust	4.7			Fair	
1545	*Populus deltoides*	Cottonwood	23.9			Fair	
1546	*Populus deltoides*	Cottonwood	29.4			Fair	
3001	*Acer platanoides*	Norway maple	11.6			Fair	
3002	*Prunus serotina*	Black cherry	9.9			Fair	
3003	*Quercus velutina*	Black oak	8.1			Fair	
3004	*Prunus serotina*	Black cherry	6.3	8.7	7.6	Fair	
3005	*Prunus serotina*	Black cherry	6.4			Fair	
3006	*Prunus serotina*	Black cherry	8.7	8.4		Fair	
3007	*Quercus macrocarpa*	Bur oak	4.8			Fair	
3008	*Prunus serotina*	Black cherry	6.6			Fair	
3009	*Quercus velutina*	Black oak	8.1			Fair	
3010	*Quercus velutina*	Black oak	18.3			Fair	
3011	*Quercus velutina*	Black oak	5.3			Fair	
3012	*Quercus velutina*	Black oak	4.4			Fair	
3013	*Prunus avium*	Wild cherry	6.6			Fair	
3014	*Prunus serotina*	Black cherry	12.6	9.1		Fair	
3015	*Prunus serotina*	Black cherry	4.7	5.6		Fair	
3016	*Prunus serotina*	Black cherry	12.3	9.8		Poor	
3017	*Malus pumila*	Apple tree	6.6			Poor	
3018	*Rhamnus cathartica*	European buckthorn	10.3	4.0		Fair	
3019	*Rhamnus cathartica*	European buckthorn	8.2	6.9		Fair	
3020	*Malus pumila*	Apple tree	9.6	9.9	6.8	Fair	
3021	*Malus pumila*	Apple tree	11.1	9.1	5.6	Very Poor	
3022	*Rhamnus cathartica*	European buckthorn	4.1			Fair	
3023	*Rhamnus cathartica*	European buckthorn	4.8			Fair	
3024	*Rhamnus cathartica*	European buckthorn	5.2			Fair	
3025	*Juglans nigra*	Black walnut	12.3			Fair	
3026	*Acer negundo*	Boxelder	7.8			Fair	
3027	*Acer negundo*	Boxelder	7.6			Fair	
3028	*Rhamnus cathartica*	European buckthorn	8.7	5.6	5.5	Fair	
3029	*Acer negundo*	Boxelder	10.3			Fair	
3030	*Ulmus americana*	American elm	16.8			Fair	
3031	*Rhamnus cathartica*	European buckthorn	5.4			Fair	
3032	*Prunus serotina*	Black cherry	4.9			Fair	
3033	*Prunus serotina*	Black cherry	18.0			Fair	
3034	*Prunus serotina*	Black cherry	20.0	16.9		Fair	
3035	*Rhamnus cathartica*	European buckthorn	8.2			Fair	
3036	*Rhamnus cathartica*	European buckthorn	5.3			Fair	
3037	*Rhamnus cathartica*	European buckthorn	5.3			Fair	
3038	*Juniperus virginiana*	Eastern red cedar	5.4			Very Poor	
3039	*Acer rubrum*	Red maple	7.9			Fair	
3040	*Acer rubrum*	Red maple	9.9			Fair	
3041	*Prunus serotina*	Black cherry	19.2	21.7		Fair	
3042	*Juniperus virginiana*	Eastern red cedar	5.0			Fair	
3043	*Pyrus communis*	Pear	5.9			Fair	
3044	*Prunus serotina*	Black cherry	9.0			Fair	
3045	*Acer negundo*	Boxelder	6.5			Fair	
3046	*Prunus serotina*	Black cherry	4.8			Fair	
3047	*Pyrus communis*	Pear	5.4	5.6		Fair	
3048	*Pyrus communis*	Pear	5.2			Fair	
3049	*Juniperus virginiana*	Eastern red cedar	4.1			Fair	
3050	*Prunus serotina*	Black cherry	8.5			Fair	
3051	*Prunus serotina*	Black cherry	5.6	9.2		Fair	
3052	*Prunus serotina*	Black cherry	9.1			Fair	
3053	*Prunus serotina*	Black cherry	14.3			Fair	
3054	*Rhamnus cathartica*	European buckthorn	5.4			Fair	
3055	*Acer negundo*	Boxelder	11.4			Fair	
3056	*Prunus serotina*	Black cherry	10.0			Fair	
3057	*Rhamnus cathartica*	European buckthorn	5.8			Fair	
3058	*Rhamnus cathartica*	European buckthorn	5.2			Fair	
3059	*Prunus serotina*	Black cherry	15.4			Fair	
3060	*Acer negundo*	Boxelder	13.7	8.3		Fair	
3061	*Prunus serotina*	Black cherry	8.7			Fair	
3062	*Prunus serotina*	Black cherry	5.0			Fair	
3063	*Juniperus virginiana*	Eastern red cedar	4.1			Fair	
3064	*Rhamnus cathartica*	European buckthorn	5.3	5.6	4.8	Fair	
3065	*Prunus serotina*	Black cherry	8.1	5.0		Fair	
3066	*Ulmus pumila*	Siberian elm	7.3			Poor	
3067	*Robinia pseudoacacia*	Black locust	4.7			Fair	
3068	*Robinia pseudoacacia*	Black locust	5.2			Fair	
3069	*Prunus serotina*	Black cherry	28.0			Fair	
3070	*Prunus serotina*	Black cherry	8.7			Fair	
3071	*Robinia pseudoacacia*	Black locust	4.3	5.2		Fair	
3072	*Robinia pseudoacacia*	Black locust	7.2			Fair	
3073	*Ulmus americana*	American elm	26.9			Fair	
3074	*Quercus velutina*	Black oak	12.6			Fair	
3075	*Robinia pseudoacacia*	Black locust	8.7			Fair	
3076	*Robinia pseudoacacia*	Black locust	5.7			Fair	
3077	*Robinia pseudoacacia*	Black locust	8.2			Fair	
3078	*Robinia pseudoacacia*	Black locust	4.6			Fair	
3079	*Robinia pseudoacacia*	Black locust	7.1			Fair	
3080	*Robinia pseudoacacia*	Black locust	8.0			Fair	
3081	*Robinia pseudoacacia*	Black locust	7.9			Fair	
3082	*Robinia pseudoacacia*	Black locust	7.5	9.5		Fair	
3083	*Robinia pseudoacacia*	Black locust	8.7			Fair	
3084	*Prunus serotina*	Black cherry	20.1			Fair	
3085	*Prunus avium*	Wild cherry	6.3			Fair	
3086	*Prunus serotina*	Black cherry	17.6			Fair	
3087	*Acer rubrum*	Red maple	11.2			Fair	
3088	*Prunus serotina*	Black cherry	7.7			Fair	
3089	*Prunus serotina*	Black cherry	20.9			Fair	
3090	*Acer rubrum*	Red maple	9.3			Fair	
3091	*Ulmus americana*	American elm	7.2			Fair	
3092	*Prunus serotina*	Black cherry	7.3			Fair	
3093	*Prunus serotina*	Black cherry	15.4			Fair	
3094	*Juniperus virginiana*	Eastern red cedar	10.2			Fair	
3095	*Carpinus caroliniana*	American hornbeam	4.2	3.9	3.6	Fair	
3096	*Acer rubrum*	Red maple	13.8			Fair	
3097	*Prunus serotina*	Black cherry	12.7			Fair	
3098	*Morus alba*	Mulberry	5.1			Fair	
3099	*Prunus serotina*	Black cherry	14.1			Fair	
3100	*Prunus serotina*	Black cherry	10.1			Fair	
3101	*Prunus serotina*	Black cherry	31.3			Very Poor	
3102	*Acer negundo*	Boxelder	18.7	12.2		Fair	
3103	*Rhamnus cathartica*	European buckthorn	6.1	5.3		Fair	
3104	*Acer negundo*	Boxelder	12.3			Fair	
3105	*Prunus serotina*	Black cherry	19.2			Fair	
3106	*Acer negundo*	Boxelder	6.9			Fair	
3107	*Prunus serotina*	Black cherry	26.6			Very Poor	
3108	*Rhamnus cathartica*	European buckthorn	6.7	6.1		Fair	
3109	*Prunus serotina*	Black cherry	18.6			Fair	
3110	*Rhamnus cathartica*	European buckthorn	5.2			Fair	
3111	*Prunus serotina*	Black cherry	24.8			Fair	
3112	*Robinia pseudoacacia*	Black locust	12.0	17.3		Fair	
3113	*Acer negundo*	Boxelder	9.3			Fair	
3114	*Robinia pseudoacacia*	Black locust	15.8			Fair	
3115	*Robinia pseudoacacia*	Black locust	9.1			Fair	
3116	*Acer negundo*	Boxelder	9.7			Fair	
3117	*Robinia pseudoacacia*	Black locust	5.6			Fair	
3118	*Robinia pseudoacacia*	Black locust	13.3			Fair	
3119	*Acer negundo*	Boxelder	6.4			Fair	
3120	*Robinia pseudoacacia*	Black locust	13.6			Fair	
3121	*Robinia pseudoacacia*	Black locust	9.6			Fair	
3122	*Robinia pseudoacacia*	Black locust	10.6	5.0		Fair	
3123	*Robinia pseudoacacia*	Black locust	10.6			Fair	
3124	*Robinia pseudoacacia*	Black locust	8.3			Fair	
3125	*Robinia pseudoacacia*	Black locust	16.9			Fair	
3126	*Robinia pseudoacacia*	Black locust	26.1			Fair	
3127	*Robinia pseudoacacia*	Black locust	10.2			Fair	
3128	*Robinia pseudoacacia*	Black locust	12.5			Fair	
3129	*Rhamnus cathartica*	European buckthorn	4.6			Fair	
3130	*Robinia pseudoacacia*	Black locust	6.6			Fair	
3131	*Robinia pseudoacacia*	Black locust	5.5	7.4		Fair	
3132	*Robinia pseudoacacia*	Black locust	8.1	5.7		Fair	
3133	*Robinia pseudoacacia*	Black locust	11.5			Fair	
3134	*Robinia pseudoacacia*	Black locust	11.3	9.0		Fair	
3135	*Robinia pseudoacacia*	Black locust	27.3			Fair	
3136	*Robinia pseudoacacia*	Black locust	12.6			Fair	
3137	*Robinia pseudoacacia*	Black locust	13.9			Fair	
3138	*Acer negundo*	Boxelder	6.1			Fair	
3139	*Acer negundo*	Boxelder	6.5	6.2		Fair	
3140	*Acer negundo*	Boxelder	4.7			Fair	
3141	*Robinia pseudoacacia*	Black locust	14.3			Fair	
3142	*Prunus serotina*	Black cherry	4.6			Fair	
3143	*Robinia pseudoacacia*	Black locust	4.3			Fair	
3144	*Robinia pseudoacacia*	Black locust	13.4			Fair	
3145	*Robinia pseudoacacia*	Black locust	13.0			Fair	
3146	*Robinia pseudoacacia*	Black locust	8.3			Fair	
3147	*Robinia pseudoacacia*	Black locust	8.6			Fair	
3148	*Acer negundo*	Boxelder	8.1			Fair	
3149	*Robinia pseudoacacia*	Black locust	6.3			Fair	
3150	*Robinia pseudoacacia*	Black locust	7.9			Fair	
3151	*Robinia pseudoacacia*	Black locust	6.5			Fair	
3152	*Robinia pseudoacacia*	Black locust	10.0			Fair	
3153	*Robinia pseudoacacia*	Black locust	4.1			Fair	
3154	*Robinia pseudoacacia*	Black locust	7.0			Fair	
3155	*Robinia pseudoacacia*	Black locust	5.5			Fair	
3156	*Acer negundo*	Boxelder	7.8			Fair	
3157	*Robinia pseudoacacia*	Black locust	10.3			Fair	
3158	*Morus alba*	Mulberry	13.3	9.4		Fair	
3159	*Quercus velutina*	Black oak	19.6			Very Poor	
3160	*Prunus serotina*	Black cherry	6.2			Fair	
3161	*Quercus velutina*	Black oak	18.2			Fair	
3162	*Quercus velutina*	Black oak	12.9			Very Poor	
3163	*Quercus velutina*	Black oak	10.5			Fair	
3164	*Prunus serotina*	Black cherry	16.3			Fair	
3165	*Acer negundo*	Boxelder	9.3	10.3		Fair	
3166	*Ulmus pumila*	Siberian elm	4.3			Fair	
3167	*Robinia pseudoacacia*	Black locust	32.3			Fair	
3168	*Prunus serotina*	Black cherry	6.2	7.0		Fair	
3169	*Prunus serotina*	Black cherry	6.0			Fair	
3170	*Quercus velutina*	Black oak	16.5	16.0		Fair	
3171	*Prunus serotina*	Black cherry	9.0	8.2		Fair	
3172	*Prunus serotina*	Black cherry	8.0			Fair	
3173	*Prunus serotina*	Black cherry	7.8	9.8		Fair	
3174	*Quercus macrocarpa*	Bur oak	5.8			Fair	
3175	*Quercus velutina*	Black oak	5.1			Fair	
3176	*Malus pumila*	Apple tree	5.3	5.4		Fair	
3177	*Prunus serotina*	Black cherry	8.9	10.3		Fair	
3178	*Pinus resinosa*	Red pine	4.9			Fair	
3179	*Juniperus virginiana*	Eastern red cedar	4.2	4.1		Fair	
3180	*Juniperus virginiana*	Eastern red cedar	6.2			Fair	
3181	*Prunus serotina*	Black cherry	5.6	4.5	4.2	Fair	
3182	*Prunus serotina*	Black cherry	11.6	6.6		Fair	
3183	*Quercus velutina*	Black oak	17.9			Fair	
3184	*Quercus velutina*	Black oak	7.1			Fair	
3185	*Juniperus virginiana*	Eastern red cedar	10.6			Fair	
3186	*Prunus serotina*	Black cherry	5.3			Fair	
3187	*Quercus velutina*	Black oak	13.2	13.8		Fair	
3188	*Prunus serotina*	Black cherry	9.5	6.7		Fair	
3189	*Prunus serotina*	Black cherry	9.4			Fair	
3190	*Prunus serotina*	Black cherry	8.5			Fair	
3191	*Prunus serotina*	Black cherry	9.4	7.4		Fair	
3192	*Prunus serotina*	Black cherry	9.6			Fair	
3193	*Robinia pseudoacacia*	Black locust	8.5			Fair	
3194	*Prunus serotina*	Black cherry	6.9			Fair	
3195	*Prunus serotina*	Black cherry	9.1			Fair	
3196	*Prunus serotina*	Black cherry	5.3			Fair	
3197	*Prunus serotina*	Black cherry	9.8	10.2		Fair	

(1) Condition as per ISA Health Ratings, 9th Edition
(2) Landmark as per Charter Township of Orion Zoning Ordinance Section 27.12

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-32-301-001 & 09-32-301-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
JONATHAN R. COOKSEY, P.E.
LICENSED PROFESSIONAL ENGINEER

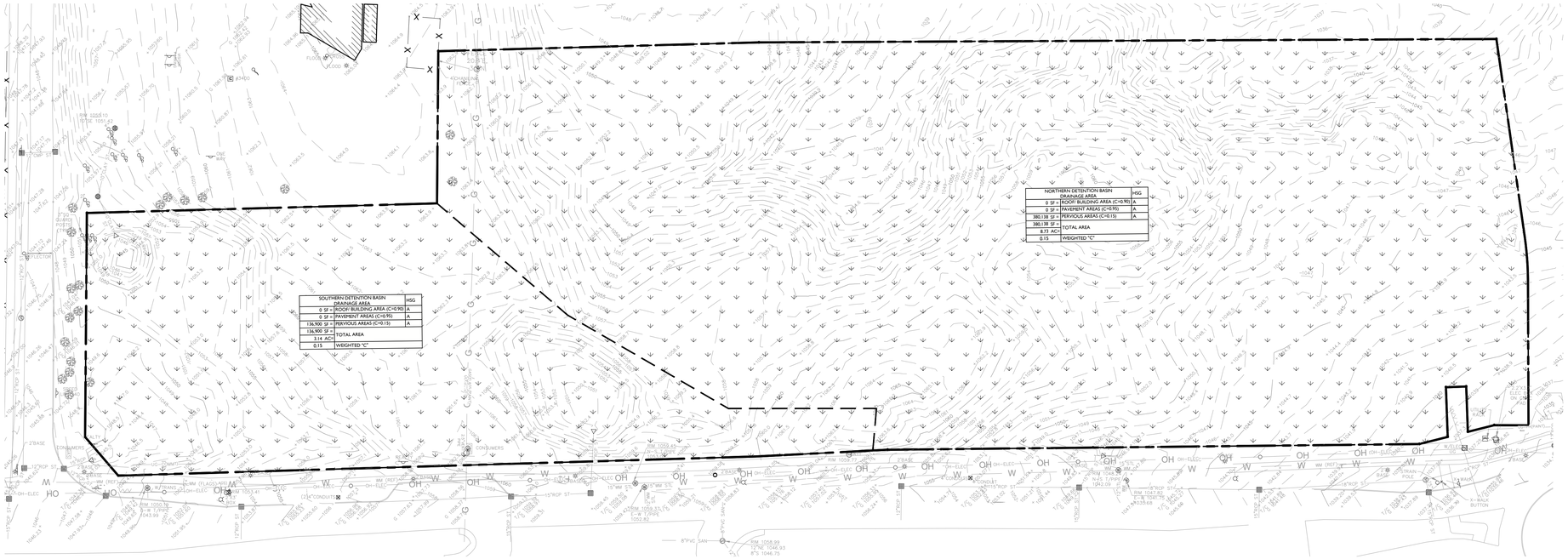
STONEFIELD engineering & design

SCALE: 1" = 60' PROJECT ID: DET-210395

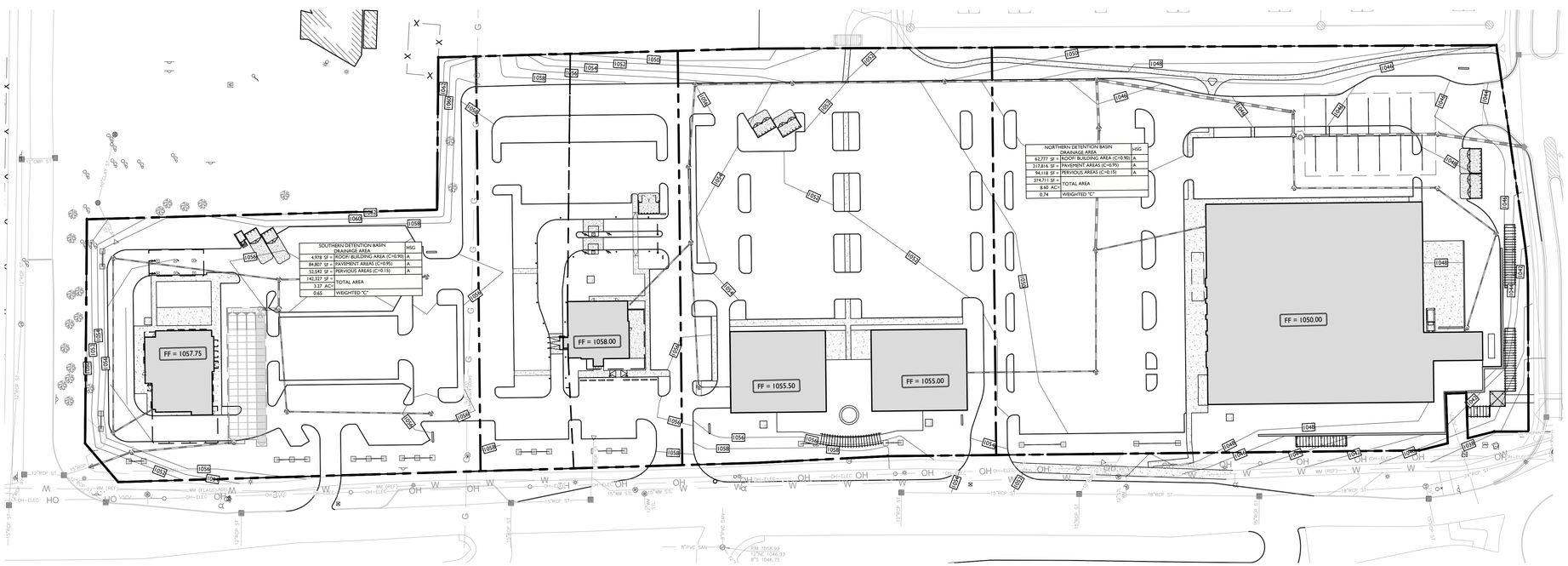
TITLE:
TREE SURVEY (OVERALL)

DRAWING:
EX-2

V:\DET\2021\DET-210395-ALRIG-W SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP, MI\CADD\PLOTS\SDP-21-TREE.DWG



PRE-DEVELOPMENT DRAINAGE MAP



POST-DEVELOPMENT DRAINAGE MAP

SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
	PROPOSED DRAINAGE AREA
	PERVIOUS AREA

40' 0' 40' 80'

GRAPHIC SCALE IN FEET
1" = 40'

ISSUE	DATE	BY	DESCRIPTION
5	12/16/2022	MPH	FINAL PUD PLAN
4	11/22/2022	MPH	FOR CLIENT REVIEW
3	09/01/2022	MPH	FOR PUD REVIEW
2	07/25/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW
1	06/29/2022	MPH	FOR CONCEPTUAL PLAN PUD REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Detroit, MI · New York, NY · Princeton, NJ
Tampa, FL · Boston, MA · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

SITE DEVELOPMENT PLANS

BALDWIN VILLAGE

PROPOSED COMMERCIAL DEVELOPMENT - THE PLAZA

PID: 09-27-201-001 & 09-27-201-014
SWC OF BALDWIN ROAD & JUDAH ROAD
CHARTER TOWNSHIP OF ORION
OAKLAND COUNTY, MICHIGAN 48359

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201053128
JONATHAN REID COOKSEY, P.E.
PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 40' | PROJECT ID: DET-210395

TITLE:

PRE- VS POST-STORMWATER EXHIBIT

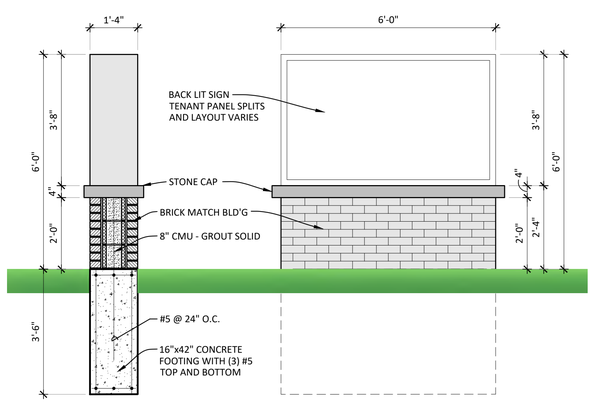
DRAWING:

EX-3

V:\DET\2021\DET-210395-AI-NG-H1\SOUTH BALDWIN ROAD & JUDAH ROAD, ORION TOWNSHIP MI\CAD\PLOT\DP-13-PRE-V-POST.DWG

PATIO PERSPECTIVE 2
SCALE: N.T.S.

PATIO PLAN DETAIL 1
SCALE: 1/4" = 1'-0"



MONUMENT SIGN DETAIL 3
SCALE: 1/2" = 1'-0"

DETROIT ARCHITECTURAL GROUP
1644 Ford Avenue Wyandotte, MI 48192
734.556.3259 O.
www.detroitarch.com

PROPOSED
BALDWIN VILLAGE

PATIO & SIGNS

SWC OF BALDWIN
ROAD & JUDAH ROAD 401

REV	DATE	ISSUED
	12-07-22	ISSUED FOR REVIEW

This drawing is an instrument of service, remains the property of Detroit Architectural Group, Inc. Any changes, publication, or unauthorized use is prohibited unless expressly approved.

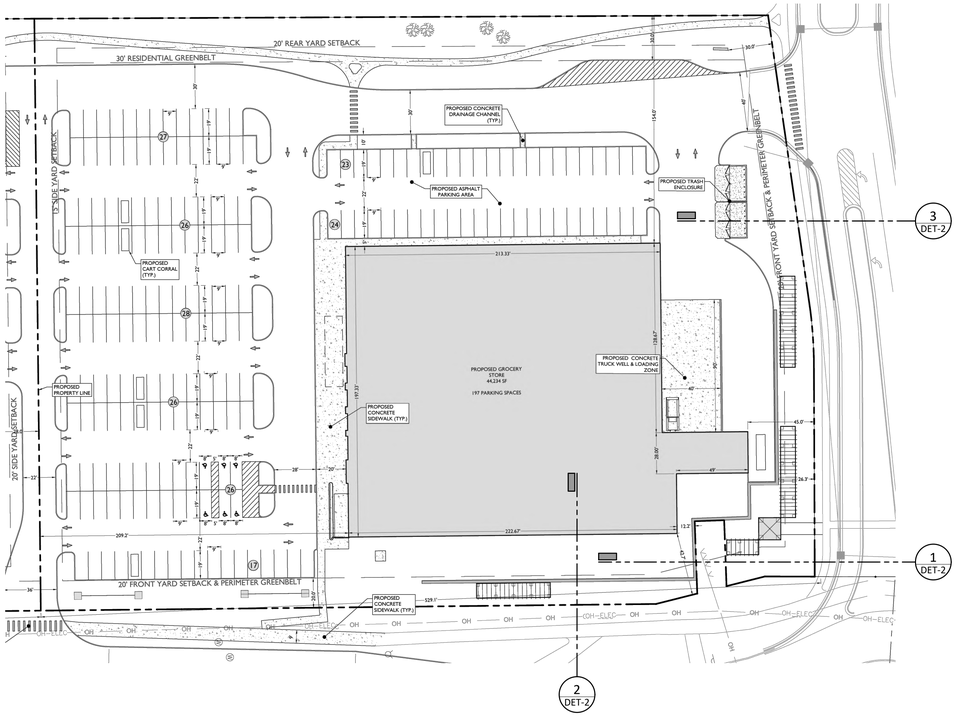
SEAL:

DRAWN BY: TJG
CHECKED BY: JMR, VW
IN CHARGE: JMR, VW

SHEET NAME:
PATIO PLAN DETAIL AND
MONUMENT SIGN DETAIL

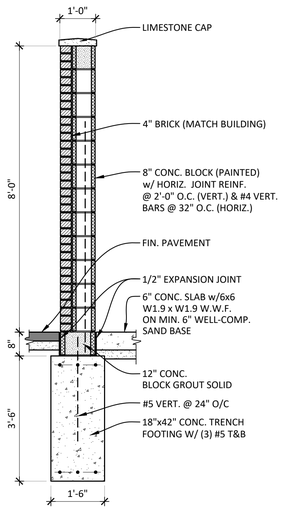
JOB NO:
22-052

SHEET NO:
DET-1



SITE KEY PLAN
SCALE: N.T.S.
NORTH
5

SOUTH FACING - RETAINING WALL SECTION VIEW
SCALE: 1/8" = 1'-0"
2



TRASH ENCLOSURE DETAIL
SCALE: 1/2" = 1'-0"
4

TRASH ENCLOSURE SECTION VIEW
SCALE: 1/4" = 1'-0"
3

WEST FACING - RETAININ WALL SECTION VIEW
SCALE: 1/8" = 1'-0"
1

DETROIT ARCHITECTURAL GROUP
1644 Ford Avenue Wyandotte, MI 48192
734.556.3259 O.
www.detroitarch.com

PROPOSED
BALDWIN VILLAGE

RETAINING
WALL AND
DUMPSTERS

SWC OF BALDWIN
ROAD & JUDAH ROAD

402

REV	DATE	ISSUED
	12-07-22	ISSUED FOR REVIEW

This drawing is an instrument of service, remains the property of Detroit Architectural Group, Inc. Any changes, publication, or unauthorized use is prohibited unless expressly approved.

SEAL:

DRAWN BY: TJG
CHECKED BY: JMR, VW
IN CHARGE: JMR, VW

SHEET NAME:
RETAINING WALL SECTION VIEWS AND DETAIL SECTIONS

JOB NO:
22-052

SHEET NO:
DET-2

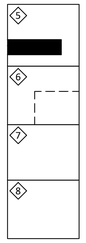
EXTERIOR FINISH KEY

STOREFRONT
THERMALLY BROKEN ALUM. FRAME
W/INSULATED GLAZING
MFR: TBD COLOR: CLEAR ANODIZED
SPL - DENOTES SPANDREL GLAZING

MODULAR BRICK VENEER
MFR: T.B.D.
COLOR: DARK BROWN

MODULAR BRICK VENEER
MFR: T.B.D.
COLOR: LIGHT BROWN

LIGHTING
SCONCE FIXTURE
T.B.D.



METAL CANOPY
COLOR: DARK BRONZE
(LIGHTING PER TENANT PLANS & SPECS)

SIGNAGE
SIGNAGE ALLOWED: VERIFY MAX. SQ.FT
(SIGNAGE SHALL BE SUBMITTED PER TENANT)
FINAL SIGNAGE LOCATIONS/AREAS SHALL BE
BY TENANT AS ALLOWED PER ORDINANCE

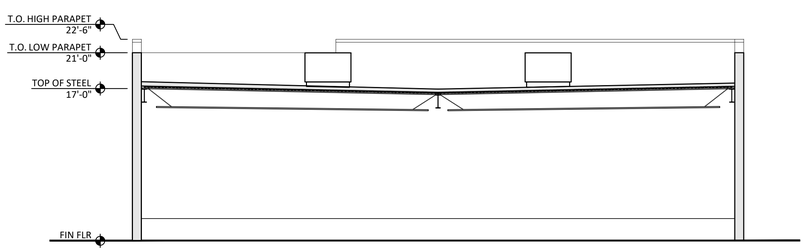
PREFINISHED METAL COPING
MFR: FIRESTONE
COLOR: DARK BRONZE

PAINT
MFR: TBD
COLOR: DARK BROZE

EAST ELEVATION 4
SCALE: 1/8" = 1'-0"

SOUTH ELEVATION 3
SCALE: 1/8" = 1'-0"

WEST ELEVATION 2
SCALE: 1/8" = 1'-0"



ROOFTOP SCREENING SECTION 5
SCALE: 1/8" = 1'-0"

NORTH ELEVATION 1
SCALE: 1/8" = 1'-0"

DETROIT ARCHITECTURAL GROUP
1644 Ford Avenue Wyandotte, MI 48192
734.556.3259 O.
www.detroitarch.com

PROPOSED BALDWIN VILLAGE

RESTAURANT SHELL BUILDING

SWC OF BALDWIN ROAD & JUDAH ROAD

403

REV	DATE	ISSUED
	12-07-22	ISSUED FOR REVIEW

This drawing is an instrument of service, remains the property of Detroit Architectural Group, Inc. Any changes, publication, or unauthorized use is prohibited unless expressly approved.

SEAL:

DRAWN BY: TJG
CHECKED BY: JMR, VW
IN CHARGE: JMR, VW

SHEET NAME:
PRELIMINARY
EXTERIOR ELEVATIONS

JOB NO:
22-052

SHEET NO:
BLDG-1

EXTERIOR FINISH KEY

1 **STOREFRONT**
THERMALLY BROKEN ALUM. FRAME
W/INSULATED GLAZING
MFR: TBD COLOR: CLEAR ANODIZED
SPL - DENOTES SPANDREL GLAZING

2 **WOOD/FIBER CEMENT SIDING**
MFR: T.B.D.
COLOR: BROWN

3 **STONE/FIBER CEMENT SIDING**
MFR: T.B.D.
COLOR: OFF-WHITE

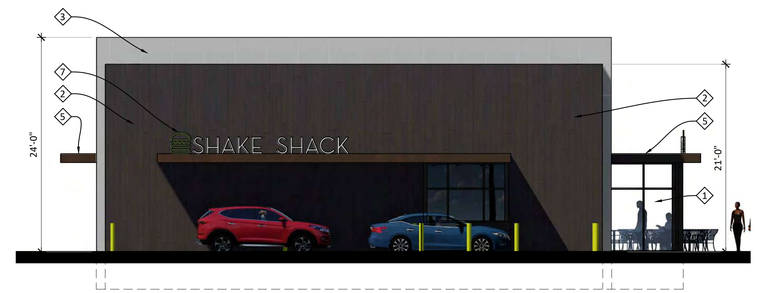
4 **LIGHTING**
SCONCE FIXTURE
(SEE ELECTRICAL)

5 **METAL CANOPY**
COLOR: MATTE BLACK (RAL#7021)
(LIGHTING PER TENANT PLANS & SPECS)

6 **PREFINISHED METAL COPING**
MFR: FIRESTONE
COLOR: MATCH ADJACENT MATERIALS

7 **SIGNAGE**
SIGNAGE ALLOWED: VERIFY MAX. SQ FT
(SIGNAGE SHALL BE SUBMITTED PER TENANT)
FINAL SIGNAGE LOCATIONS/AREAS SHALL BE
BY TENANT AS ALLOWED PER ORDINANCE

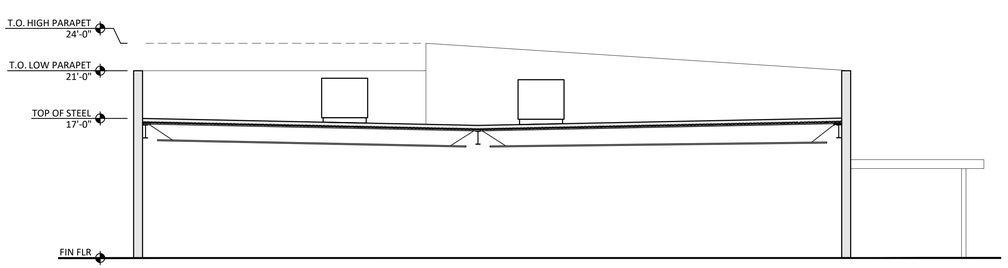
EAST ELEVATION 4
SCALE: 1/8" = 1'-0"



SOUTH ELEVATION 3
SCALE: 1/8" = 1'-0"

WEST ELEVATION 2
SCALE: 1/8" = 1'-0"

NORTH ELEVATION 1
SCALE: 1/8" = 1'-0"



ROOFTOP SCREENING SECTION 5
SCALE: 1/8" = 1'-0"

DETROIT ARCHITECTURAL GROUP
1644 Ford Avenue Wyandotte, MI 48192
734.556.3259 O.
www.detroitarch.com

PROPOSED
BALDWIN VILLAGE

RESTAURANT
SHELL BUILDING

SWC OF BALDWIN
ROAD & JUDAH ROAD

404

REV	DATE	ISSUED
	12-07-22	ISSUED FOR REVIEW

This drawing is an instrument of service, remains the property of Detroit Architectural Group, Inc. Any changes, publication, or unauthorized use is prohibited unless expressly approved.

SEAL:

DRAWN BY: TJG
CHECKED BY: JMR, VW
IN CHARGE: JMR, VW

SHEET NAME:
PRELIMINARY
EXTERIOR ELEVATIONS

JOB NO:
22-052

SHEET NO:
BLDG-2

EXTERIOR FINISH KEY

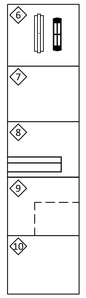
STOREFRONT
THERMALLY BROKEN ALUM. FRAME
W/INSULATED GLAZING
MFR: TBD COLOR: CLEAR ANODIZED
SPL - DENOTES SPANDREL GLAZING

MODULAR BRICK VENEER
MFR: T.B.D.
COLOR: LT. GRAY

MODULAR BRICK VENEER
MFR: T.B.D.
COLOR: DARK GRAY

CMU SPLIT-FACE
MFR: T.B.D.
COLOR: TAN

FIBER CEMENT SIDING
MFR: NICHIHA OR SIMILAR
COLOR: BROWN



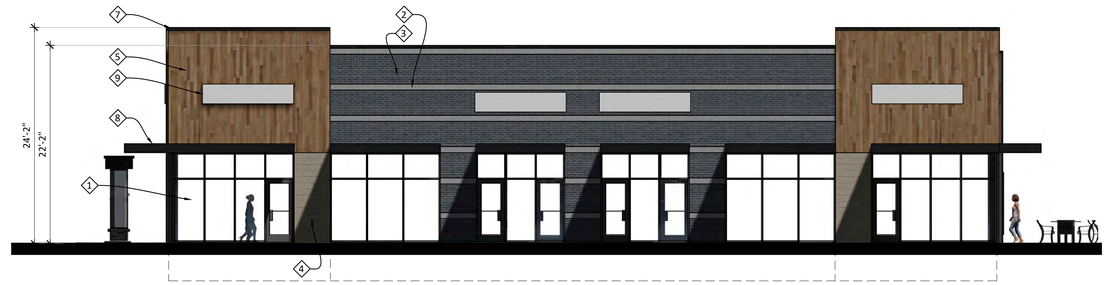
LIGHTING
SCONCE FIXTURE
T.B.D.

PREFINISHED METAL COPING
MFR: FIRESTONE
COLOR: CHARCOAL GREY

METAL CANOPY
COLOR: MATTE BLACK

SIGNAGE
SIGNAGE ALLOWED: VERIFY MAX. SQ.FT
(SIGNAGE SHALL BE SUBMITTED PER TENANT)
FINAL SIGNAGE LOCATIONS/AREAS SHALL BE
BY TENANT AS ALLOWED PER ORDINANCE

PAINT
MFR: SHERWIN WILLIAMS
COLOR: MATTE BLACK

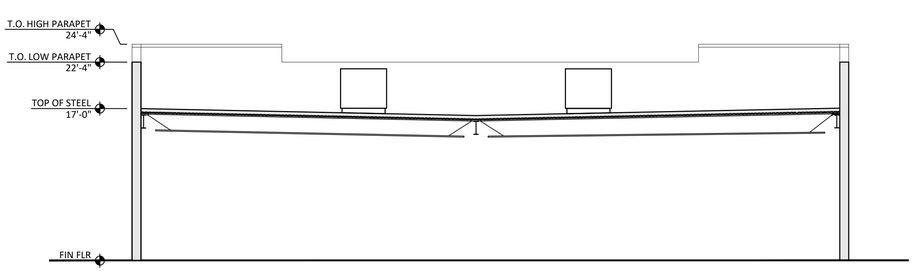


EAST ELEVATION 4
SCALE: 1/8" = 1'-0"

SOUTH ELEVATION 3
SCALE: 1/8" = 1'-0"

WEST ELEVATION 2
SCALE: 1/8" = 1'-0"

NORTH ELEVATION 1
SCALE: 1/8" = 1'-0"



ROOFTOP SCREENING SECTION 5
SCALE: 1/8" = 1'-0"

DETROIT ARCHITECTURAL GROUP
1644 Ford Avenue Wyandotte, MI 48192
734.556.3259 O.
www.detroitarch.com

PROPOSED BALDWIN VILLAGE

MULTI-TENANT SHELL BUILDING

SWC OF BALDWIN ROAD & JUDAH ROAD

405

REV	DATE	ISSUED
	12-07-22	ISSUED FOR REVIEW

This drawing is an instrument of service, remains the property of Detroit Architectural Group, Inc. Any changes, publication, or unauthorized use is prohibited unless expressly approved.

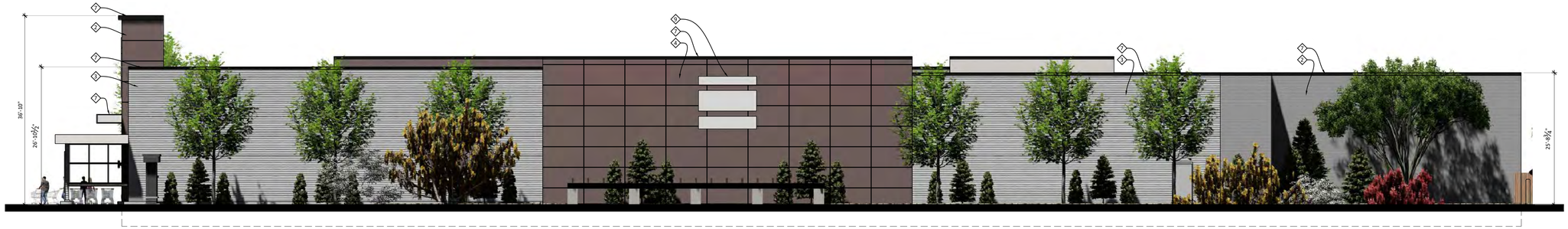
SEAL:

DRAWN BY: TJG
CHECKED BY: JMR, VW
IN CHARGE: JMR, VW

SHEET NAME:
PRELIMINARY
EXTERIOR ELEVATIONS

JOB NO:
22-052

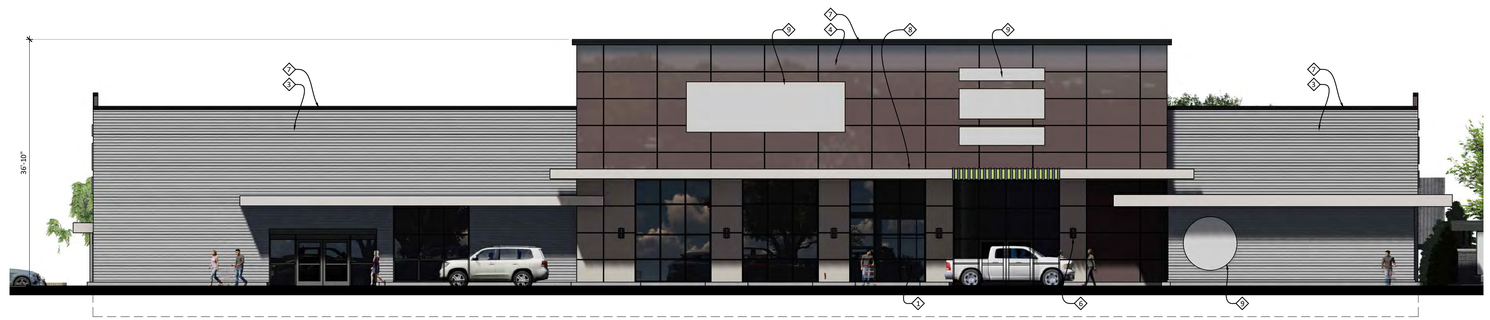
SHEET NO:
BLDG-3 & 4



EAST ELEVATION 4
SCALE: 3/32" = 1'-0"

EXTERIOR FINISH KEY

1. STOREFRONT
   THERMALLY BROKEN ALUM. FRAME
   W/INSULATED GLAZING
   MFR: TBD COLOR: CLEAR ANODIZED
   SPL - DENOTES SPANDREL GLAZING
2. CMU WALL
   MFR: T.B.D.
   COLOR: GRAY
3. CORRUGATED METAL PANELS
   MFR: T.B.D.
   COLOR: GRAY
4. PHENOLIC PANELS
   MFR: STONEWOOD
   COLOR: MED. GRAY
5. PHENOLIC PANELS
   MFR: STONEWOOD
   COLOR: LT. GRAY
6. LIGHTING
   SCONCE FIXTURE
   (SEE ELECTRICAL)
7. PREFINISHED METAL COPING
   MFR: FIRESTONE
   COLOR: CHARCOAL GREY
8. METAL CANOPY
   COLOR: VARIES (PER TENANT)
   (LIGHTING PER TENANT PLANS & SPECS)
9. SIGNAGE
   SIGNAGE ALLOWED: VERIFY MAX. SQ FT
   (SIGNAGE SHALL BE SUBMITTED PER TENANT)
   FINAL SIGNAGE LOCATIONS/AREAS SHALL BE
   BY TENANT AS ALLOWED PER ORDINANCE
10. PAINT
    MFR: SHERWIN WILLIAMS
    COLOR: T.B.D.



SOUTH ELEVATION 3
SCALE: 3/32" = 1'-0"

WEST ELEVATION 2
SCALE: 3/32" = 1'-0"

NORTH ELEVATION 1
SCALE: 3/32" = 1'-0"

DETROIT ARCHITECTURAL GROUP
1644 Ford Avenue Wyandotte, MI 48192
734.556.3259 O.
www.detroitarch.com

PROPOSED
BALDWIN VILLAGE

GROCERY
BUILDING

SWC OF BALDWIN
ROAD & JUDAH ROAD

REV	DATE	ISSUED
	12-07-22	ISSUED FOR REVIEW

This drawing is an instrument of service, remains the property of Detroit Architectural Group, Inc. Any changes, publication, or unauthorized use is prohibited unless expressly approved.

SEAL:

DRAWN BY: TJG
CHECKED BY: JMR, VW
IN CHARGE: JMR, VW

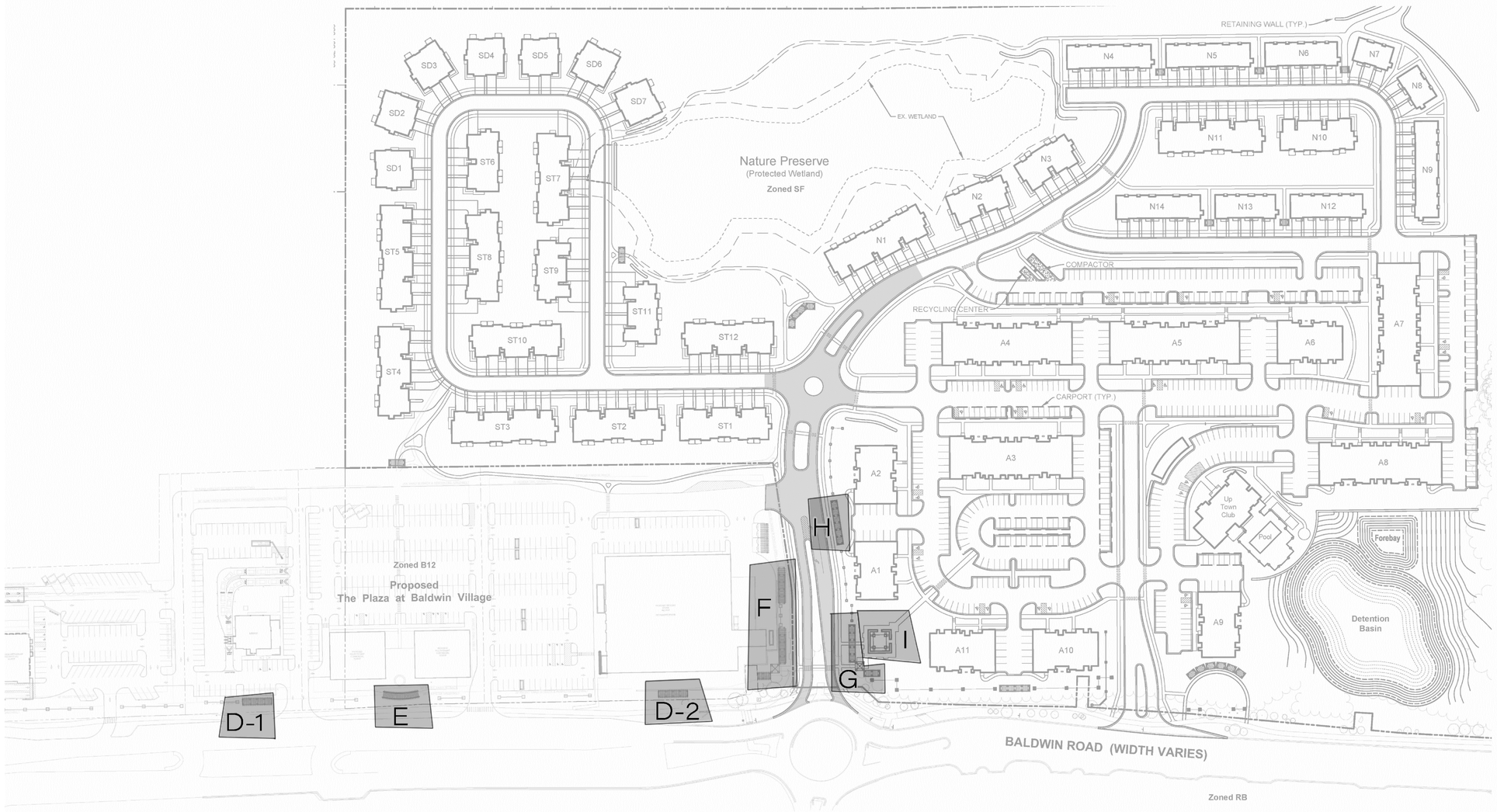
SHEET NAME:
PRELIMINARY
EXTERIOR ELEVATIONS

JOB NO:
22-052

SHEET NO:
BLDG-5

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

Baldwin Village- Commercial Community Monuments



MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

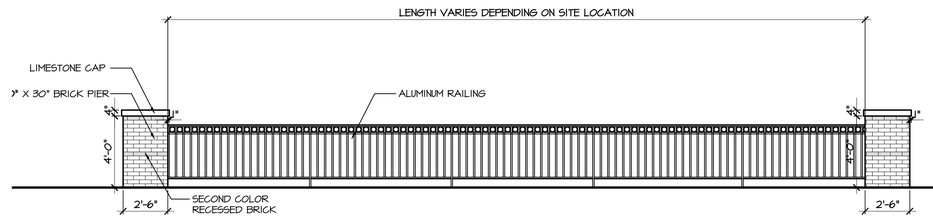
Drwn: G.M.
Chkd:

Job No. 22185

Sheet No. A OF 22

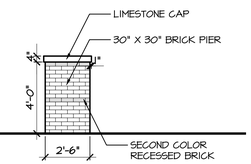
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



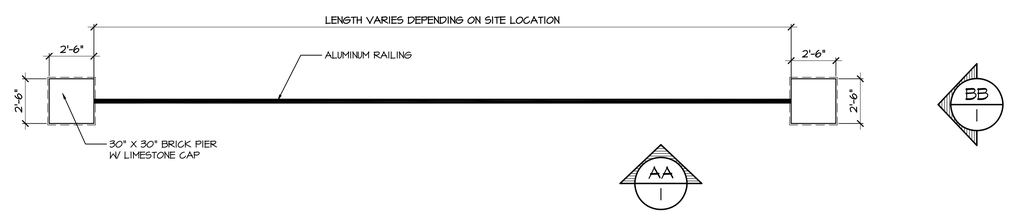
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



PIER-RAILING FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN

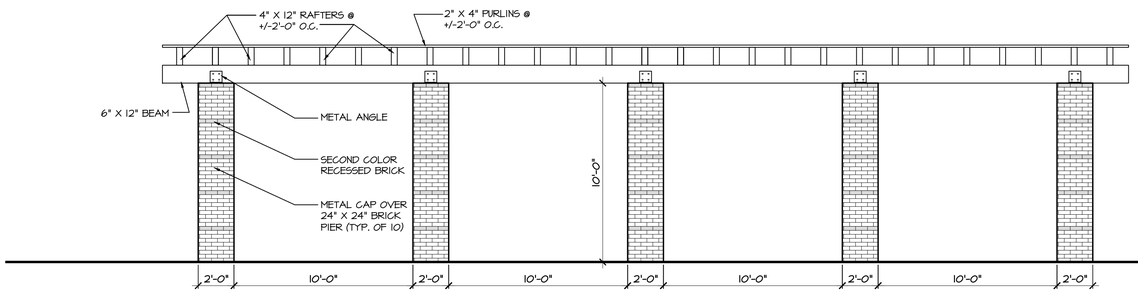
PIER-RAILING

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. 11 OF 22

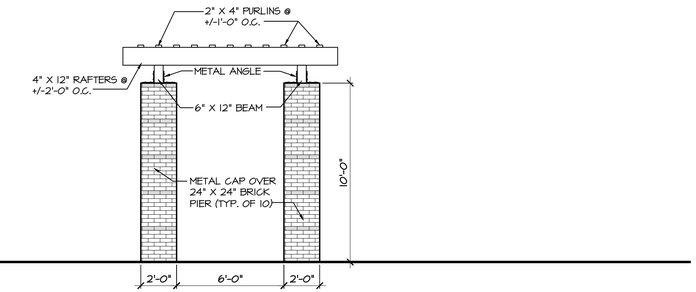
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



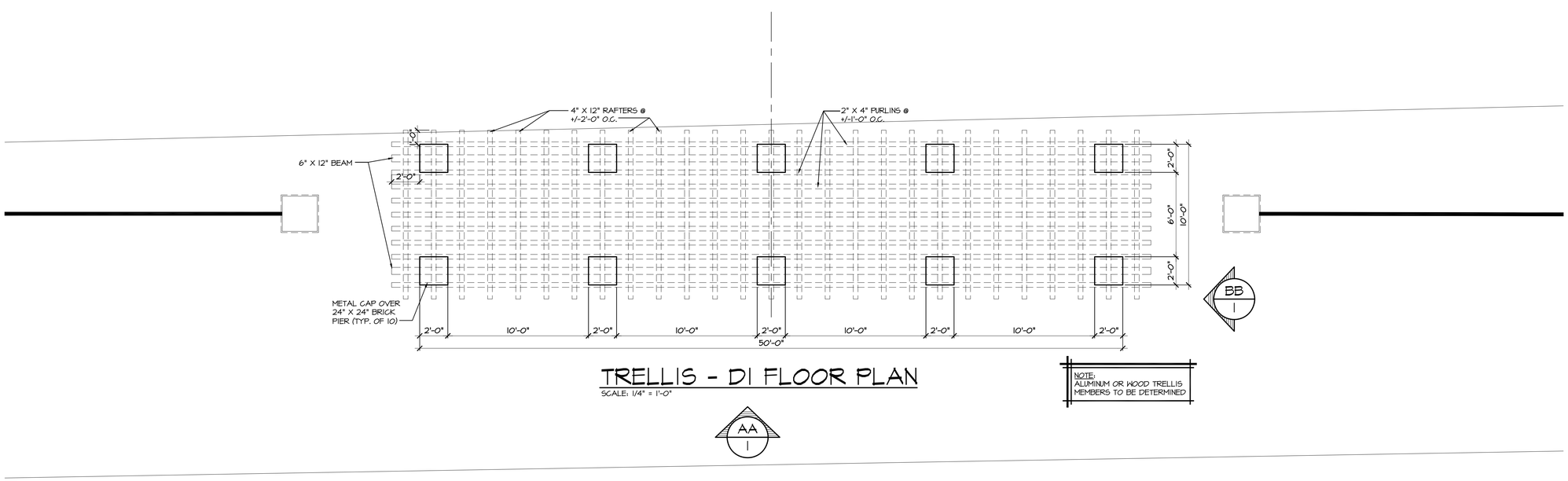
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - D1 FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE:
ALUMINUM OR WOOD TRELLIS
MEMBERS TO BE DETERMINED

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TRELLIS D-1

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

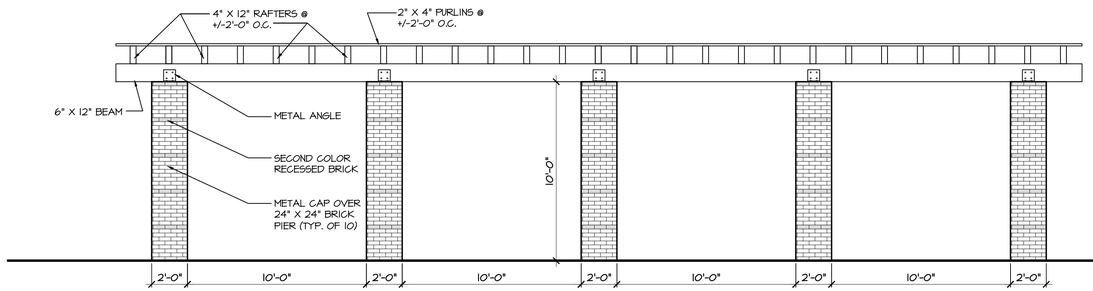
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. OF 22

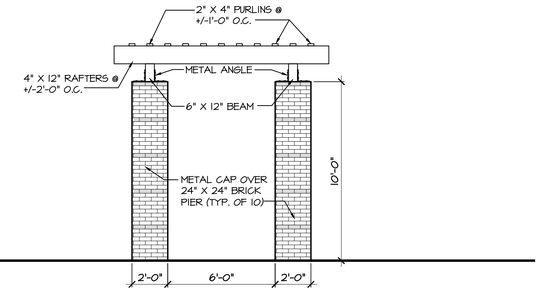
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



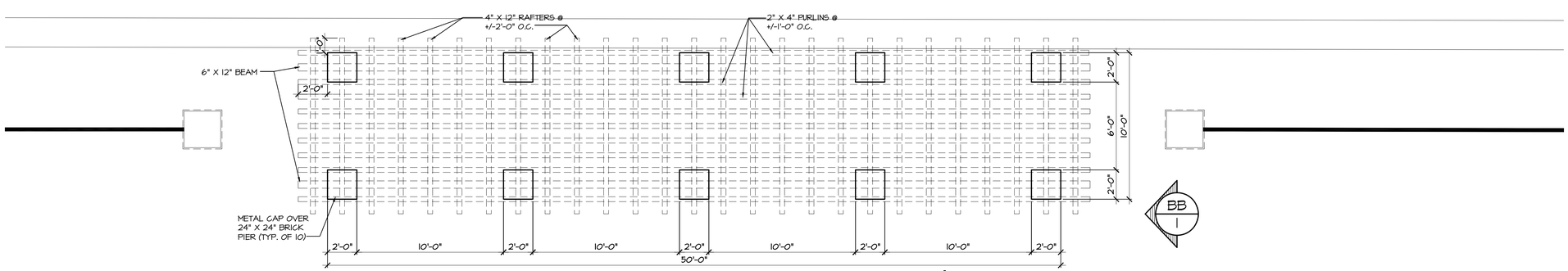
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - D2 FLOOR PLAN

SCALE: 1/4" = 1'-0"

AA
1

NOTE:
ALUMINUM OR WOOD TRELLIS
MEMBERS TO BE DETERMINED

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

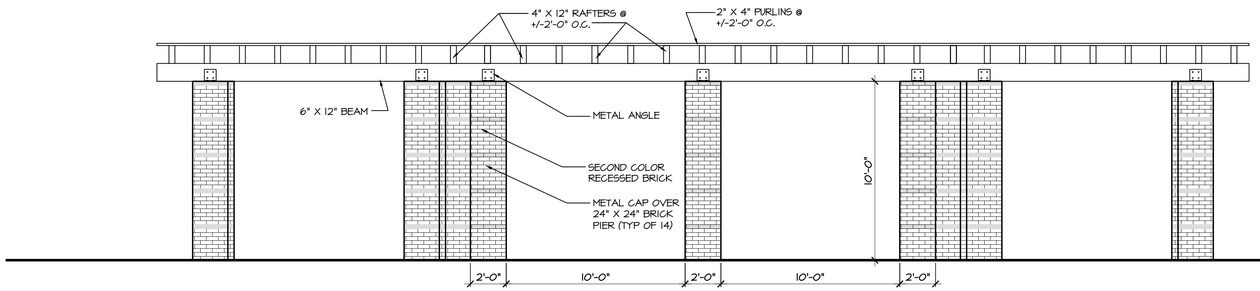
TRELLIS D-2

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. 11 OF 22

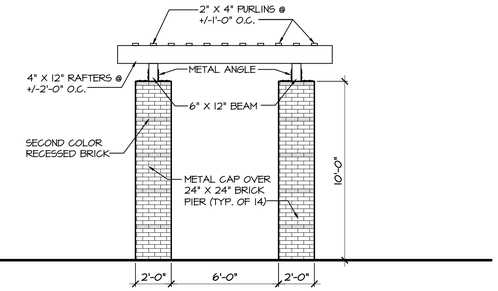
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



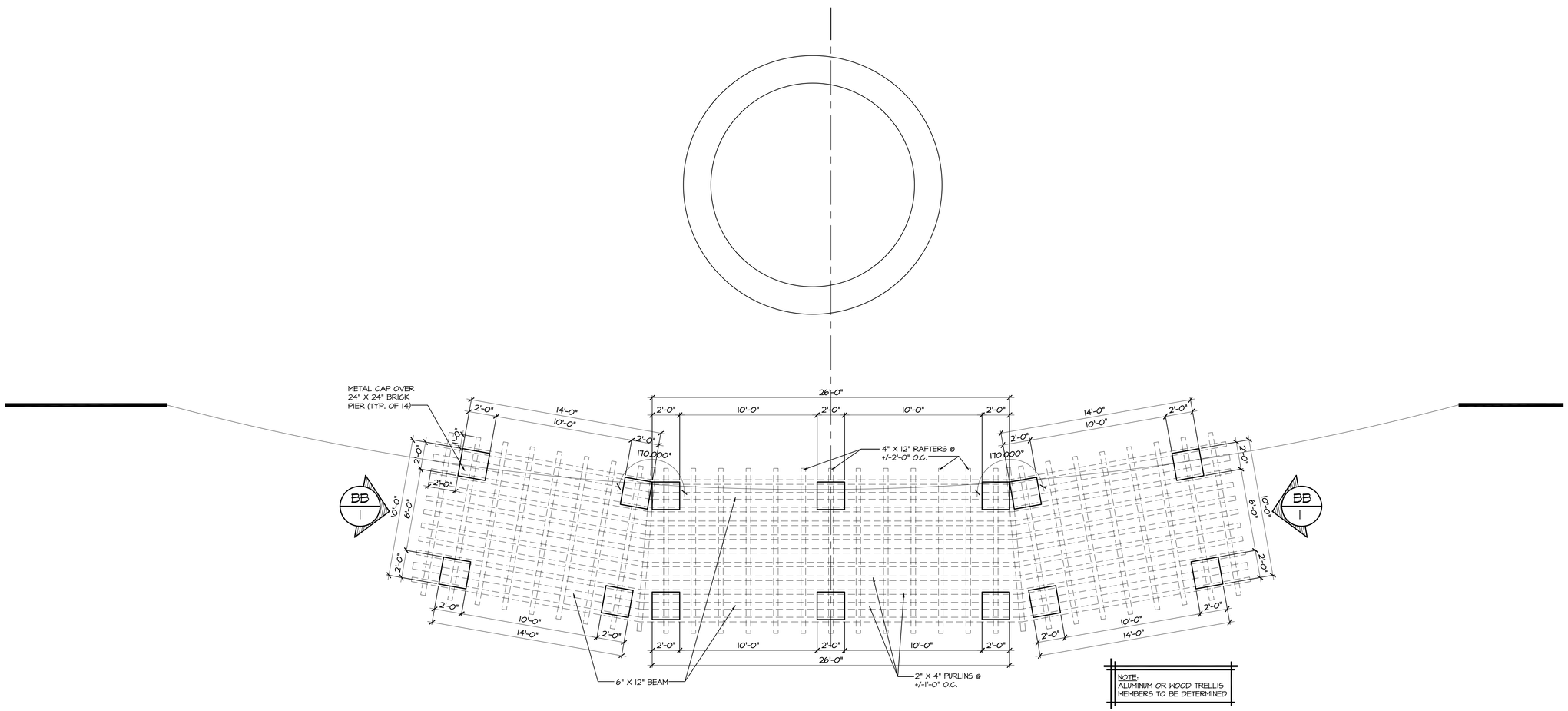
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - E FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS E

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

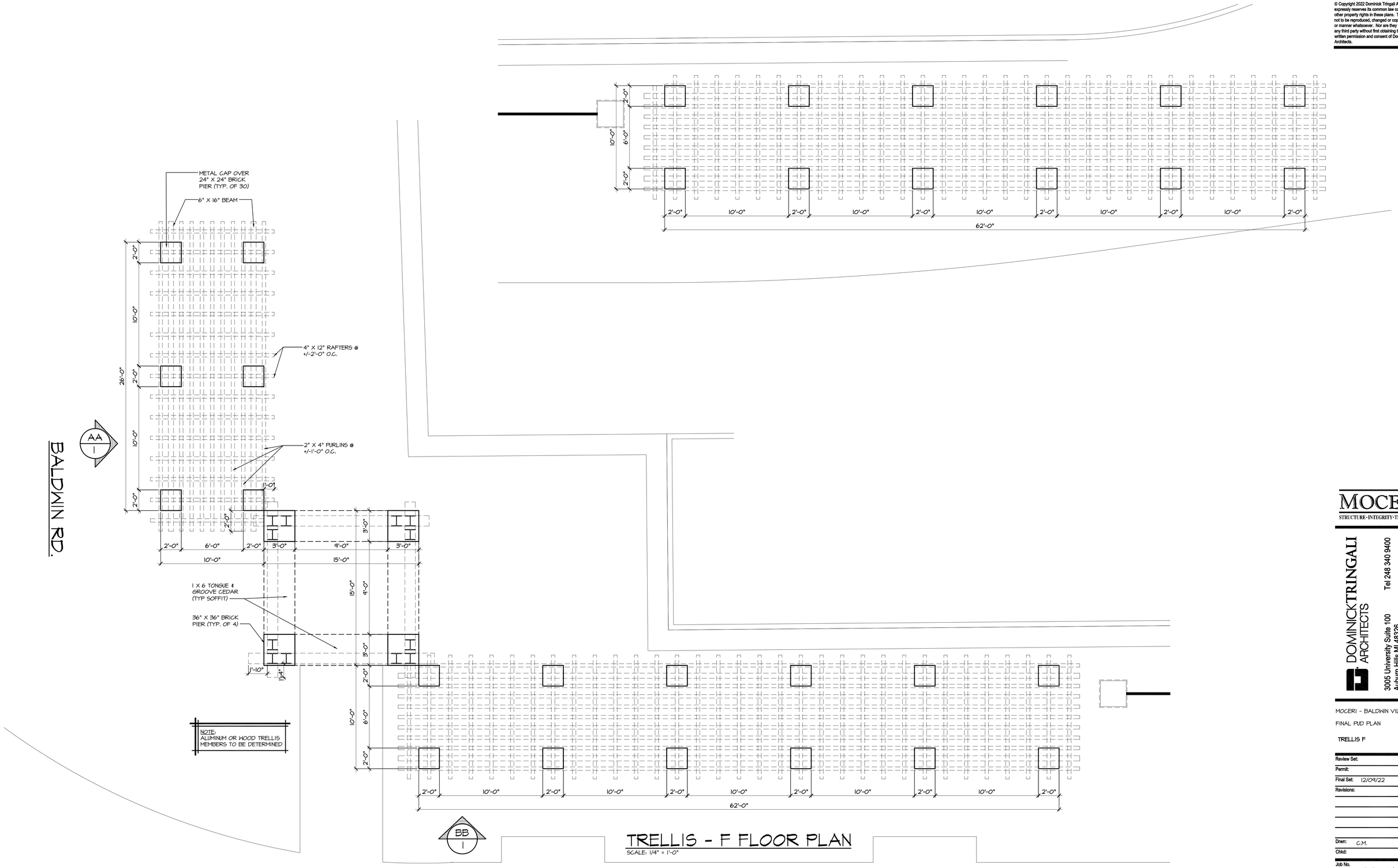
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 13 OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



TRELLIS - F FLOOR PLAN

SCALE: 1/4" = 1'-0"

ENTRY BLVD

MOCERI

STRUCTURE·INTEGRITY·TRADITION™

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS F

Review Set:

Permit:

Final Set: 12/09/22

Revisions:

Drwn: C.M.

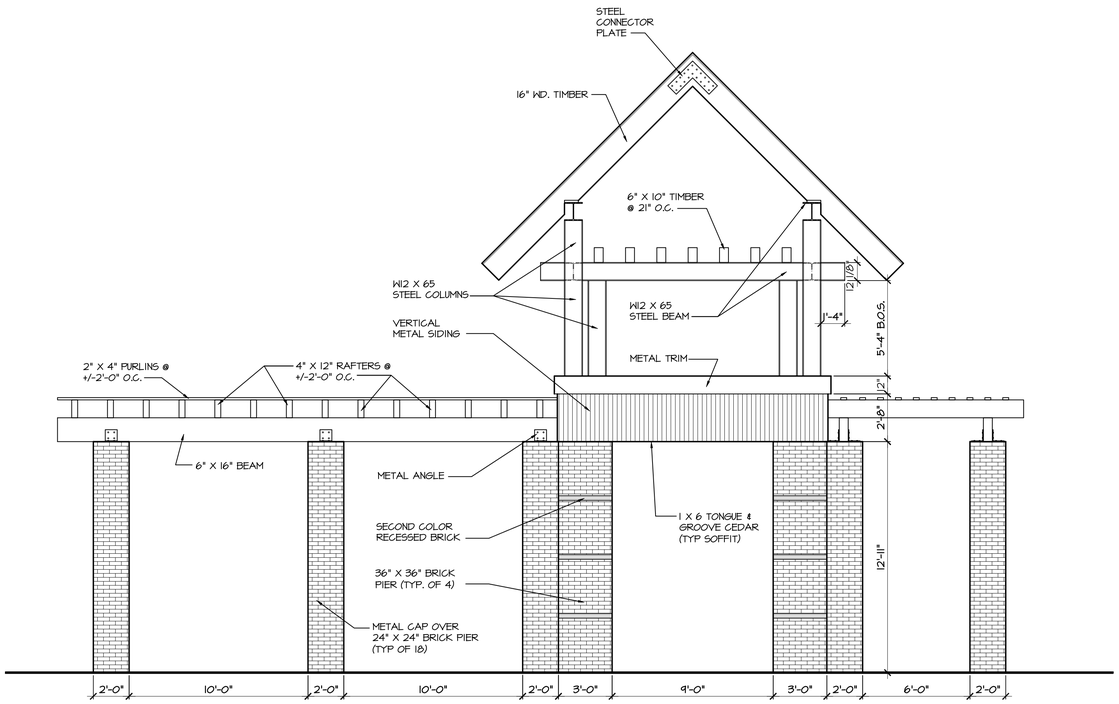
Chkd:

Job No. 22185

Sheet No. 14 OF 22

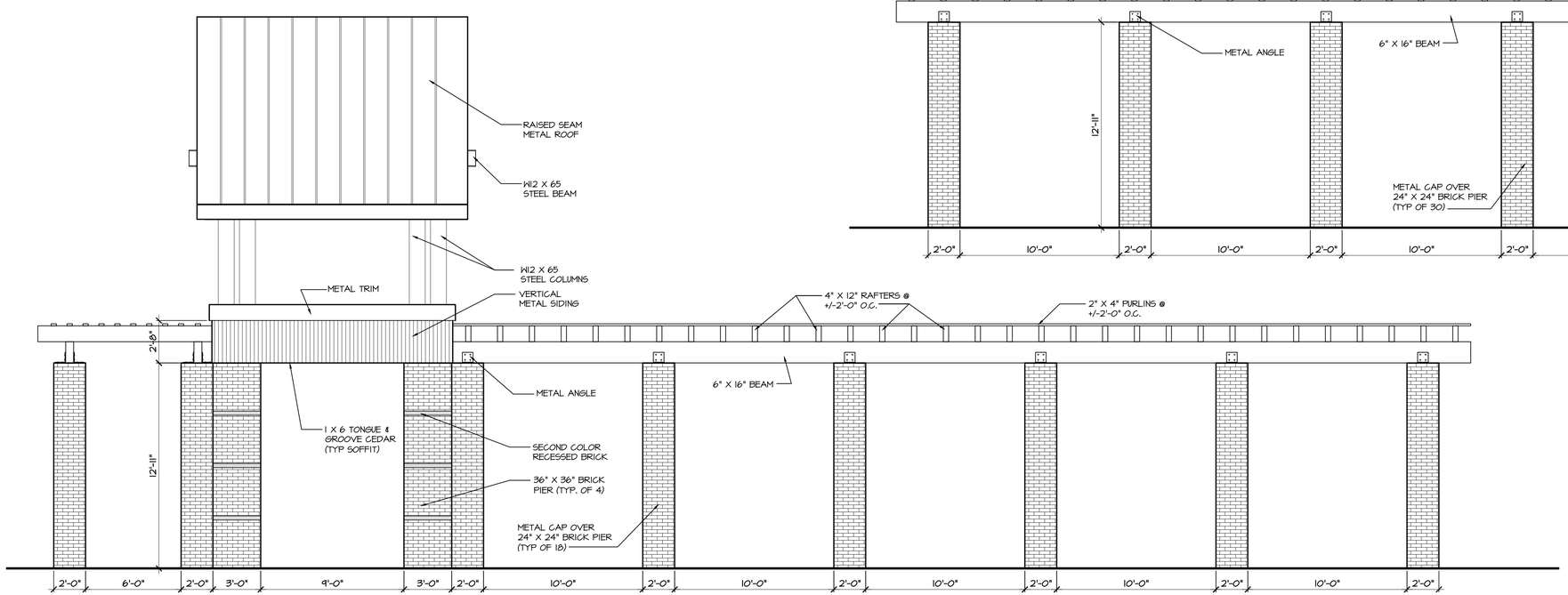
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



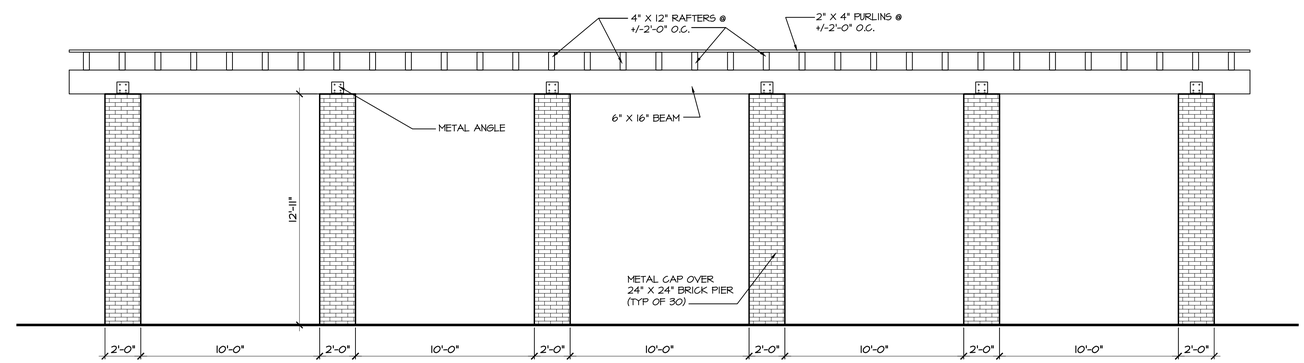
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

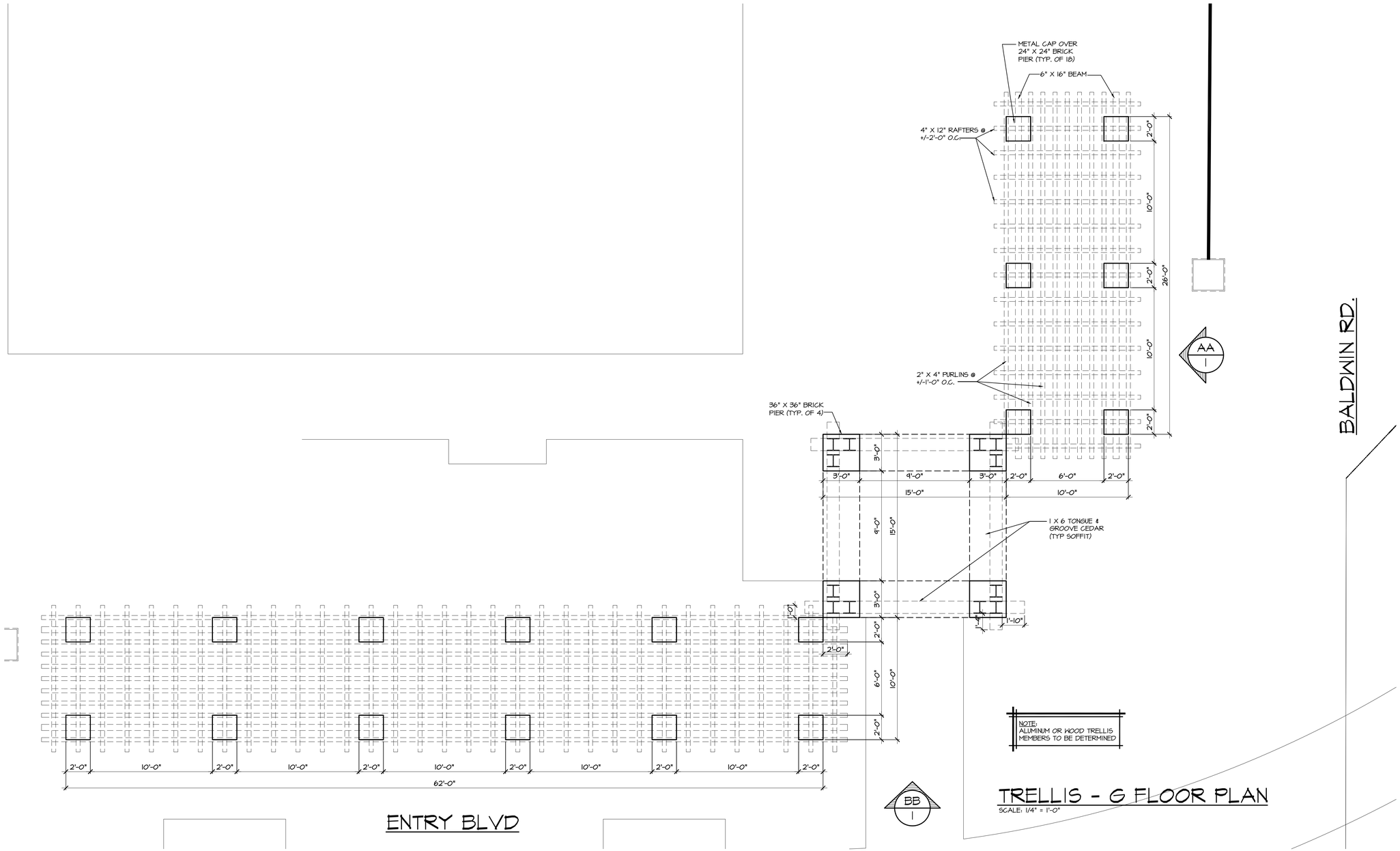
MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TRELLIS F

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. 14A OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



TRELLIS - G FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS G

Review Set:

Permit:

Final Set: 12/09/22

Revisions:

Drwn: C.M.

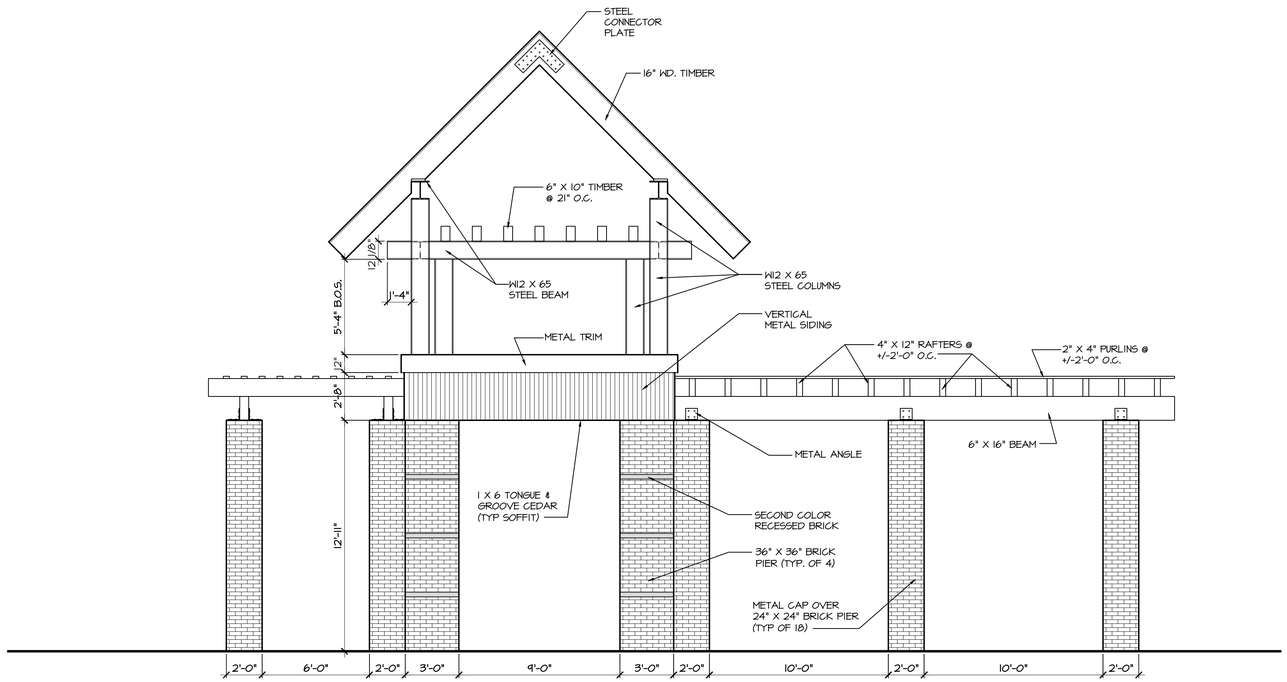
Chkd:

Job No. 22185

Sheet No. 15 OF 22

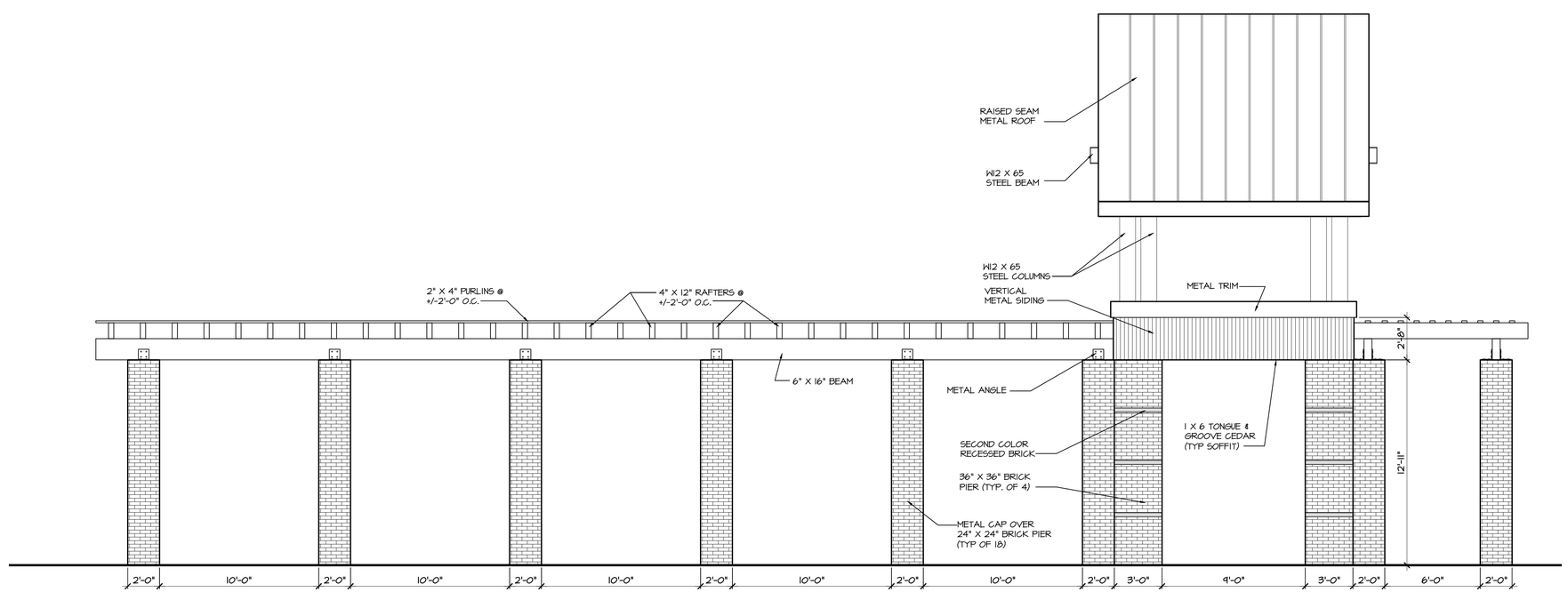
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ELEVATION "AA" - BALDWIN RD

SCALE: 1/4" = 1'-0"



ELEVATION "BB" - ENTRY BLVD

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TRELLIS 6

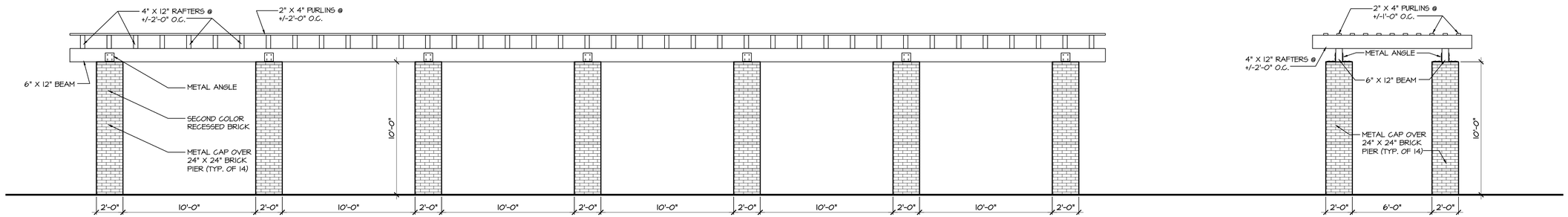
Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185

Sheet No. 15A OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

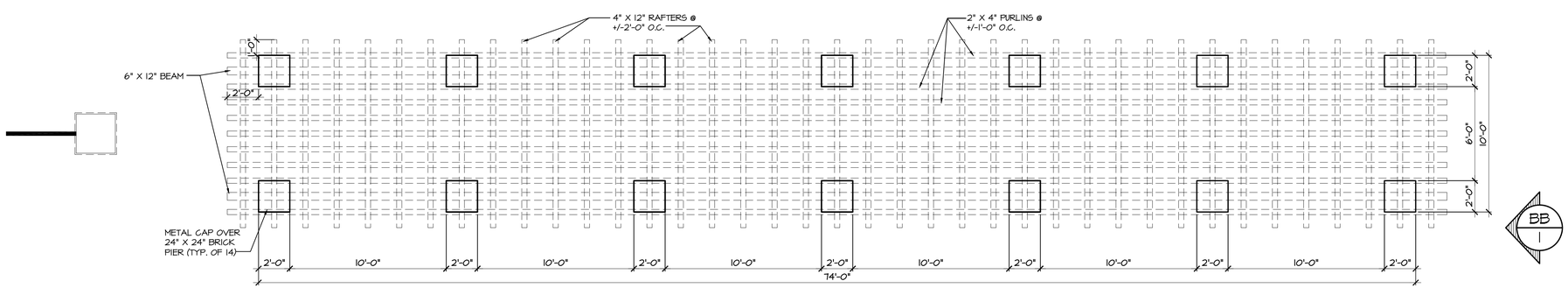


ELEVATION "AA"

SCALE: 1/4" = 1'-0"

ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - H FLOOR PLAN

SCALE: 1/4" = 1'-0"

AA
1

NOTE:
ALUMINUM OR WOOD TRELLIS MEMBERS TO BE DETERMINED

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

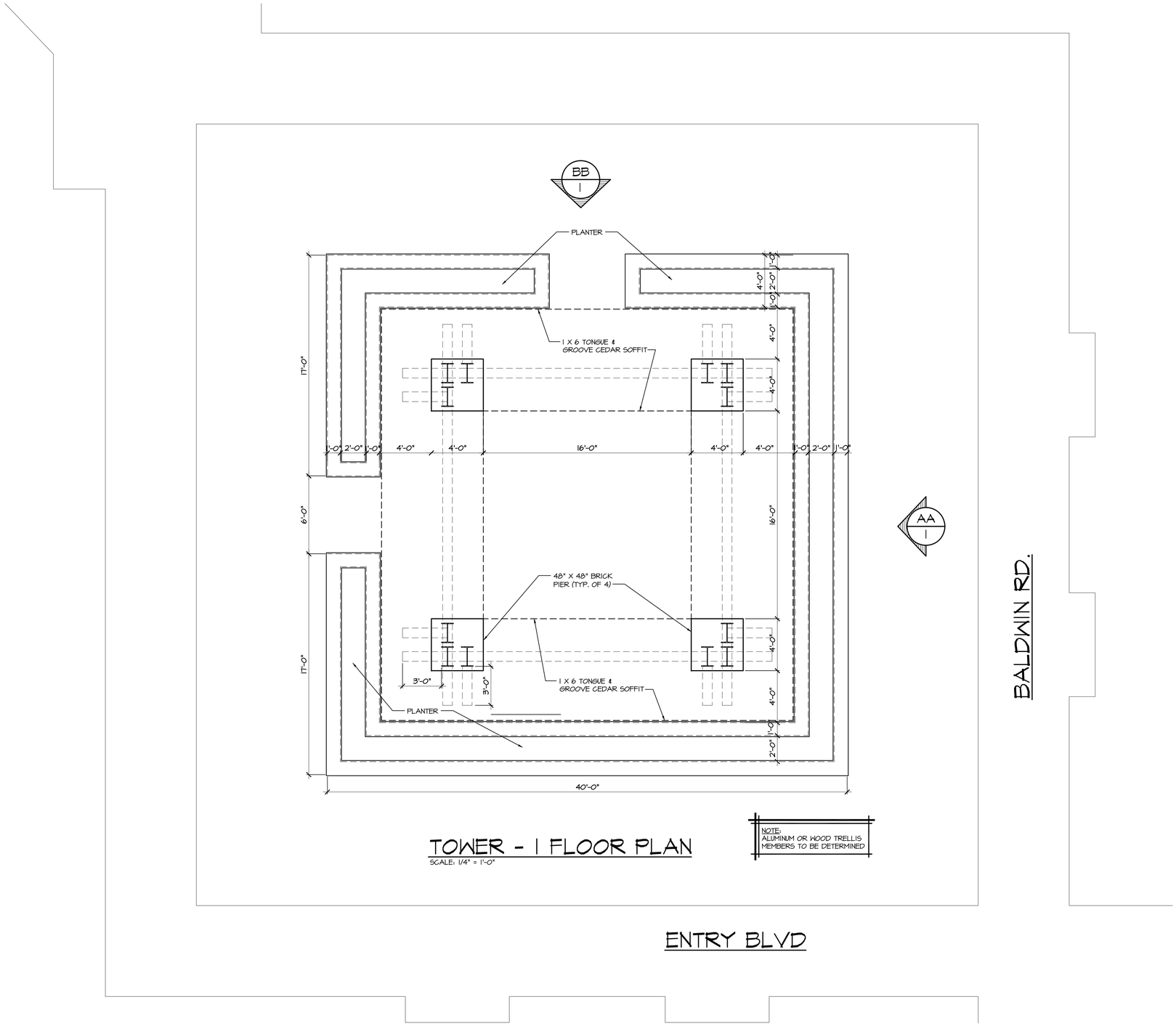
MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TRELLIS H

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. 16 OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



TOWER - 1 FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE:
ALUMINUM OR WOOD TRELLIS
MEMBERS TO BE DETERMINED

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TOWER 1

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

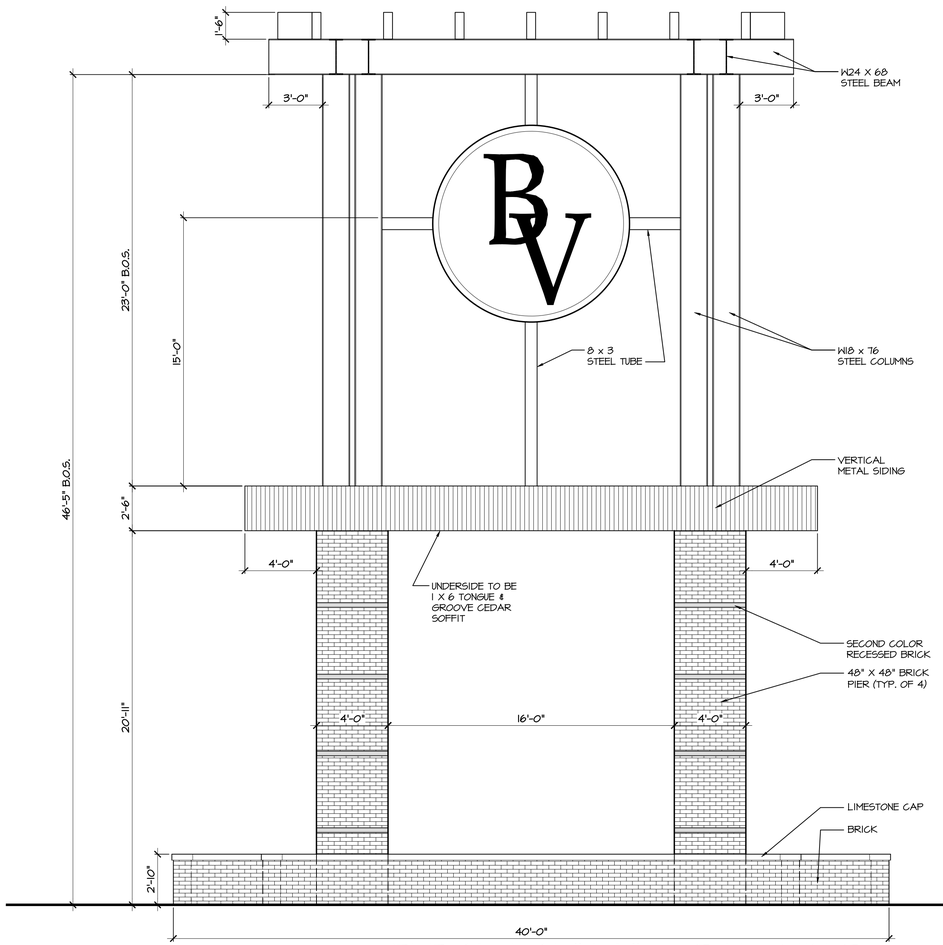
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 17 OF 22

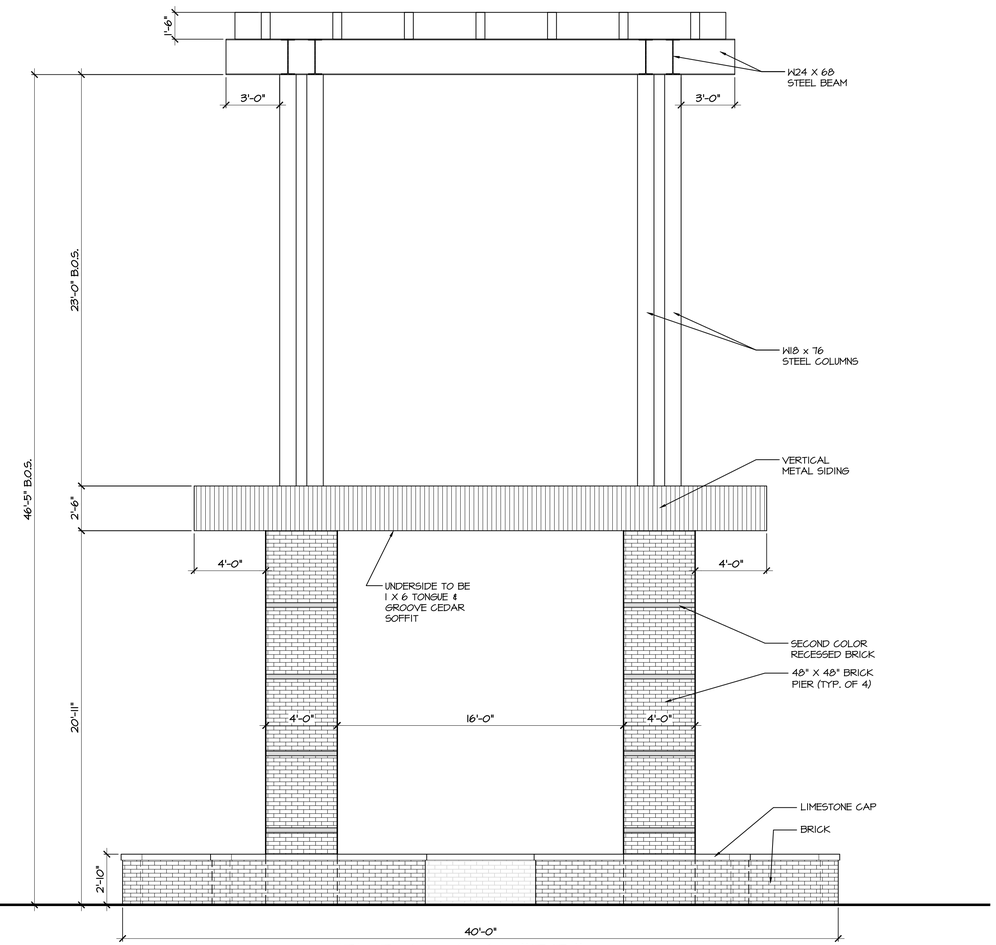
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ELEVATION "AA" - BALDWIN RD.

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TOWER 1

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 18 OF 22

LIFESTYLE BY DESIGN

BALDWIN VILLAGE

Site Plan

Section 32, T.4N., R.10E.,
Orion Township, Oakland County, Michigan

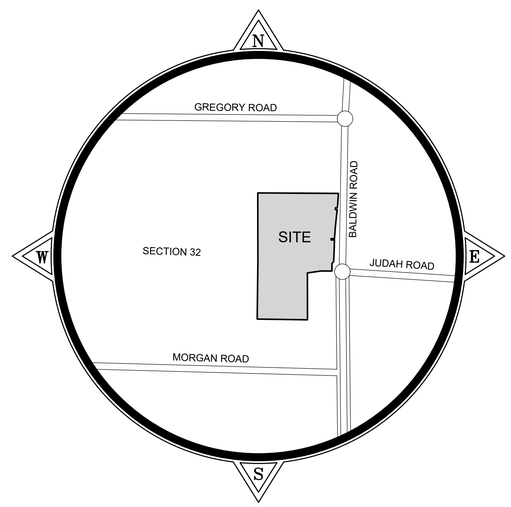
LEGAL DESCRIPTION

PARCEL No. 09-32-151-020, PARCEL No. 09-32-151-021, AND PART OF PARCEL No. 09-32-301-001

PART OF THE WEST HALF OF SECTION 32, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

BEGINNING AT THE WEST QUARTER CORNER OF SECTION 32; THENCE ALONG THE WEST LINE OF SECTION 32 THENCE NORTH 02 DEGREES 18 MINUTES 02 SECONDS WEST 1081.20 FEET; THENCE NORTH 88 DEGREES 08 MINUTES 03 SECONDS EAST 1253.53 FEET TO THE WEST RIGHT OF WAY LINE OF BALDWIN ROAD (WIDTH VARIES); THENCE ALONG THE WEST RIGHT OF WAY LINE OF BALDWIN ROAD THE FOLLOWING SIX (6) COURSES: SOUTH 01 DEGREES 40 MINUTES 08 SECONDS WEST 177.44 FEET, SOUTH 03 DEGREES 41 MINUTES 00 SECONDS WEST 47.35 FEET, NORTH 87 DEGREES 28 MINUTES 28 SECONDS WEST 28.77 FEET, SOUTH 01 DEGREES 44 MINUTES 21 SECONDS WEST 29.85 FEET, SOUTH 87 DEGREES 12 MINUTES 27 SECONDS EAST 27.76 FEET AND SOUTH 03 DEGREES 41 MINUTES 00 SECONDS WEST 148.44 FEET; THENCE SOUTH 03 DEGREES 39 MINUTES 58 SECONDS WEST 133.62 FEET, THENCE SOUTH 02 DEGREES 07 MINUTES 58 SECONDS WEST 171.01 FEET, NORTH 89 DEGREES 38 MINUTES 06 SECONDS WEST 52.12 FEET, SOUTH 00 DEGREES 27 MINUTES 59 SECONDS EAST 20.00 FEET, SOUTH 89 DEGREES 38 MINUTES 06 SECONDS EAST 52.12 FEET, SOUTH 00 DEGREES 27 MINUTES 59 SECONDS EAST 189.56 FEET, SOUTH 00 DEGREES 21 MINUTES 54 SECONDS WEST 146.38 FEET, SOUTH 41 DEGREES 14 MINUTES 46 SECONDS WEST 37.71 FEET, SOUTH 02 DEGREES 06 MINUTES 04 SECONDS EAST 58.68 FEET TO THE EAST AND WEST QUARTER LINE OF SECTION 32, SOUTH 02 DEGREES 07 MINUTES 46 SECONDS EAST 17.61 FEET AND SOUTH 01 DEGREES 47 MINUTES 47 SECONDS EAST 41.15 FEET; THENCE SOUTH 87 DEGREES 49 MINUTES 58 SECONDS WEST 143.11 FEET; THENCE WESTERLY ALONG A NON-TANGENT CURVE CONCAVE TO THE SOUTH HAVING A CENTRAL ANGLE OF 7 DEGREES 55 MINUTES 04 SECONDS, A RADIUS OF 306.00 FEET, AN ARC DISTANCE OF 42.29 FEET AND WHOSE CHORD IS SOUTH 83 DEGREES 51 MINUTES 29 SECONDS WEST 42.25 FEET; THENCE SOUTH 79 DEGREES 53 MINUTES 57 SECONDS WEST 197.50 FEET; THENCE SOUTH 02 DEGREES 12 MINUTES 41 SECONDS EAST 726.84 FEET; THENCE SOUTH 88 DEGREES 30 MINUTES 44 SECONDS WEST 780.13 FEET TO THE WEST LINE OF SECTION 32; THENCE ALONG THE WEST LINE OF SECTION 32 NORTH 01 DEGREES 32 MINUTES 26 SECONDS WEST 878.86 FEET TO THE WEST QUARTER CORNER OF SECTION 32 AND THE POINT OF BEGINNING. CONTAINING 46.83 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.



INDEX TO SHEETS

COVER SHEET 1
OVERALL SITE 2
SITE PLAN & DIMENSION PLAN PHASE 2 3
SITE PLAN & DIMENSION PLAN PHASE 3 4
SITE PLAN & DIMENSION PLAN PHASE 4 5
UTILITY PLAN PHASE 2 6
UTILITY PLAN PHASE 3 7
UTILITY PLAN PHASE 4 8
HYDRAULICS 9
HYDRAULIC & DETENTION POND CALCULATIONS 10
GRADING PLANS 11-17
WETLAND TRIBUTARY AREA 18
MISCELLANEOUS PROJECT DETAILS 19
SIGNING PLAN 20
PHOTOMETRIC PLAN 21
TOPOGRAPHIC SURVEY 22
FLOOR PLANS PHASE 2 ..... UP1-UP21
ELEVATIONS PHASE 2 ..... UP22-UP35
CLUBHOUSE PHASE 2 ..... UP36-UP38
FLOOR PLANS & ELEVATIONS PHASE 3 ..... NV1-NV15
FLOOR PLANS & ELEVATIONS PHASE 4 ..... SV1-SV18
RESIDENTIAL COMMUNITY MONUMENTS T1-T11

419

PROPRIETOR

JACOBSON MOCERI ORION LLC
3005 UNIVERSITY DRIVE
AUBURN HILLS, MICHIGAN 48326
248-340-9400

ENGINEER

ANDERSON, ECKSTEIN AND WESTRICK, INC.
51301 SCHOENHERR ROAD
SHELBY TOWNSHIP, MI 48315

LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
9336 SASHABAW ROAD
CLARKSTON, MICHIGAN 48348

STEPHEN V. PANGORI, P.E.
MICHIGAN REGISTRATION # 6201037769

COPYRIGHT, 2019, ANDERSON, ECKSTEIN AND WESTRICK, INC.

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG Layout: 01_COVER 12/7/2022 1:46:17 PM

SITE DATA

OVERALL SITE AREA 46.83 ACRES

CURRENT ZONING SF - 46.83 ACRES
(WITHIN GINGEVILLE VILLAGE CENTER OVERLAY DISTRICT)

PARCEL NO. 09-32-151-020 AND 09-32-301-001

OPEN SPACE

REQUIRED	15% x 46.83 ACRES =	7.02 ACRES
PROVIDED		7.02 ACRES

DENSITY

FLATS AT UPTOWN VILLAGE (22.03 Ac.)	304 UNITS
TOWNES AT NORTH VILLAGE (11.09 Ac.)	79 UNITS
VILLAS AT SOUTH VILLAGE (13.71 Ac.)	82 UNITS
	465 UNITS (9.93 UNITS / ACRE)

BUILDING SETBACKS

PERIMETER

WEST SIDE	50 FEET
EAST SIDE	50 FEET
EAST ADJACENT TO COMMERCIAL	40 FEET
SOUTH SIDE	50 FEET
NORTH SIDE	50 FEET

TOWNES AT NORTH VILLAGE TOWNHOMES

BUILDING TO CURB	31.5 FEET
SIDE TO SIDE	20 FEET
REAR TO REAR	60 FEET

VILLAS AT SOUTH VILLAGE TOWNHOMES

BUILDING TO CURB	31.5 FEET
SIDE TO SIDE	20 FEET
SIDE TO REAR	35 FEET
REAR TO REAR	60 FEET

FLATS AT UPTOWN VILLAGE

FRONT TO CURB	25 FEET
SIDE TO SIDE	60 FEET
SIDE TO REAR	55 FEET

PARKING REQUIRED

FLATS AT UPTOWN VILLAGE PARKING REQUIRED

2 SPACES PER EACH DWELLING UNIT PLUS 1 SPACE PER EVERY 3 UNITS FOR VISITORS AND 1 SPACE PER EACH 200 SF FOR THE CLUB HOUSE

304 UNITS x 2	608 SPACES
304 UNIT / 3	101 SPACES
5753 SF CLUB HOUSE / 200	29 SPACES
TOTAL REQUIRED	738 SPACES

TOWNES AT NORTH VILLAGE PARKING REQUIRED

2 SPACES PER EACH RESIDENCE PLUS 1 SPACE FOR EVERY 3 RESIDENCES FOR GUESTS

79 UNIT x 2	158 SPACES
79 UNIT / 3	27 SPACES
TOTAL REQUIRED	185 SPACES

VILLAS AT SOUTH VILLAGE PARKING REQUIRED

2 SPACES PER EACH RESIDENCE PLUS 1 SPACE FOR EVERY 3 RESIDENCES FOR GUESTS

82 UNITS x 2	164 SPACES
82 UNITS / 3	28 SPACES
TOTAL REQUIRED	192 SPACES

TOTAL PARKING REQUIRED = 738 + 185 + 192 = 1115 SPACES

PARKING PROVIDED

FLATS AT UPTOWN PARKING PROVIDED		693 SPACES
TOWNES AT NORTH VILLAGE PARKING PROVIDED	(79 X 4)	316 SPACES
VILLAS AT SOUTH VILLAGE PARKING PROVIDED	(82 X 4)	328 SPACES
TOTAL PARKING PROVIDED		1337 SPACES

BARRIER FREE SPACES REQUIRED IN UPTOWN = 693 x 2% =	14 SPACES
BARRIER FREE PARKING PROVIDED IN FLATS AT UPTOWN VILLAGE	31 SPACES

PAVEMENT SHOWN IS 27 FEET WIDE FROM BACK OF CURB.

A 60 FOOT EASEMENT SHALL BE PROVIDED FOR ALL PRIVATE STREETS.

PARKING AREAS HAVE 22 FOOT AISLES WITH 9' x 19' PARKING SPACES

TRASH HANDLING

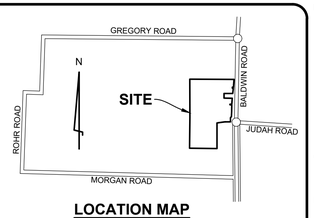
UPTOWN RESIDENTS WILL USE THE RECYCLING AND TRASH COMPACTOR ON SITE. NORTH AND SOUTH VILLAGE RESIDENTS WILL STORE TRASH IN TRASH RECEPTACLE IN EACH GARAGE WITH WEEKLY CURB SIDE PICKUP. REQUEST WAIVER FROM SECTION 7.03.i.1.

BUILDINGS

ALL BUILDINGS TO BE FIRE SUPPRESSED.

ALL METER ROOMS TO BE FITTED WITH RESIDENTIAL KNOX BOX.

FRANCHISE UTILITY EASEMENTS WILL NOT BE LOCATED WITHIN OR OVERLAP WATER MAIN AND SANITARY SEWER EASEMENTS



LOCATION MAP
NOT TO SCALE

BENCH MARKS (NAVD88 DATUM)

BENCH MARK NO. 1
CHISELED "X" ON N.E. RIM OF MIDDLE ROAD BASIN @ S. SIDE GINGELL DR., S. SIDE CUL-DE-SAC
ELEVATION: 1038.49

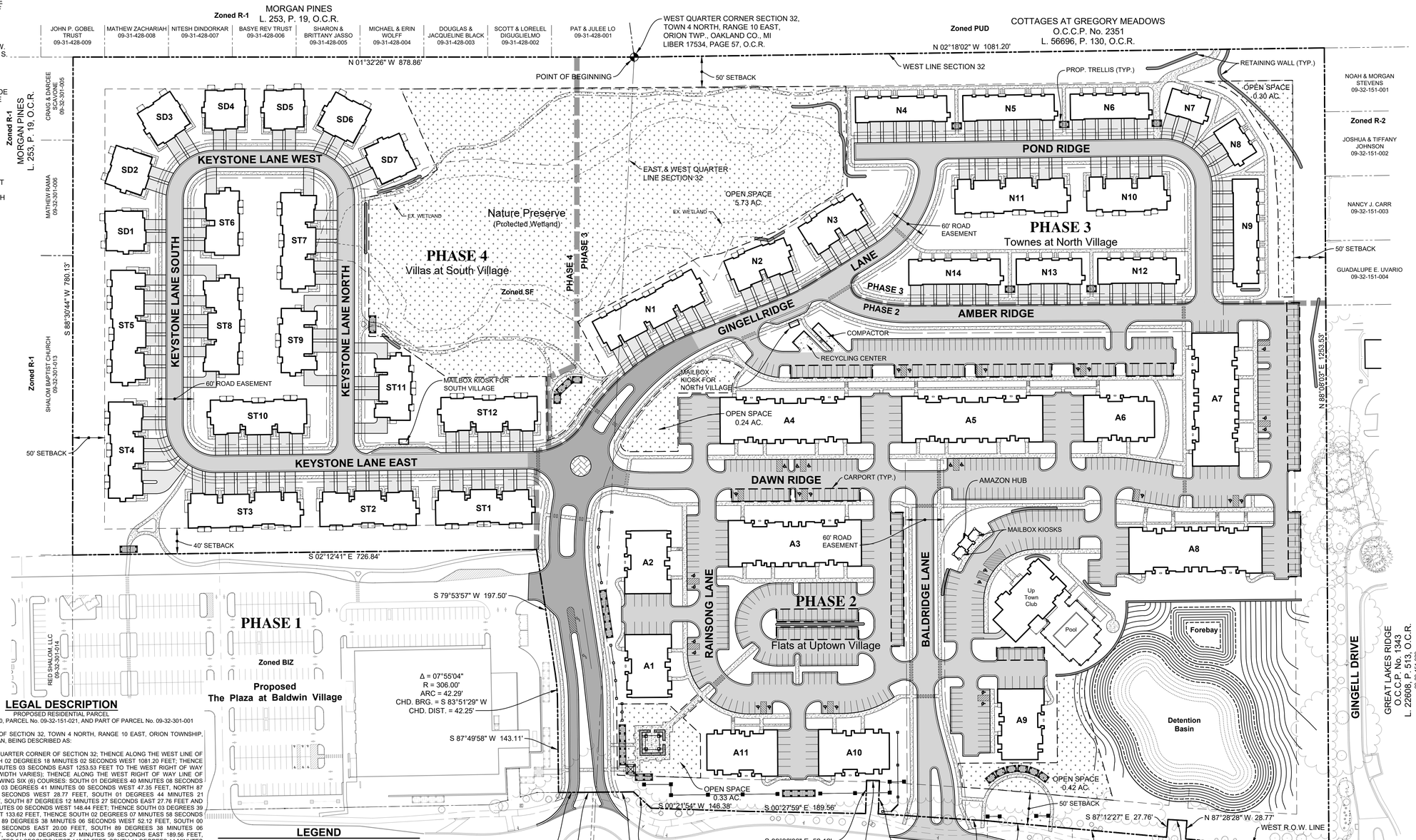
BENCH MARK NO. 2
CHISELED "X" ON N.E. RIM OF ROAD BASIN ON THE S. SIDE OF GINGELL DR. 125'± W. OF BALDWIN RD.
ELEVATION: 1023.96

BENCH MARK NO. 3
TOP OF HYDRANT ON THE W. SIDE OF BALDWIN RD. 200'± S. OF GINGELL DR.
ELEVATION: 1019.76

BENCH MARK NO. 4
TOP OF HYDRANT ON W. SIDE OF BALDWIN RD., OPPOSITE #4303
ELEVATION: 1025.09

BENCH MARK NO. 5
TOP OF HYDRANT, W. SIDE BALDWIN, 100'± N. OF ℄ JUDAH EXTENDED
ELEVATION: 1034.41

BENCH MARK NO. 6
CHISELED "X" ON N. RIM MBT MH, 40'± W. OF B/CURB BALDWIN, 50'± N. OF ℄ JUDAH EXTENDED.
ELEVATION: 1034.15



LEGAL DESCRIPTION

PROPOSED RESIDENTIAL PARCEL

PARCEL No. 09-32-151-020, PARCEL No. 09-32-151-021, AND PART OF PARCEL No. 09-32-301-001

PART OF THE WEST HALF OF SECTION 32, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

BEGINNING AT THE WEST QUARTER CORNER OF SECTION 32; THENCE ALONG THE WEST LINE OF SECTION 32 THENCE NORTH 02 DEGREES 18 MINUTES 02 SECONDS WEST 1081.20 FEET; THENCE NORTH 88 DEGREES 08 MINUTES 03 SECONDS EAST 1253.53 FEET TO THE WEST RIGHT OF WAY LINE OF BALDWIN ROAD (WIDTH VARIES); THENCE ALONG THE WEST RIGHT OF WAY LINE OF BALDWIN ROAD THE FOLLOWING SIX (6) COURSES: SOUTH 01 DEGREES 40 MINUTES 08 SECONDS WEST 177.44 FEET, SOUTH 03 DEGREES 41 MINUTES 00 SECONDS WEST 47.35 FEET, NORTH 87 DEGREES 28 MINUTES 28 SECONDS WEST 28.77 FEET, SOUTH 01 DEGREES 44 MINUTES 21 SECONDS WEST 29.85 FEET, SOUTH 87 DEGREES 12 MINUTES 27 SECONDS EAST 27.76 FEET AND SOUTH 03 DEGREES 41 MINUTES 00 SECONDS WEST 148.44 FEET; THENCE SOUTH 03 DEGREES 39 MINUTES 58 SECONDS WEST 133.62 FEET, THENCE SOUTH 02 DEGREES 07 MINUTES 58 SECONDS WEST 171.01 FEET, NORTH 89 DEGREES 38 MINUTES 06 SECONDS WEST 52.12 FEET, SOUTH 00 DEGREES 27 MINUTES 59 SECONDS EAST 189.56 FEET, SOUTH 00 DEGREES 21 MINUTES 54 SECONDS WEST 146.38 FEET, SOUTH 41 DEGREES 14 MINUTES 46 SECONDS WEST 37.71 FEET, SOUTH 02 DEGREES 06 MINUTES 04 SECONDS EAST 58.68 FEET TO THE EAST AND WEST QUARTER LINE OF SECTION 32, SOUTH 02 DEGREES 07 MINUTES 46 SECONDS EAST 17.61 FEET AND SOUTH 01 DEGREES 47 MINUTES 47 SECONDS EAST 41.15 FEET; THENCE SOUTH 87 DEGREES 49 MINUTES 58 SECONDS WEST 143.11 FEET; THENCE WESTERLY ALONG A NON-TANGENT CURVE CONCAVE TO THE SOUTH HAVING A CENTRAL ANGLE OF 7 DEGREES 55 MINUTES 04 SECONDS, A RADIUS OF 306.00 FEET, AN ARC DISTANCE OF 42.29 FEET AND WHOSE CHORD IS SOUTH 83 DEGREES 51 MINUTES 29 SECONDS WEST 42.25 FEET; THENCE SOUTH 79 DEGREES 53 MINUTES 57 SECONDS WEST 197.50 FEET; THENCE SOUTH 02 DEGREES 12 MINUTES 41 SECONDS EAST 726.84 FEET; THENCE SOUTH 88 DEGREES 30 MINUTES 44 SECONDS WEST 780.13 FEET TO THE WEST LINE OF SECTION 32; THENCE ALONG THE WEST LINE OF SECTION 32 NORTH 01 DEGREES 32 MINUTES 26 SECONDS WEST 878.86 FEET TO THE WEST QUARTER CORNER OF SECTION 32 AND THE POINT OF BEGINNING. CONTAINING 46.83 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.

LEGEND

- DEEP STRENGTH PAVEMENT SECTION
- STANDARD PAVEMENT SECTION
- 8" CONCRETE PAVEMENT
- 6" CONCRETE DRIVEWAY
- 4" CONCRETE SIDEWALK
- WOOD CHIP PATH

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 420

BALDWIN VILLAGE

SHEET TITLE:

OVERALL SITE

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE: 1" = 80' HORIZ.
0 40 80 160

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

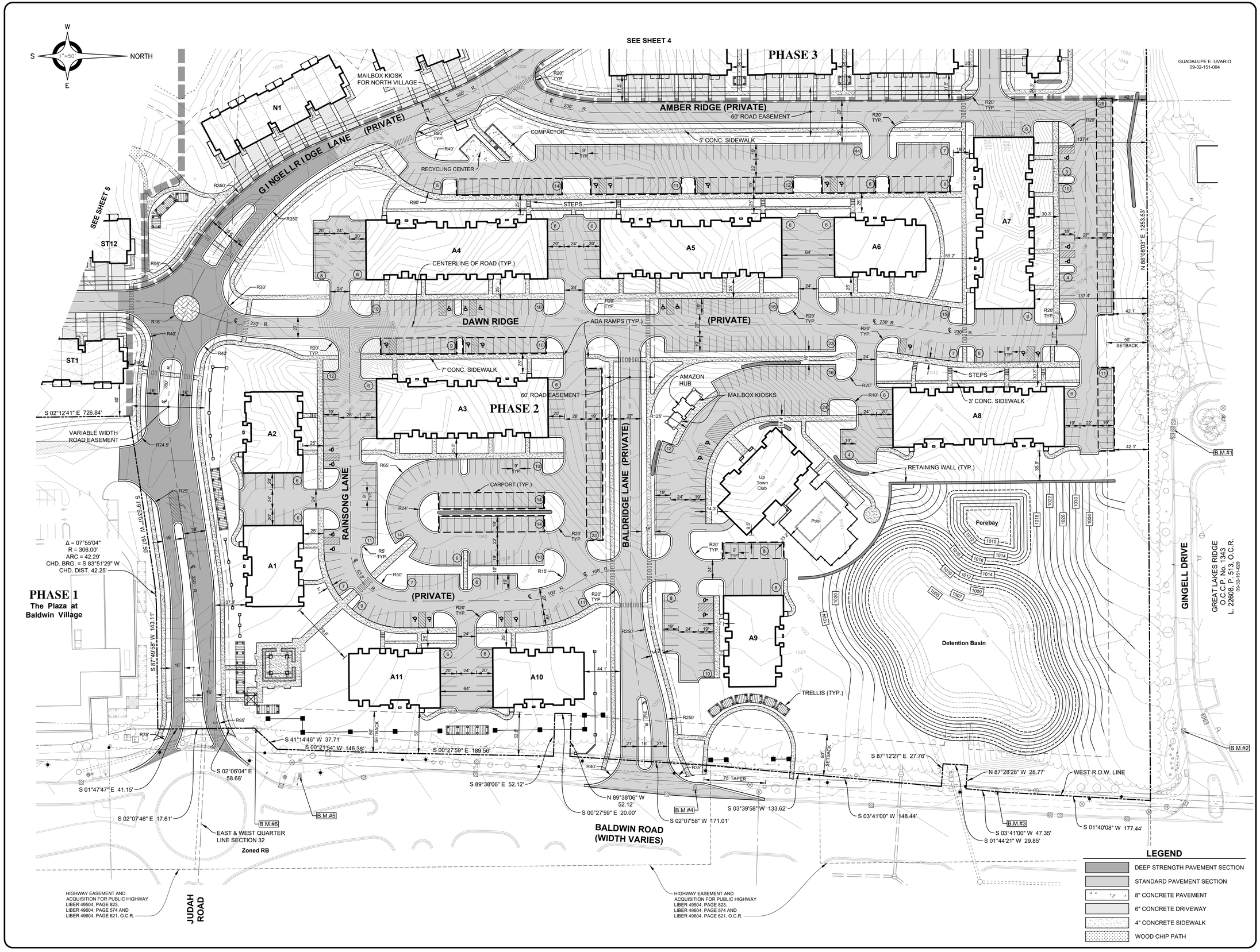
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO. 0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
02_Overall Site=12/7/2022 7:36:11 AM

SHEET NO. 2

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 421

BALDWIN VILLAGE

SHEET TITLE:

SITE PLAN & DIMENSION PLAN PHASE 2

Flats at Uptown Village

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY	CONSTRUCTION	RECORD
DRAWN BY: JLA	CHECKED BY: SVP	DATE: NOVEMBER 2022

SCALE: 1" = 50' HORIZ.
0 25 50 100

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

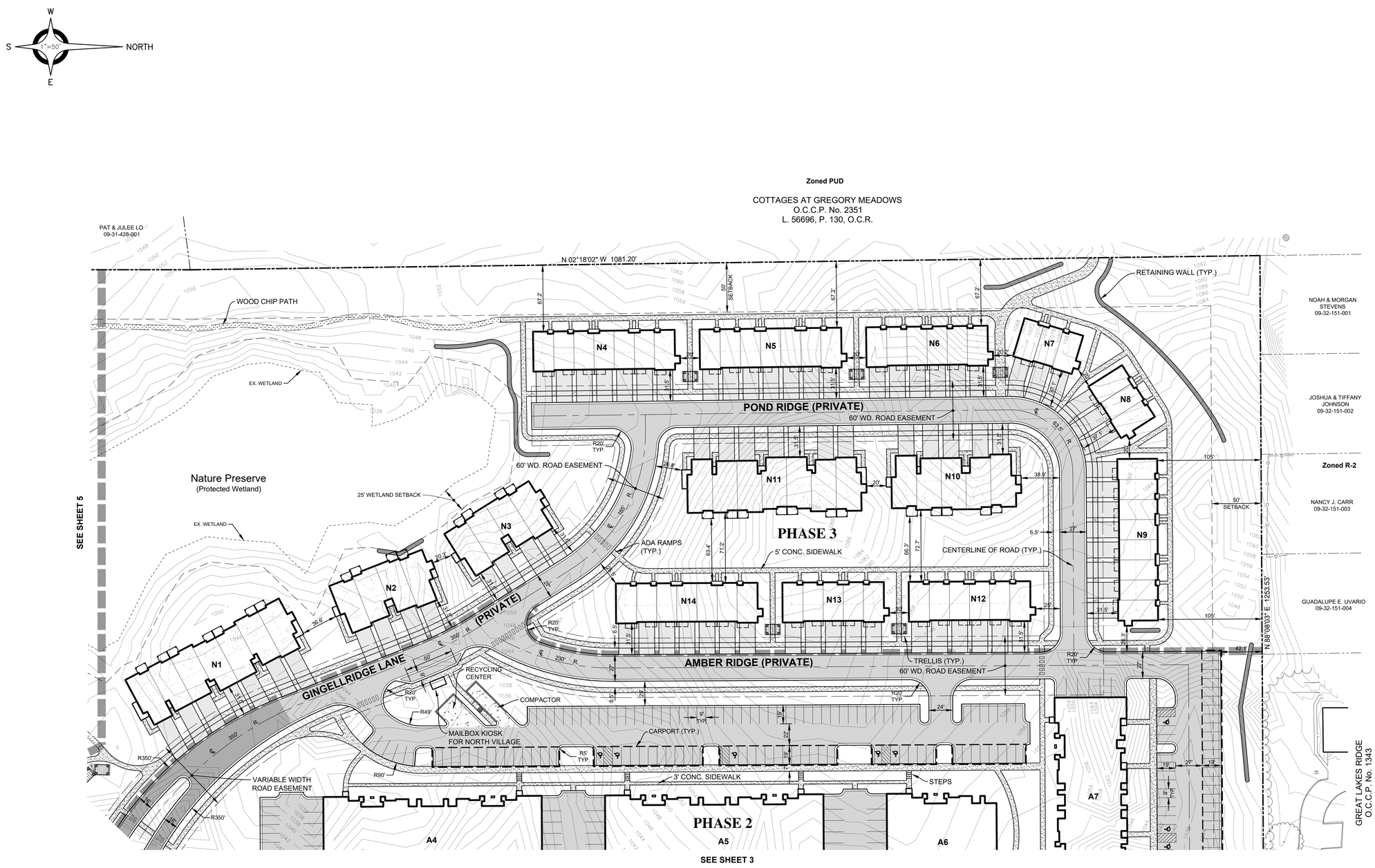
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
03_Site Plan East--12/7/2022 7:37:41 AM

SHEET NO.
3

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



LEGEND

- DEEP STRENGTH PAVEMENT SECTION
- STANDARD PAVEMENT SECTION
- 8" CONCRETE PAVEMENT
- 6" CONCRETE DRIVEWAY
- 4" CONCRETE SIDEWALK
- WOOD CHIP PATH

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 422

BALDWIN VILLAGE

SHEET TITLE:

SITE PLAN & DIMENSION PLAN PHASE 3

Townes at North Village

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE:
1" = 50' HORIZ.
0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

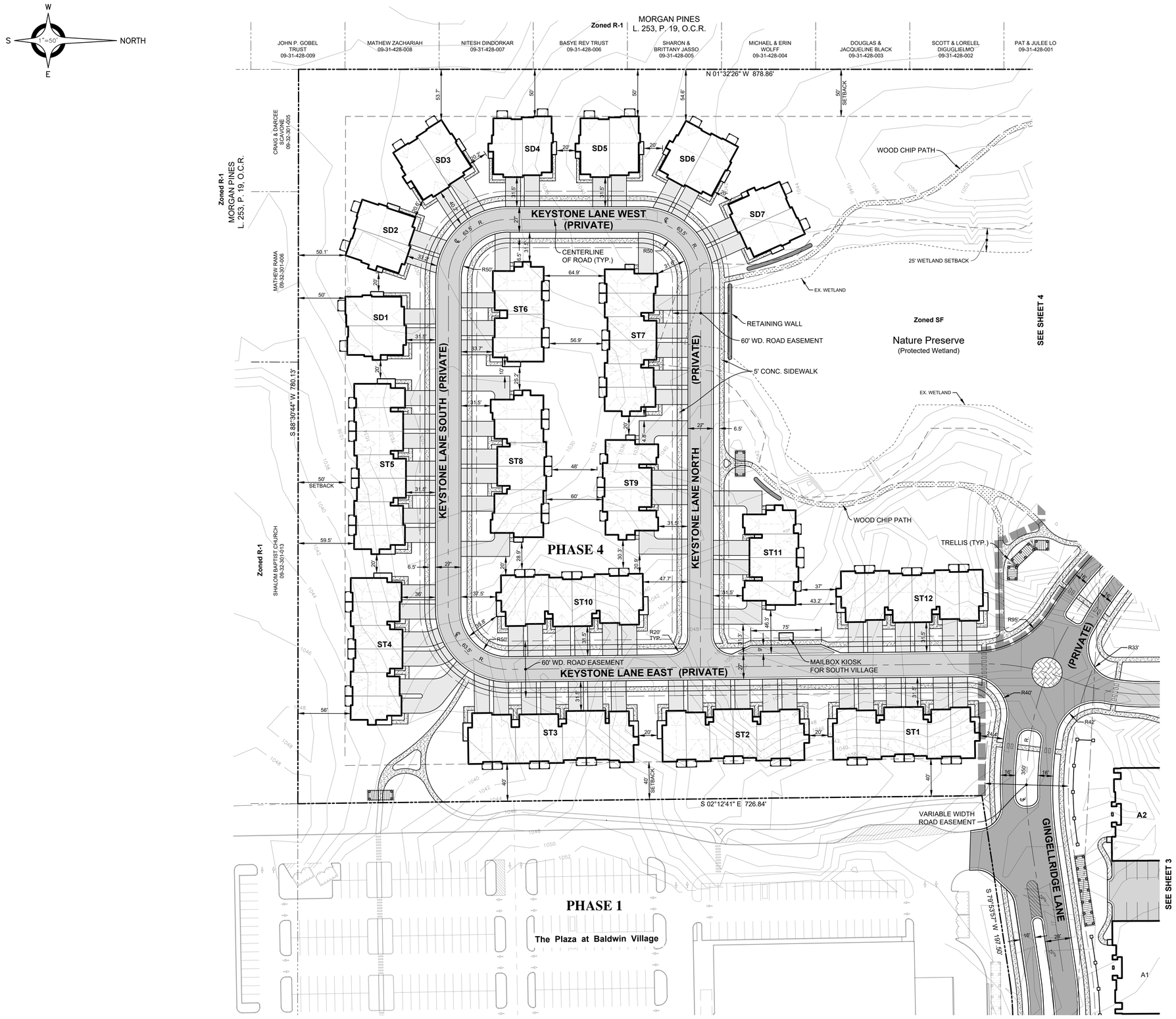
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
04_Site Plan West--12/7/2022 7:39:54 AM

SHEET NO.
4

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



LEGEND

- DEEP STRENGTH PAVEMENT SECTION
- STANDARD PAVEMENT SECTION
- 8" CONCRETE PAVEMENT
- 6" CONCRETE DRIVEWAY
- 4" CONCRETE SIDEWALK
- WOOD CHIP PATH

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 423

BALDWIN VILLAGE

SHEET TITLE:

SITE PLAN & DIMENSION PLAN PHASE 4

Villas at South Village

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE:
1" = 50' HORIZ.
0 25 50 100

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

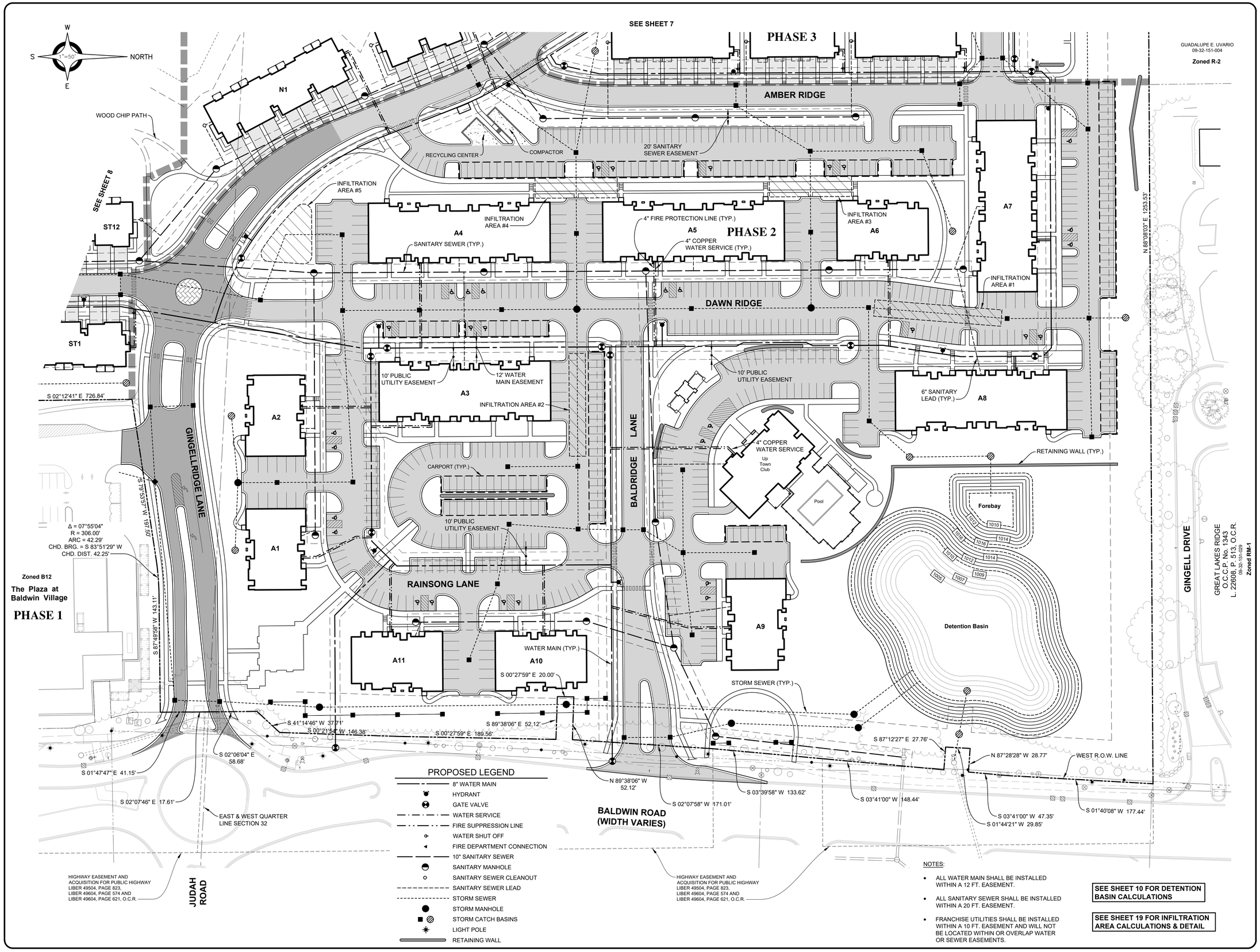
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
05_Site Plan South--12/7/2022 7:42:42 AM

SHEET NO.
5

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 424

BALDWIN VILLAGE

SHEET TITLE:

UTILITY PLAN PHASE 2

Flats at Uptown Village

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY	CONSTRUCTION	RECORD
DRAWN BY: JLA	CHECKED BY: SVP	DATE: NOVEMBER 2022

SCALE: 1" = 50' HORIZ.

0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

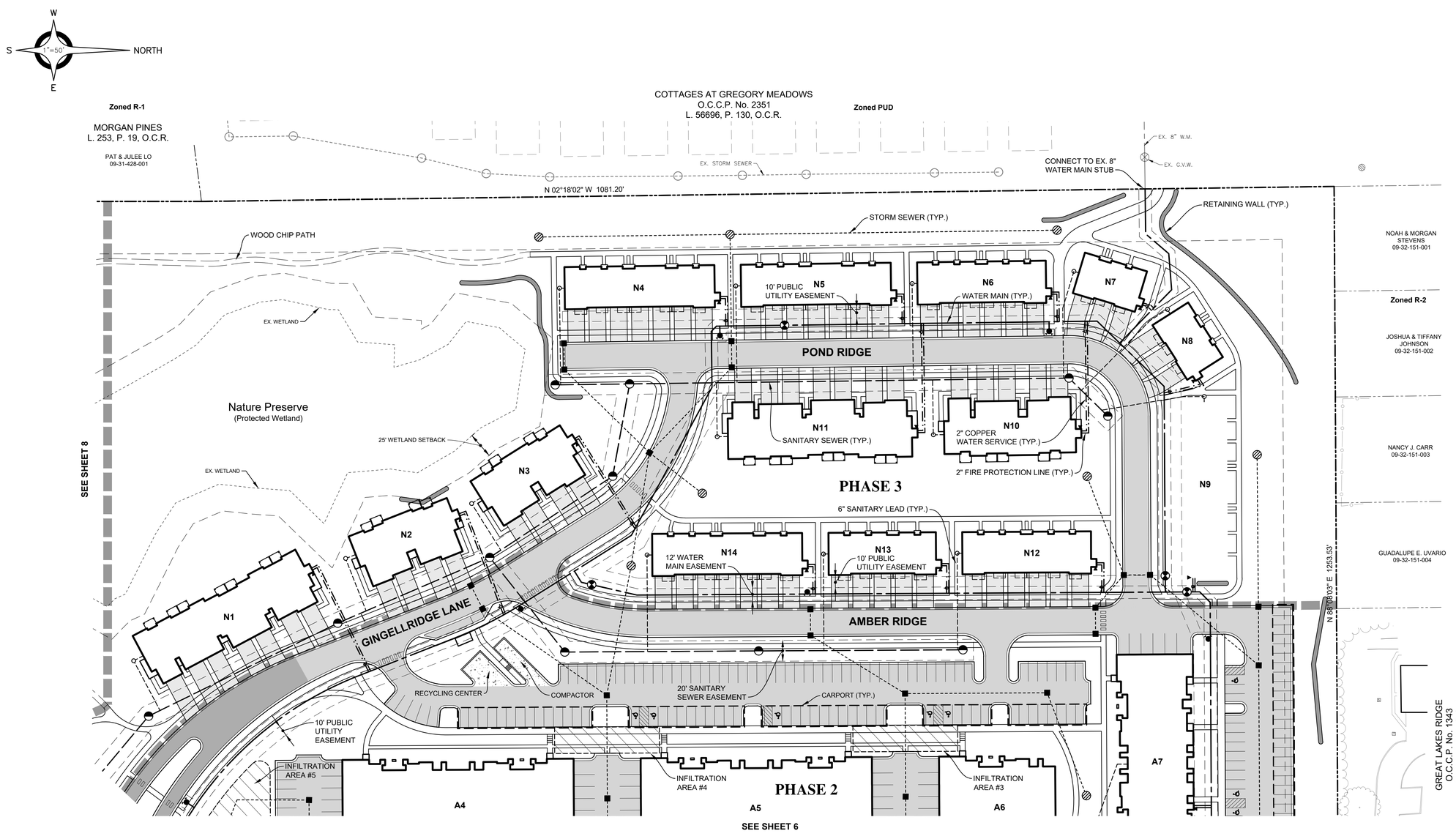
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
06_UtilExh--12/7/2022 8:10:47 AM

SHEET NO.
6

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



SANITARY SEWER BASIS OF DESIGN

FLATS AT UPTOWN VILLAGE	304
TOWNES AT NORTH VILLAGE	79
VILLAS AT SOUTH VILLAGE	82
	465 RESIDENCES

MULTI FAMILY HOUSING UNIT FACTOR = 0.60 PER RESIDENCE
PEOPLE PER UNIT = 3.0 PEOPLE x 0.60 = 1.8 PEOPLE PER UNIT

INITIAL

MULTI FAMILY HOUSING = 465 UNITS @ 1.8 PEOPLE/UNIT = 837 PEOPLE

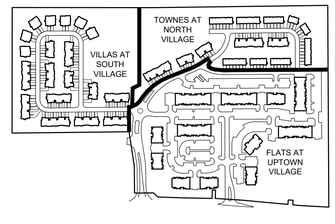
$G.C.D._{AVE} = 100$ GPD

$GPD_{PEAK} = 100(18 + \sqrt{P}) \div (4 + \sqrt{P})$ (P = POPULATION IN THOUSANDS)
$GPD_{PEAK} = 385$ GPD

$$Q_{AVE} = \frac{(100\ GPD)(837\ PEOPLE)}{(86{,}400\ SEC/DAY)(7.48\ GAL/CF)} = 0.13\ CFS$$

$$Q_{PEAK} = \frac{(385\ GPD)(837\ PEOPLE)}{(86{,}400\ SEC/DAY)(7.48\ GAL/CF)} = 0.50\ CFS$$

CAPACITY OF AN 8" SEWER AT 0.40% IS 0.76 CFS



DISTRICT MAP

WATER MAIN BASIS OF DESIGN

MULTI FAMILY HOUSING UNIT FACTOR = 0.60 PER RESIDENCE
PEOPLE PER UNIT = 3.0 PEOPLE x 0.60 = 1.8 PEOPLE PER UNIT

465 RESIDENCES @ 1.8 PEOPLE/UNIT = 837 PEOPLE

AVERAGE FLOW = 837 PEOPLE x 100 GPCPD = 83,700 GPD

PEAK FACTOR = 2.5

MAX DAILY FLOW = 83,700 x 2.5 = 209,250 GPD

SEE SHEET 19 FOR INFILTRATION AREA CALCULATIONS & DETAIL

PROPOSED LEGEND

- 8" WATER MAIN
- HYDRANT
- GATE VALVE
- WATER SERVICE
- FIRE SUPPRESSION LINE
- WATER SHUT OFF
- FIRE DEPARTMENT CONNECTION
- 10" SANITARY SEWER
- SANITARY MANHOLE
- SANITARY SEWER CLEANOUT
- SANITARY SEWER LEAD
- STORM SEWER
- STORM MANHOLE
- STORM CATCH BASINS
- LIGHT POLE
- RETAINING WALL

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 425

BALDWIN VILLAGE

SHEET TITLE:

UTILITY PLAN PHASE 3

Townes at North Village

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE:
1" = 50' HORIZ.
0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

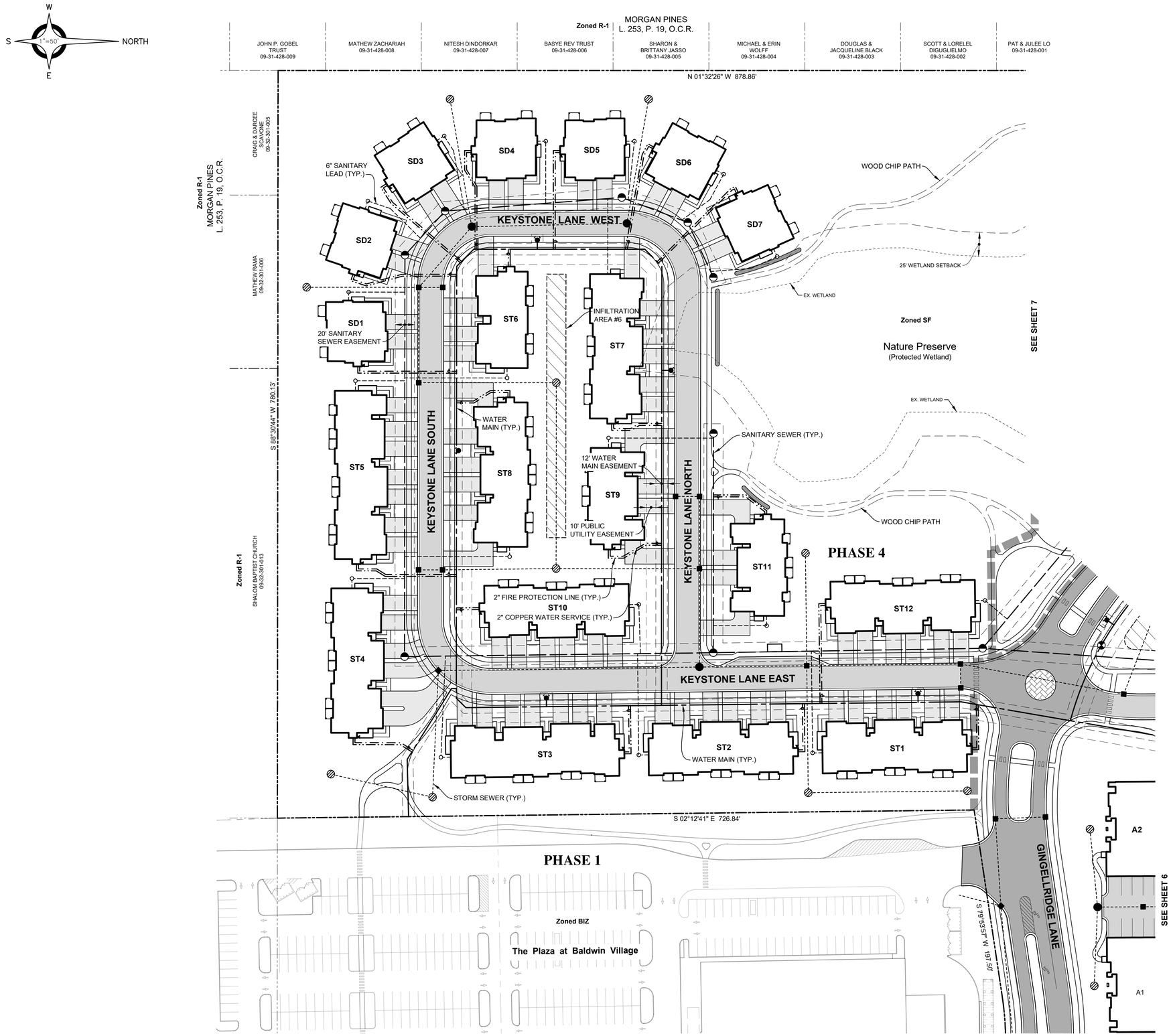
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
07_UtilWeb–12/7/2022 8:12:29 AM

SHEET NO.
7

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



SEE SHEET 19 FOR INFILTRATION AREA CALCULATIONS & DETAIL

PROPOSED LEGEND

- 8" WATER MAIN
- HYDRANT
- GATE VALVE
- WATER SERVICE
- FIRE SUPPRESSION LINE
- WATER SHUT OFF
- FIRE DEPARTMENT CONNECTION
- 10" SANITARY SEWER
- SANITARY MANHOLE
- SANITARY SEWER CLEANOUT
- SANITARY SEWER LEAD
- STORM SEWER
- STORM MANHOLE
- STORM CATCH BASINS
- LIGHT POLE
- RETAINING WALL

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 426

BALDWIN VILLAGE

SHEET TITLE:

UTILITY PLAN PHASE 4

Villas at South Village

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE:
1" = 50' HORIZ.
0 25 50 100

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

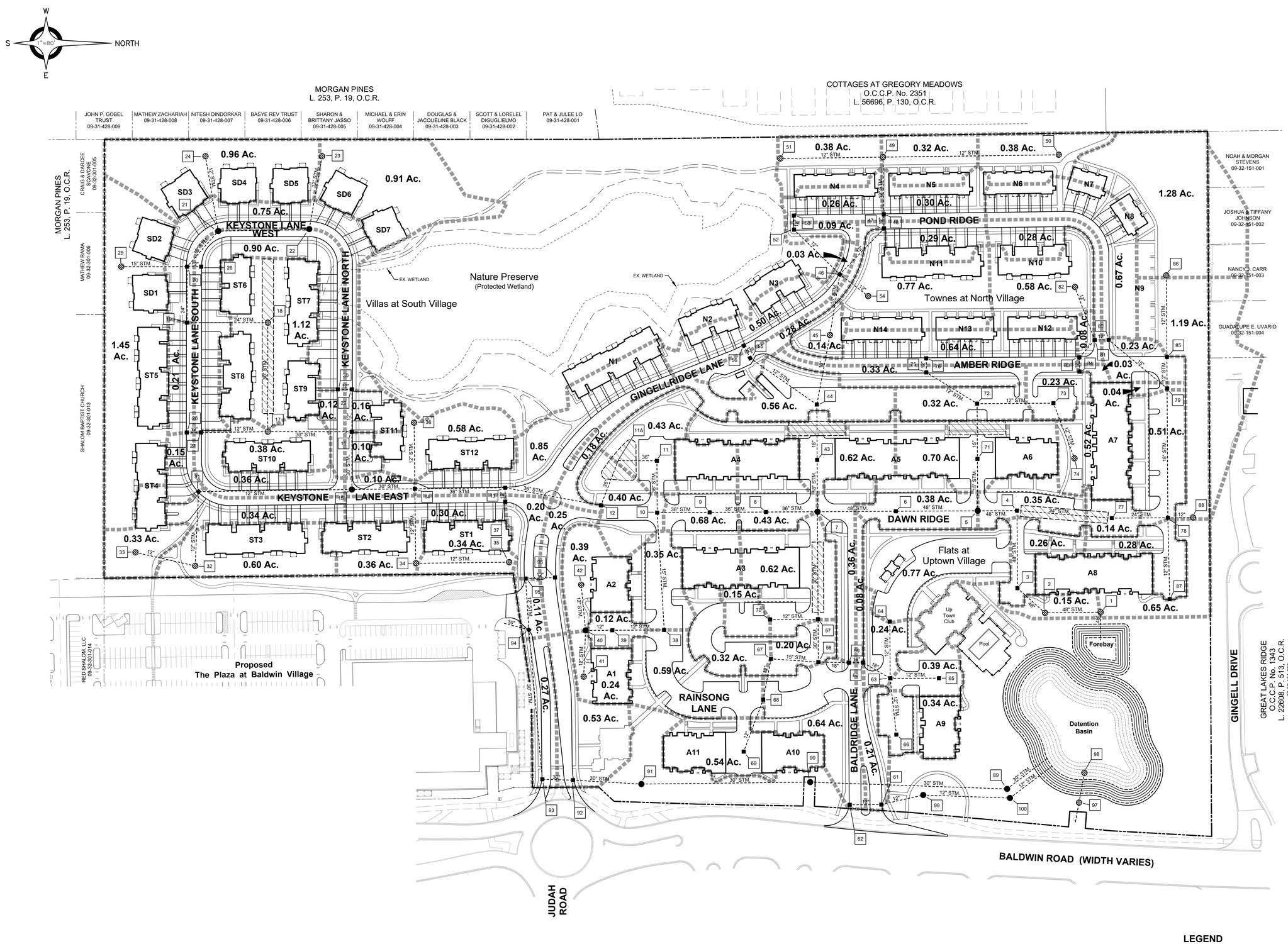
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
08_Util South--12/7/2022 8:15:39 AM

SHEET NO.
8

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 427

BALDWIN VILLAGE

SHEET TITLE:

HYDRAULICS

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE:
1" = 80' HORIZ.
0 40 80 160

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
09_Hyd--12/7/2022 8:26:44 AM

SHEET NO.
9

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

OAKLAND COUNTY DETENTION CALCULATIONS

Part A: Determination of Surface Runoff

Residential Site Area	A =	40.36	ac	
Runoff Coefficient	C =	0.62		
Commercial Site Area	A =	8.58	ac	
Runoff Coefficient	C =	0.78		
Total Site Area	A =	48.94	ac	
Runoff Coefficient	C =	0.65		
Time of Concentration	T_c =	31.45	min	
Rainfall Return Period	p =	100	years	
Rainfall Depth	p_{100} =	5.40	inch	
Rainfall Intensity (Eq. III-7)	I =	4.14	in/hr	$= 30.2p^{0.22}/(T_c+9.17)^{0.81}$
Peak Runoff (Eq. III-1)	Q =	131.28	cfs	$= C*I*A$
Volume (Eq. III-3)	V =	621,689	cf	$= 3{,}630*p*C*A$

Part C: Channel Protection Volume Control

Required CPVC Volume (Eq. III-9)	$V_{CP\text{-}R}$ =	149,666	cf	$= 4{,}719*C*A$
Provided CPVC Volume	$V_{CP\text{-}P}$ =	**188,991**	**cf**	
Commercial CPVC Volume Provided	$V_{CP\text{-}P}$ =	31,581	cf	
Residential CPVC Volume Provided	$V_{CP\text{-}P}$ =	157,410	cf	

Part D: Water Quality Control - Residential Area Only

Required Water Quality Volume (Eq. III-17)	V_{WQ} =	90,834	cf	$= 3{,}630*C*A$

Option 1: Manufactured Treatment System (MTS)

Water Quality Rate (Eq. III-18)	Q_{WQ} =	37.61	cfs	$= C*A*(30.20/(T_c + 9.17)^{0.81})$

Option 2: Forebay

Required Forebay Volume (Eq. III-19)	V_F =	13,638	cf	$= 545*C*A$

Part E: Channel Protection Rate Control: Extended Detention

Required Extended Detention Volume (Eq. III-21)	V_{ED} =	218,742	cf	$= 6{,}897*C*A$
Head	h_{ED} =	2.36	Ft	$= Z_{ED}-Z_{out}$
Required No. of 1-inch Holes (Eq. III-22)	H_{ED} =	30		$= V_{ED}/(4{,}666*h_{ED}^{0.50})$

Part F: Detention and Flood Control Facilities

100-Year Post Development Flow Rate (Eq. III-23)	Q_{100IN} =	131.28	cfs	$= C*I*A$
Variable Release Rate (Eq. III-25)	Q_{VRR} =	0.100	cfs/ac	Trib to Brown Drain Restricted Discharge
100-Year Post Development Peak Discharge	Q_{100p} =	4.89	cfs	$= Q_{VRR}*A$
Storage Curve Factor (Eq. III-26)	R =	0.70		$= 0.206-[-0.15*\ln(Q_{100P}/Q_{100IN})]$
100-Year Post Development Runoff Volume (Eq. III-27)	V_{100R} =	602,121	cf	$= 18{,}985*C*A$
100-Year Detention Volume (Eq. III-28)	V_{100D} =	**232,132**	**cf**	$= V_{100R}*R-V_{cp\text{-}p}$

OUTLET DESIGN CALCULATIONS

Orifice 1: Extended Detention Volume Orifice Sizing (Dewatered in 48 Hours)/Forebay Orifice

Number of Holes	N =	30		
Selected Diameter of Holes	D_a =	1	in	@ Elev. 1,010.00
Orifice Area	A =	0.17	sf	
Actual Release Rate (Extended Detention)	$Q_{act\ ED}$ =	1.27	cfs	$= 0.62*A_o*((2*g*h_{avg})^{0.5})$
Actual Release Time (Extended Detention)	T_{ED} =	47.79	hr	$=(V_{ED})/(Q_{act\ ED}*3600)$

Orifice 2: Detention and Flood Control Facilities

Orifice Requirements

100-Year Post Development Peak Discharge	Q_{100p} =	4.89	cfs	
Storage Eleveation (Flood Control)	Z_{FC} =	1,013.90		
Outlet Eleveation	Z_{out} =	1,010.00		
Head (Flood Control)	h_{FC} =	3.90	ft	$= Z_{FC}-Z_{out}$
Orifice Area Required	A_o =	0.50	sf	$= Q_{100p}/(0.62*(2*g*h_{FC})^{0.5})$

Orifice Selection

Number of Holes	N =	10		
Required Diameter of Holes	D_o =	3.02	in	
Selected Diameter of Holes	D_a =	3	in	@ Elev. 0.00
Orifice Area	A =	0.49	sf	
Actual Release Rate (Flood Control)	$Q_{act\ FC}$ =	4.82	cfs	$= 0.62*A_o*((2*g*h_{FC})^{0.5})$
Actual Release Time (Flood Control)	T_{FC} =	13.37	hr	$=(V_{FC})/(Q_{100p}*3600)$
Is $Q_{act\ fc}$ less than Q_{100p} ?		Yes		Acceptable

DETENTION POND

Elevation	Depth (ft)	Area (sf)			Volume (cf)			Σ Volume (cf)		
		Forebay	Basin	Total	Forebay	Basin	Total	Forebay	Basin	Total
1016			50,861	50,861					246,656	270,483
	1.00					49,151	52,546			
1015		6789	47,460	54,249				20,409	197,506	217,937
	1.00				6,175	45,800	51,979			
1014		5,581	44,160	49,741				14,234	151,706	165,958
	1.00				5,018	42,550	47,572			
1013		4,476	40,960	45,436				9,215	109,156	118,386
	1.00				3,969	39,400	43,373			
1012		3,482	37,861	41,343				5,247	69,755	75,012
	1.00				3,032	36,352	39,389			
1011		2,604	34,863	37,467				2,214	33,404	35,623
	1.00				2,214	33,404	35,623			
1010		1,846	31,965	33,811						

Starting HGL Calculations

Inlet Pipe Diameter	=	48	inch
8/10ths Pipe	=	1013.20	
2/3rds Pond	=	1013.53	

Overflow Spillway Calculations (Forebay)

Overflow Elevation	=	1015.00	Ft
Top of Pond	=	1016.00	Ft
Overflow Height (H)	H =	1.00	Ft
Flow Required (Q_r)	Q_r =	131.28	cfs
Length Required (L)	L =	39.42	Ft
	Say	40	Ft

Overflow Spillway Calculations (Main Pond)

Overflow Elevation	=	1016.00	Ft
Top of Pond	=	1017.00	Ft
Overflow Height (H)	H =	1.00	Ft
Flow Required (Q_r)	Q_r =	131.28	cfs
Length Required (L)	L =	39.42	Ft
	Say	40	Ft

HYDRAULIC CALCULATIONS

Start Node	Stop Node	Upstream Inlet Area (acres)	Upstream Inlet C	System CA (acres)	System Rational Flow (ft³/s)	System Additional Flow (cfs)	Capacity (Full Flow) (ft³/s)	System Flow Time (min)	System Intensity (in/h)	Velocity (ft/s)	Length (Unified) (ft)	Diameter (in)	Slope (Calculated) (ft/ft)	Invert (Start) (ft)	Invert (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Rim (Start) (ft)	Hydraulic Grade Line (Out) (ft)	Rim (Stop) (ft)	Cover (Start) (ft)	Cover (Stop) (ft)
PHASES 2, 3 & 4 (RESIDENTIAL) STORM SEWER TRIBUTARY TO PROPOSED DETENTION POND																					
1	Pond1	0.65	0.62	21.05	66.26	0.00	53.51	31.04	3.12	4.26	49	48	0.0014	1010.07	1010.00	1013.63	1035.00	1013.53	1010.00	20.93	-4.00
2	1	0.15	0.62	20.65	65.36	0.00	54.01	30.72	3.14	4.30	99	48	0.0014	1022.18	1022.04	1025.15	1033.00	1024.48	1035.00	6.82	8.96
3	2	0.26	0.62	20.55	65.31	0.00	53.04	30.51	3.15	4.22	66	48	0.0014	1022.37	1022.28	1025.40	1041.00	1025.15	1033.00	14.63	6.72
4	3	0.35	0.62	20.39	65.32	0.00	53.30	30.07	3.18	4.24	138	48	0.0014	1022.66	1022.47	1025.83	1042.90	1025.40	1041.00	16.24	14.53
5	4	(N/A)	(N/A)	16.88	54.31	0.00	54.29	29.83	3.19	4.32	70	48	0.0014	1022.86	1022.76	1025.95	1043.60	1025.83	1042.90	16.74	16.14
6	5	0.38	0.62	15.18	49.30	0.00	53.16	29.32	3.22	4.23	146	48	0.0014	1023.06	1022.86	1026.14	1041.70	1025.95	1043.60	14.64	16.74
7	6	(N/A)	(N/A)	14.95	48.98	0.00	53.10	28.84	3.25	4.23	139	48	0.0014	1023.25	1023.06	1026.32	1043.20	1026.14	1041.70	15.95	14.64
8	7	0.43	0.62	9.05	29.84	0.00	25.07	28.48	3.27	3.55	92	36	0.0014	1023.55	1023.42	1026.49	1041.90	1026.32	1043.20	15.35	16.78
9	8	0.68	0.62	8.78	29.18	0.00	24.87	28.07	3.30	3.52	100	36	0.0014	1023.69	1023.55	1026.67	1041.90	1026.49	1041.90	15.21	15.35
10	9	0.40	0.62	8.36	27.98	0.00	25.03	27.68	3.32	3.54	93	36	0.0014	1023.82	1023.69	1026.82	1041.90	1026.67	1041.90	15.08	15.21
11	10	0.43	0.62	7.43	25.05	0.00	25.07	27.30	3.35	3.55	92	36	0.0014	1024.05	1023.92	1026.94	1043.10	1026.82	1041.90	16.05	14.98
11A	11	(N/A)	(N/A)	7.16	24.28	0.00	25.01	27.02	3.36	3.54	69	36	0.0014	1024.25	1024.15	1027.01	1042.00	1026.94	1043.10	14.75	15.95
12	11A	0.18	0.62	7.16	24.45	0.00	25.06	26.67	3.39	3.55	85	36	0.0014	1024.47	1024.35	1027.11	1044.50	1027.01	1042.00	17.03	14.65
13	12	0.85	0.62	7.05	24.41	0.00	25.00	25.95	3.44	3.54	173	36	0.0014	1024.81	1024.57	1027.33	1044.15	1027.11	1044.50	16.34	16.93
14	13	0.10	0.62	6.34	22.23	0.00	24.95	25.28	3.48	3.53	160	36	0.0014	1025.13	1024.91	1027.51	1046.97	1027.33	1044.15	18.84	16.24
15	14	(N/A)	(N/A)	5.48	19.41	0.00	15.36	24.81	3.51	3.13	112	30	0.0014	1025.39	1025.23	1027.74	1048.35	1027.51	1046.97	20.46	19.24
16	15	0.10	0.62	4.69	16.79	0.00	15.39	24.31	3.55	3.14	103	30	0.0014	1025.63	1025.49	1027.89	1047.26	1027.74	1048.35	19.13	20.36
17	16	0.38	0.62	4.46	16.18	0.00	15.35	23.60	3.60	3.13	150	30	0.0014	1025.94	1025.73	1028.10	1041.00	1027.89	1047.26	12.56	19.03
18	17	1.12	0.62	3.91	14.42	0.00	17.42	22.79	3.66	3.55	194	30	0.0018	1026.39	1026.04	1028.33	1036.00	1028.10	1041.00	7.11	12.46
19	18	0.21	0.62	3.21	12.01	0.00	9.59	22.16	3.71	3.05	144	24	0.0018	1026.75	1026.49	1028.70	1037.12	1028.33	1036.00	8.37	7.51
20	19	0.75	0.62	3.08	11.64	0.00	9.65	21.71	3.75	3.07	99	24	0.0018	1027.03	1026.85	1028.94	1035.93	1028.70	1037.12	6.90	8.27
21	20	(N/A)	(N/A)	1.16	4.41	0.00	4.09	21.33	3.78	3.33	84	15	0.0040	1027.36	1027.02	1029.33	1036.77	1028.94	1035.93	8.16	7.66
22	21	(N/A)	(N/A)	0.56	2.18	0.00	2.95	20.67	3.83	3.76	162	12	0.0069	1033.88	1032.77	1034.52	1039.61	1033.40	1036.77	4.73	3.00
23	22	0.91	0.62	0.56	2.21	0.00	2.25	20.00	3.89	2.86	131	12	0.0040	1034.50	1033.98	1035.30	1038.50	1034.61	1039.61	3.00	4.63
24	21	0.96	0.62	0.60	2.33	0.00	2.25	20.00	3.89	2.86	135	12	0.0040	1028.00	1027.46	1029.91	1032.00	1029.33	1036.77	3.00	8.31
25	20	1.45	0.62	0.90	3.52	0.00	4.09	20.00	3.89	3.33	117	15	0.0040	1027.60	1027.13	1029.28	1031.60	1028.94	1035.93	2.75	7.55
26	20	0.90	0.62	0.56	2.19	0.00	3.56	20.00	3.89	4.53	25	12	0.0100	1031.93	1031.68	1032.56	1035.93	1032.25	1035.93	3.00	3.25
27	17	0.36	0.62	0.32	1.24	0.00	2.25	20.14	3.88	2.86	119	12	0.0040	1037.28	1036.80	1037.81	1041.53	1037.27	1041.00	3.25	3.20
28	27	0.15	0.62	0.09	0.36	0.00	3.56	20.00	3.89	4.53	25	12	0.0100	1037.53	1037.28	1037.78	1041.53	1037.81	1041.53	3.00	3.25
29	16	0.16	0.62	0.17	0.68	0.00	3.56	20.15	3.88	4.53	75	12	0.0100	1040.55	1039.80	1040.89	1045.80	1040.10	1047.26	4.25	6.46
30	29	0.12	0.62	0.07	0.29	0.00	3.56	20.00	3.89	4.53	25	12	0.0100	1041.80	1041.55	1042.02	1045.80	1041.74	1045.80	3.00	3.25
31	15	0.34	0.62	0.79	3.00	0.00	2.25	21.36	3.78	2.86	272	12	0.0040	1039.23	1038.14	1040.91	1043.82	1038.88	1048.35	3.59	9.21
32	31	0.60	0.62	0.58	2.23	0.00	2.26	20.69	3.83	2.88	132	12	0.0040	1039.86	1039.33	1041.43	1045.50	1040.91	1043.82	4.64	3.49
33	32	0.33	0.62	0.21	0.80	0.00	2.25	20.00	3.89	2.86	109	12	0.0040	1040.40	1039.96	1041.48	1044.40	1041.43	1045.50	3.00	4.54
34	14	0.36	0.62	0.43	1.66	0.00	2.25	21.05	3.80	2.86	133	12	0.0040	1037.94	1037.41	1038.58	1046.40	1037.96	1046.97	7.46	8.56
35	34	0.34	0.62	0.21	0.83	0.00	2.25	20.00	3.89	2.86	166	12	0.0040	1038.70	1038.04	1039.12	1042.70	1038.58	1046.40	3.00	7.36
36	14	0.58	0.62	0.36	1.41	0.00	2.25	20.00	3.89	2.86	118	12	0.0040	1037.00	1036.53	1037.57	1041.00	1037.03	1046.97	3.00	9.44
37	13	0.30	0.62	0.19	0.73	0.00	3.56	20.00	3.89	4.53	25	12	0.0100	1040.15	1039.90	1040.51	1044.15	1040.21	1044.15	3.00	3.25
38	10	0.35	0.62	0.68	2.60	0.00	4.09	21.31	3.78	3.33	209	15	0.0040	1032.81	1031.97	1033.53	1040.40	1032.62	1041.90	6.34	8.68
39	38	0.12	0.62	0.47	1.79	0.00	2.25	20.83	3.82	2.86	92	12	0.0040	1033.28	1032.91	1033.95	1039.80	1033.53	1040.40	5.52	6.49
40	39	(N/A)	(N/A)	0.39	1.51	0.00	2.25	20.57	3.84	2.86	48	12	0.0040	1033.57	1033.38	1034.17	1041.40	1033.95	1039.80	6.83	5.42
41	40	0.24	0.62	0.15	0.58	0.00	2.25	20.00	3.89	2.86	82	12	0.0040	1034.00	1033.67	1034.35	1038.00	1034.17	1041.40	3.00	6.73
42	40	0.39	0.62	0.24	0.95	0.00	2.25	20.00	3.89	2.86	82	12	0.0040	1035.00	1034.67	1035.45	1039.00	1035.08	1041.40	3.00	5.73
43	7	0.62	0.62	3.05	10.99	0.00	10.5	23.95	3.58	5.94	92	18	0.0100	1038.85	1037.93	1040.15	1042.85	1039.20	1043.20	2.50	3.77
44	43	0.56	0.62	2.67	9.67	0.00	8.55	23.65	3.60	4.84	98	18	0.0066	1039.50	1038.85	1040.95	1044.00	1040.15	1042.85	3.00	2.50
45	44	0.14	0.62	1.84	6.73	0.00	5.15	23.10	3.64	2.91	126	18	0.0024	1039.90	1039.60	1041.45	1044.00	1040.95	1044.00	2.60	2.90
46	45	0.03	0.62	1.75	6.44	0.00	11.19	22.90	3.65	9.12	109	15	0.0300	1043.27	1040.00	1044.29	1051.04	1041.45	1044.00	6.52	2.75
47	46	0.29	0.62	1.04	3.84	0.00	3.13	22.52	3.68	3.99	113	12	0.0077	1047.91	1047.04	1049.26	1054.02	1047.87	1051.04	5.11	3.00
48	47	0.30	0.62	0.86	3.18	0.00	3.56	22.44	3.69	4.53	25	12	0.0100	1048.26	1048.01	1049.46	1054.02	1049.26	1054.02	4.76	5.01
49	48	0.32	0.62	0.67	2.52	0.00	2.26	21.91	3.73	2.88	102	12	0.0040	1048.67	1048.26	1049.97	1059.50	1049.46	1054.02	9.83	4.76
50	49	0.38	0.62	0.24	0.92	0.00	2.25	20.00	3.89	2.86	312	12	0.0040	1057.00	1055.75	1057.45	1061.00	1056.15	1059.50	3.00	2.75
51	49	0.38	0.62	0.24	0.92	0.00	2.25	20.00	3.89	2.86	183	12	0.0040	1049.50	1048.77	1050.08	1053.50	1049.97	1059.50	3.00	9.73
52	46	0.09	0.62	0.22	0.85	0.00	2.26	20.12	3.88	2.88	114	12	0.0040	1045.60	1045.14	1046.02	1049.95	1045.53	1051.04	3.35	4.90
53	52	0.26	0.62	0.16	0.63	0.00	3.56	20.00	3.89	4.53	25	12	0.0100	1045.95	1045.70	1046.28	1049.95	1045.98	1049.95	3.00	3.25
54	46	0.77	0.62	0.48	1.87	0.00	2.25	20.00	3.89	2.86	64	12	0.0040	1044.60	1044.34	1045.29	1048.60	1044.93	1051.04	3.00	5.70
55	44	0.28	0.62	0.48	1.89	0.00	4.67	20.10	3.88	5.95	144	12	0.0172	1042.47	1040.00	1043.06	1046.82	1040.95	1044.00	3.35	3.00
56	55	0.50	0.62	0.31	1.22	0.00	3.56	20.00	3.89	4.53	25	12	0.0100	1042.82	1042.57	1043.29	1046.82	1043.06	1046.82	3.00	3.25
57	7	0.62	0.62	2.85	10.73	0.00	15.42	21.89	3.73	3.14	191	30	0.0014	1023.62	1023.35	1026.45	1038.40	1026.32	1043.20	12.28	17.35
58	57	0.20	0.62	2.38	9.01	0.00	15.60	21.51	3.76	3.18	76	30	0.0014	1023.73	1023.62	1026.49	1034.70	1026.45	1038.40	8.47	12.28
59	58	0.36	0.62	1.35	5.16	0.00	4.48	21.20	3.79	2.54	55	18	0.0018	1023.93	1023.83	1026.62	1032.21	1026.49	1034.70	6.78	9.37
60	59	0.08	0.62	1.13	4.32	0.00	10.50	21.12	3.79	5.94	25	18	0.0100	1024.28	1024.03	1026.67	1032.21	1026.62	1032.21	6.43	6.68
61	99	0.21	0.62	0.53	2.06	0.00	2.25	20.14	3.88	2.86	76	12	0.0040	1017.50	1017.20	1018.24	1021.60	1017.81	1026.50	3.10	8.30
62	61	0.64	0.62	0.40	1.56	0.00	6.21	20.00	3.89	7.91	56	12	0.0304	1019.30	1017.60	1019.83	1023.60	1018.24	1021.60	3.30	3.00
63	60	0.24	0.62	1.08	4.16	0.00	4.46	20.80	3.82	2.52	56	18	0.0018	1024.48	1024.38	1026.75	1031.00	1026.67	1032.21	5.02	6.33
64	63	0.77	0.62	0.48	1.87	0.00	5.47	20.00	3.89	6.96	101	12	0.0236	1029.38	1027.00	1029.96	1033.38	1027.40	1031.00	3.00	3.00
65	63	0.39	0.62	0.24	0.95	0.00	2.25	20.00	3.89	2.86	87	12	0.0040	1025.75	1025.40	1026.82	1029.75	1026.75	1031.00	3.00	4.60
66	63	0.34	0.62	0.21	0.83	0.00	1.66	20.00	3.89	2.11	101	12	0.0022	1024.80	1024.58	1026.80	1028.80	1026.75	1031.00	3.00	5.42
67	58	0.32	0.62	0.90	3.45	0.00	3.17	20.91	3.81	2.58	84	15	0.0024	1030.65	1030.45	1031.65	1037.05	1031.20	1034.70	5.15	3.00
68	67	0.59	0.62	0.70	2.71	0.00	2.25	20.55	3.84	2.86	74	12	0.0040	1031.05	1030.75	1032.05	1035.90	1031.65	1037.05	3.85	5.30
69	68	0.54	0.62	0.34	1.31	0.00	2.25	20.00	3.89	2.86	99	12	0.0040	1031.55	1031.15	1032.17	1035.55	1032.05	1035.90	3.00	3.75
70	57	0.15	0.62	0.09	0.36	0.00	6.41	20.00	3.89	8.16	85	12	0.0324	1037.15	1034.40	1037.40	1041.15	1034.56	1038.40	3.00	3.00
71	5	0.70	0.62	1.70	6.41	0.00	6.46	21.72	3.75	5.26	92	15	0.0100	1038.00	1037.08	1039.02	1043.15	1038.10	1043.60	3.90	5.27
72	71	0.32	0.62	1.27	4.82	0.00	3.17	21.30	3.78	2.58	98	15	0.0024	1038.34	1038.10	1039.69	1044.00	1039.02	1043.15	4.41	3.80
73	72	0.23	0.62	0.47	1.80	0.00	2.25	20.59	3.84	2.86	136	12	0.0040	1038.98	1038.44	1040.04	1045.55	1039.69	1044.00	5.57	4.56
74	73	0.52	0.62	0.32	1.26	0.00	2.25	20.00	3.89	2.86	105	12	0.0040	1039.50	1039.08	1040.15	1043.50	1040.04	1045.55	3.00	5.47
75	72	0.33	0.62	0.60	2.35	0.00	2.25	20.10	3.88	2.86	106	12	0.0040	1039.23	1038.81	1040.10	1043.58	1039.69	1044.00	3.35	4.19
76	75	0.64	0.62	0.40	1.56	0.00	3.56	20.00	3.89	4.53	25	12	0.0100	1039.58	1039.33	1040.11	1043.58	1040.10	1043.58	3.00	3.25
77	4	0.14	0.62	3.29	12.23	0.00	12.39	22.48	3.69	3.94	169	24	0.0030	1035.32	1034.81	1036.88	1043.80	1036.07	1042.90	6.48	6.09
78	77	0.51	0.62	3.21	12.00	0.00	12.39	22.11	3.72	3.94	100	24	0.0030	1035.72	1035.42	1037.25	1043.44	1036.88	1043.80	5.72	6.38
79	78	0.04	0.62	1.98	7.52	0.00	8.17	21.37	3.77	4.62	230	18	0.0060	1040.83	1039.44	1041.97	1045.70	1040.50	1043.44	3.37	2.50
80	79	0.67	0.62	1.02	3.93	0.00	3.16	20.67	3.83	2.57	135	15	0.0024	1041.74	1041.42	1042.89	1047.94	1042.22	1045.70	4.95	3.03
81	80	0.28	0.62	0.60	2.33	0.00	3.56	20.59	3.84	4.53	25	12	0.0100	1042.09	1041.84	1042.98	1047.94	1042.89	1047.94	4.85	5.10
82	81	0.58	0.62	0.36	1.41	0.00	4.45	20.00	3.89	5.67	100	12	0.0156	1045.50	1043.94	1046.00	1049.50	1044.33	1047.94	3.00	3.00
83	81	0.08	0.62	0.07	0.27	0.00	2.25	20.23	3.87	2.86	41	12	0.0040	1042.35	1042.19	1042.98	1046.70	1042.98	1047.94	3.35	4.75
84	83	0.03	0.62	0.02	0.07	0.00	3.56	20.00	3.89	4.53	25	12	0.0100	1042.70	1042.45	1042.98	1046.70	1042.98	1046.70	3.00	3.25
85	79	0.23	0.62	0.94	3.65	0.00	2.25	20.31	3.86	2.86	56	12	0.0040	1041.15	1040.93	1042.55	1045.15	1041.97	1045.70	3.00	3.77
86	85	1.28	0.62	0.79	3.11	0.00	6.17	20.00	3.89	7.86	145	12	0.0300	1045.50	1041.15	1046.26	1056.40	1042.55	1045.15	9.90	3.00
87	78	0.28	0.62	0.17	0.68	0.00	2.25	20.00	3.89	2.86	145	12	0.0040	1036.80	1036.22	1037.30	1040.80	1037.25	1043.44	3.00	6.22
88	78	1.19	0.62	0.74	2.89	0.00	2.25	20.00	3.89	2.86	45	12	0.0040	1036.00	1035.82	1037.55	1040.00	1037.25	1043.44	3.00	6.62
99	100	(N/A)	(N/A)	0.53	2.04	0.00	3.56	20.53	3.84	4.53	154	12	0.0100	1017.10	1015.56	1017.71	1026.50	1016.10	1022.00	8.40	5.44
100	Pond1A	(N/A)	(N/A)	0.53	2.02	0.00	6.17	21.08	3.80	4.53	94	12	0.0300	1012.82	1010.00	1013.43	1022.00	1010.39	1010.00	8.18	-1.00
PHASE 1 (COMMERCIAL) STORM SEWER TRIBUTARY TO PROPOSED INFILTRATION BASIN																					
89	Pond2	(N/A)	(N/A)	0.84	3.08	22.67	38.4	23.32	3.62	7.82	89	30	0.0088	1010.78	1010.00	1012.51	1023.50	1011.50	1010.00	10.22	-2.50
90	89	(N/A)	(N/A)	0.84	3.12	22.67	40.96	22.66	3.67	8.34	350	30	0.0100	1020.20	1016.71	1021.93	1034.00	1018.15	1023.50	11.30	4.29
91	90	(N/A)	(N/A)	0.84	3.18	22.67	22.46	21.71	3.75	4.58	300	30	0.0030	1026.35	1025.45	1028.65	1036.00	1027.18	1034.00	7.15	6.05
92	91	0.53	0.62	0.84	3.21	22.67	22.46	21.33	3.78	4.58	122	30	0.0030	1026.82	1026.45	1029.11	1033.71	1028.65	1036.00	4.39	7.05
93	92	0.27	0.62	0.52	1.97	22.67	15.35	21.15	3.79	3.13	55	30	0.0014	1027.00	1026.92	1029.32	1036.07	1029.11	1033.71	6.57	4.29
94	93	0.11	0.62	0.35	1.34	22.67	41.4	20.64	3.84	8.43	267	30	0.0102	1032.00	1029.28	1033.67	1041.74	1030.65	1036.07	7.24	4.29
95	94	0.20	0.62	0.28	1.09	0.00	3.56	20.26	3.87	4.53	91	12	0.0100	1036.98	1036.07	1037.42	1041.60	1036.45	1041.74	3.62	4.67
96	95	0.25	0.62	0.16	0.61	0.00	3.56	20.00	3.89	4.53	52	12	0.0100	1037.60	1037.08	1037.92	1041.60	1037.42	1041.60	3.00	3.52

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 428

BALDWIN VILLAGE

SHEET TITLE:

HYDRAULIC & DETENTION POND CALCULATIONS

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE: NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

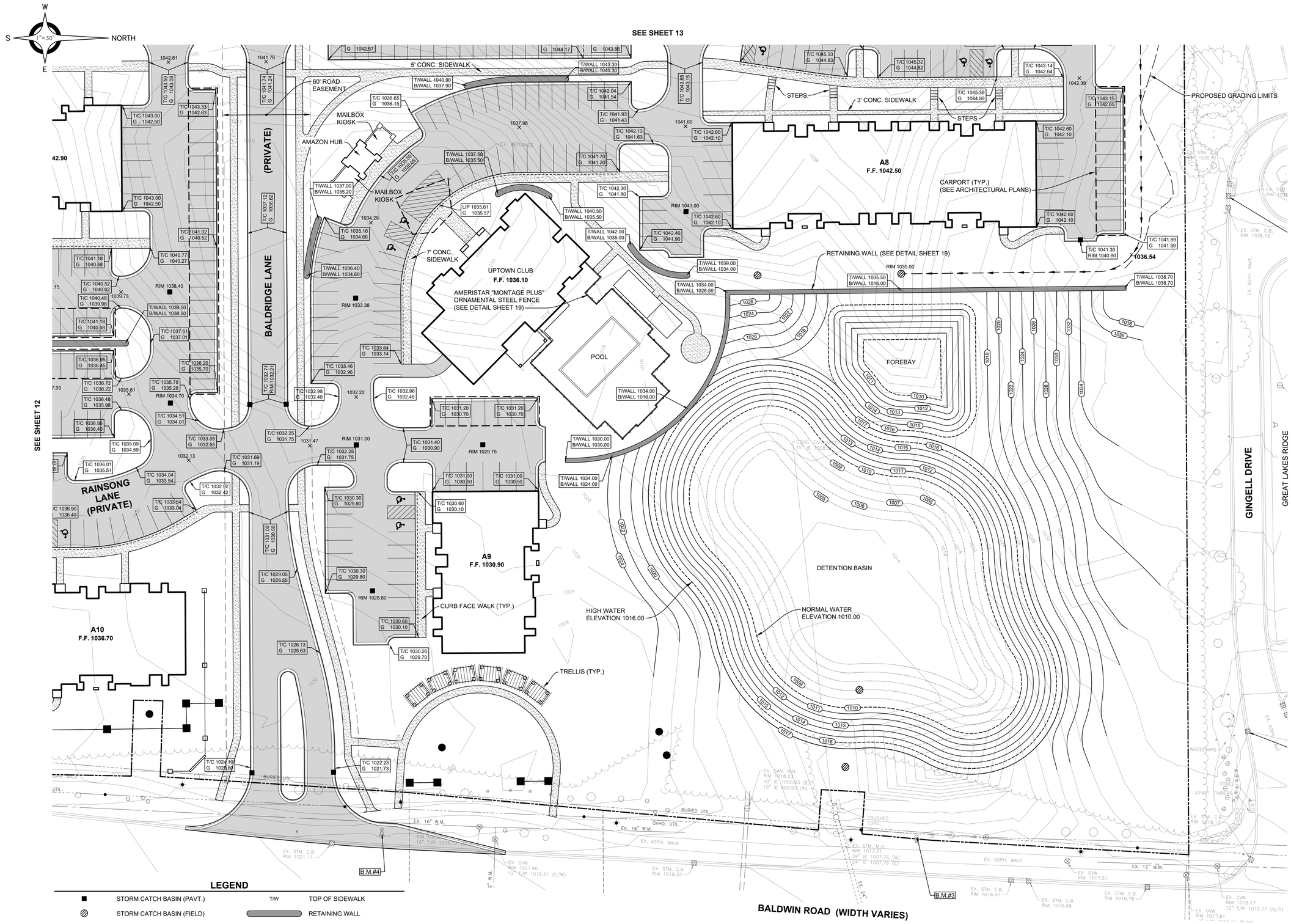
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO. 0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
10_Hyd Calcs--12/7/2022 11:53:10 AM

SHEET NO. 10

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



LEGEND

■	STORM CATCH BASIN (PAVT.)	T/W	TOP OF SIDEWALK
⊘	STORM CATCH BASIN (FIELD)		RETAINING WALL
●	STORM MANHOLE		CONCRETE CURB AND GUTTER
	PROPOSED SWALE		DEEP STRENGTH PAVEMENT
	EXISTING CONTOUR		STANDARD PAVEMENT
T/C	TOP OF CURB		6" CONCRETE DRIVEWAY
G	GUTTER		4" CONCRETE SIDEWALK

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 429

BALDWIN VILLAGE

SHEET TITLE:

Flats at Uptown Village GRADING PLAN

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	SVP	DECEMBER 2022

SCALE: 1" = 30'

0 15 30 60

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

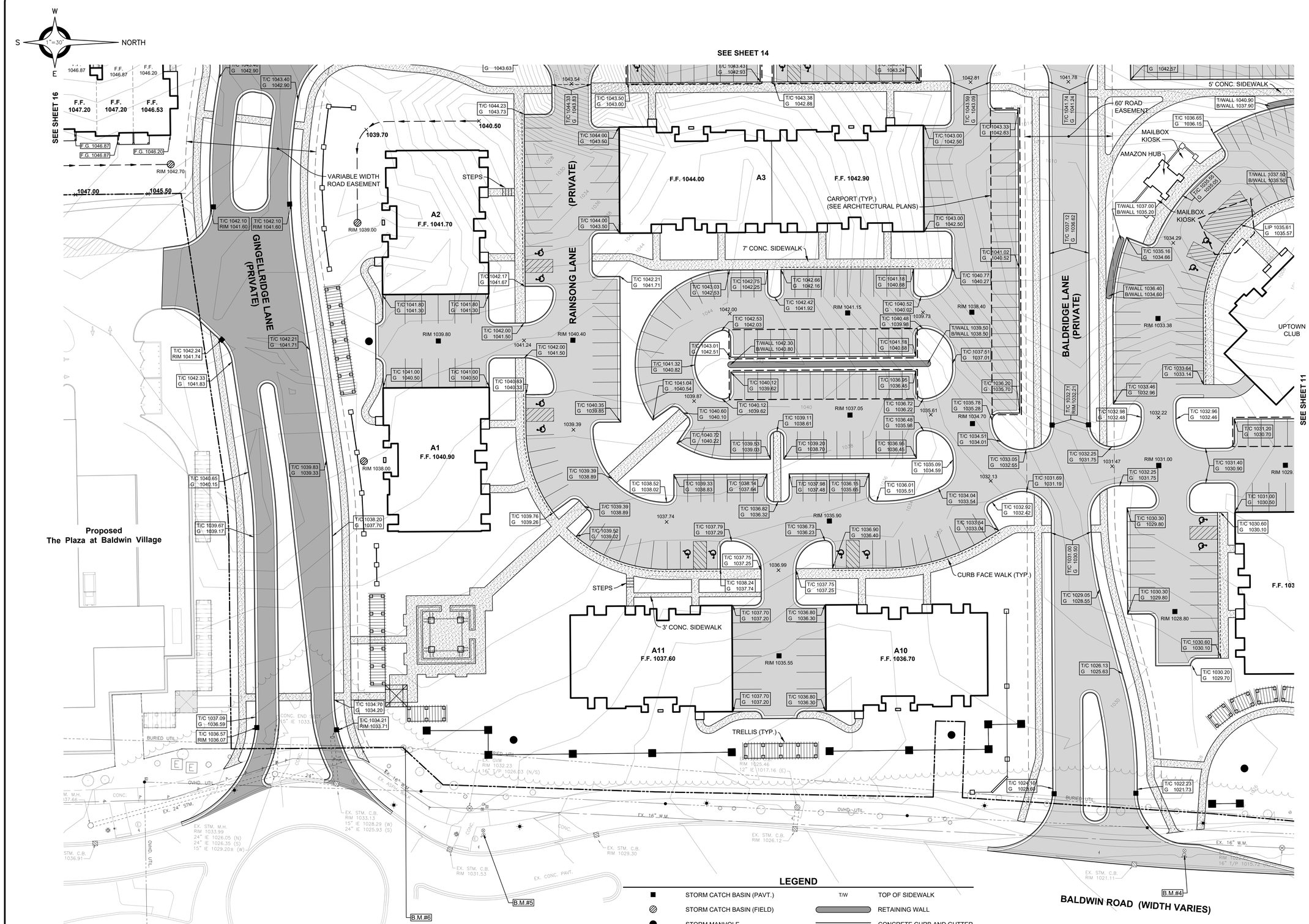
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\02_SITEPLAN_GRADING.DWG
11_Grading--12/7/2022 8:41:14 AM

SHEET NO.
11

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 430

BALDWIN VILLAGE

SHEET TITLE:

Flats at Uptown Village GRADING PLAN

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	SVP	DECEMBER 2022

SCALE: 1" = 30'
0 15 30 60

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

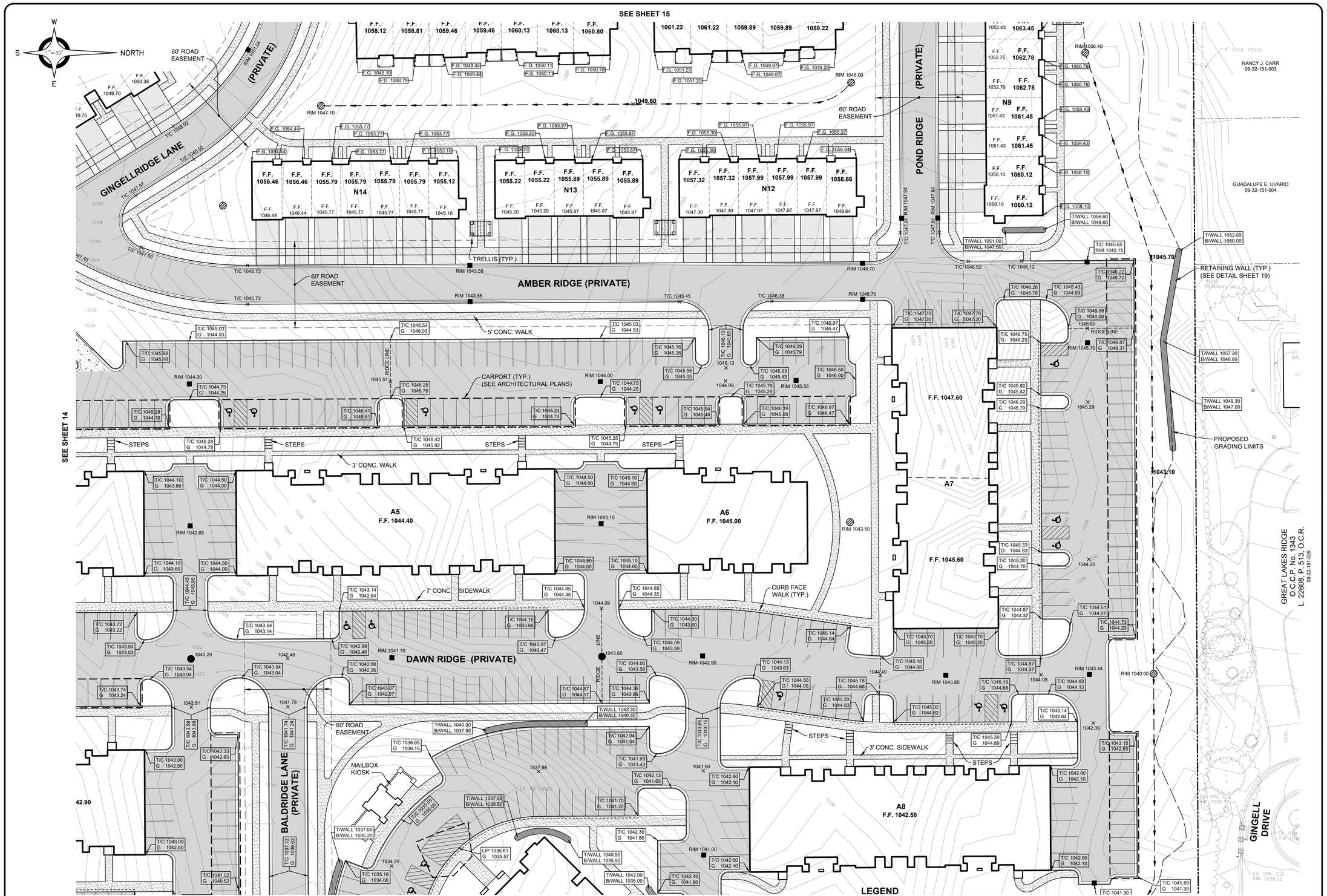
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\02_SITEPLAN_GRADING.DWG
12_Grading--12/7/2022 9:06:05 AM

SHEET NO.
12

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 431

BALDWIN VILLAGE

SHEET TITLE:

Flats at Uptown Village & Townes at North Village GRADING PLAN

CLIENT: JACOBSON MOCERI ORION, LLC

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	SVP	DECEMBER 2022

SCALE: 1" = 30' (0, 15, 30, 60)

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

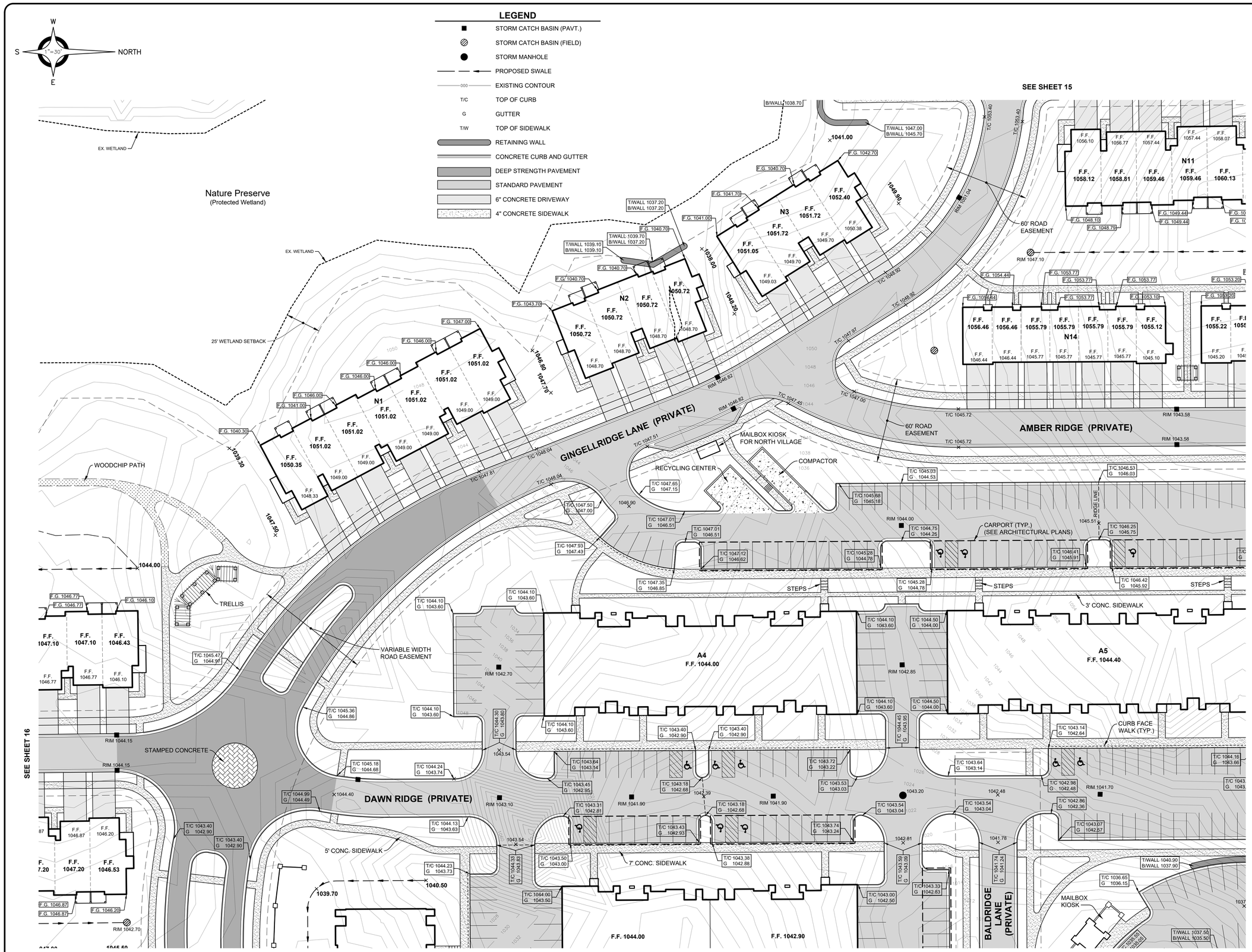
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO. 0361-0067

M:\0361\0361-0067\DWG\CIVIL\02_SITEPLAN_GRADING.DWG
13_Grading--12/7/2022 9:26:23 AM

SHEET NO. 13

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 432

BALDWIN VILLAGE

SHEET TITLE:

Flats at Uptown Village & Townes at North Village GRADING PLAN

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	SVP	DECEMBER 2022

SCALE: 1" = 30'
0 15 30 60

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

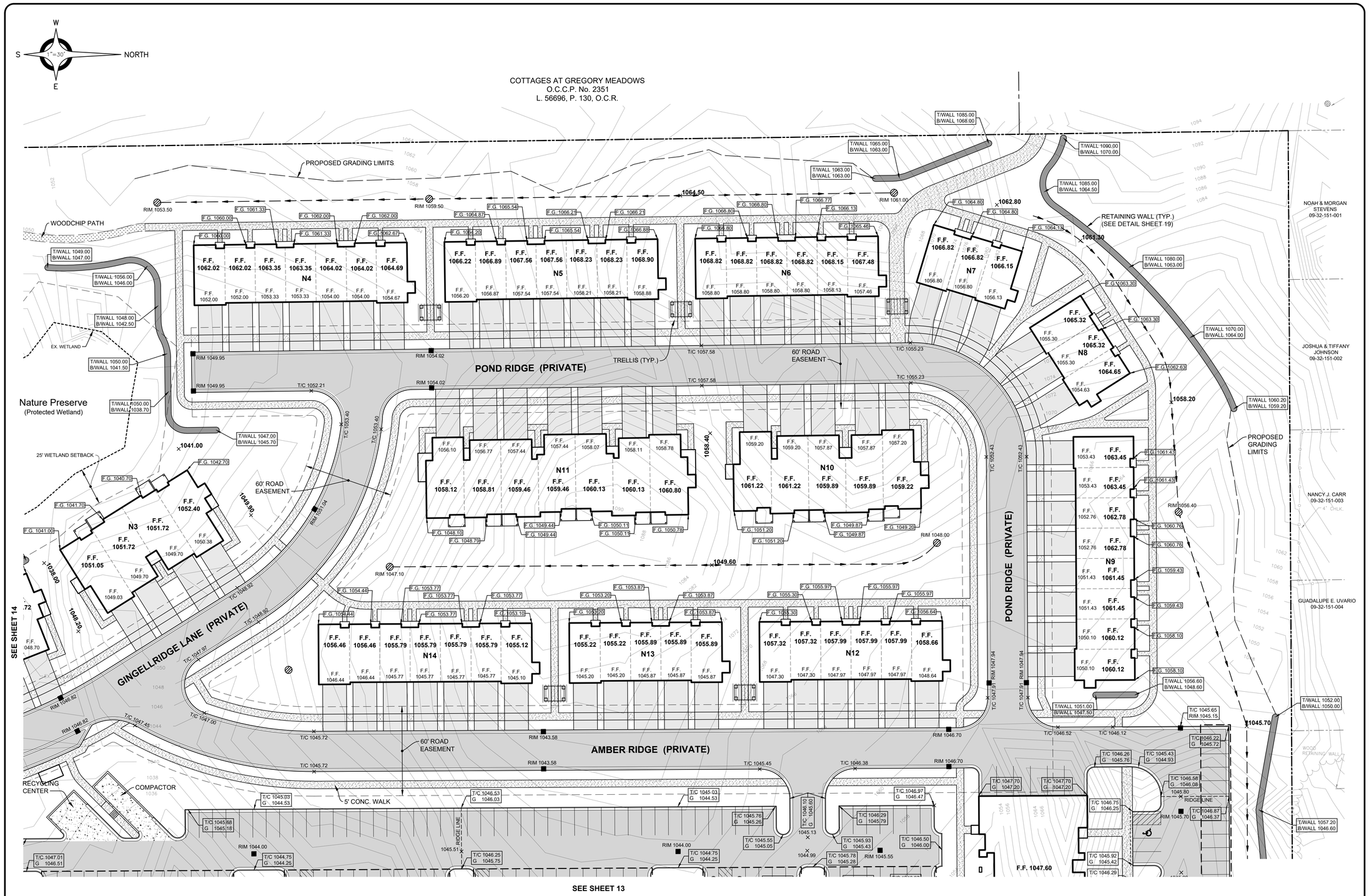
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\02_SITEPLAN_GRADING.DWG
14, Grading--12/7/2022 9:27:14 AM

SHEET NO.
14

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



LEGEND

■	STORM CATCH BASIN (PAVT.)	T/W	TOP OF SIDEWALK
⊘	STORM CATCH BASIN (FIELD)		RETAINING WALL
●	STORM MANHOLE		CONCRETE CURB AND GUTTER
— — ←	PROPOSED SWALE		DEEP STRENGTH PAVEMENT
——000——	EXISTING CONTOUR		STANDARD PAVEMENT
T/C	TOP OF CURB		6" CONCRETE DRIVEWAY
G	GUTTER		4" CONCRETE SIDEWALK

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 433

BALDWIN VILLAGE

SHEET TITLE:

Flats at Uptown Village & Townes at North Village GRADING PLAN

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	SVP	DECEMBER 2022

SCALE: 1" = 30'

0 15 30 60

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

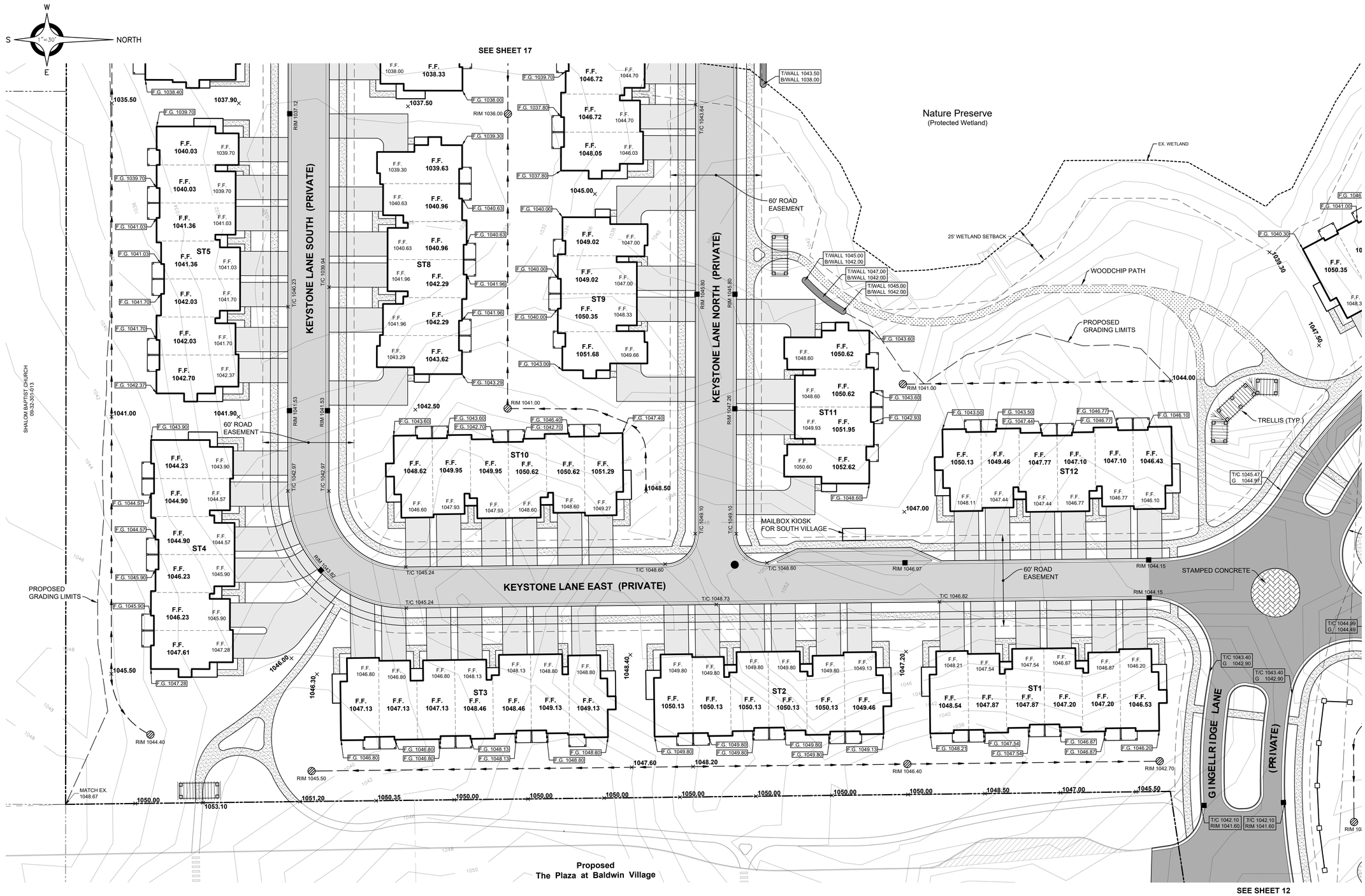
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\02_SITEPLAN_GRADING.DWG
15_Grading--12/7/2022 9:29:00 AM

SHEET NO.
15

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



LEGEND

■	STORM CATCH BASIN (PAVT.)	T/W	TOP OF SIDEWALK
⊘	STORM CATCH BASIN (FIELD)		RETAINING WALL
●	STORM MANHOLE		CONCRETE CURB AND GUTTER
	PROPOSED SWALE		DEEP STRENGTH PAVEMENT
000	EXISTING CONTOUR		STANDARD PAVEMENT
T/C	TOP OF CURB		6" CONCRETE DRIVEWAY
G	GUTTER		4" CONCRETE SIDEWALK

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 434

BALDWIN VILLAGE

SHEET TITLE:

Villas at South Village GRADING PLAN

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	SVP	DECEMBER 2022

SCALE: 1" = 30'

0 15 30 60

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

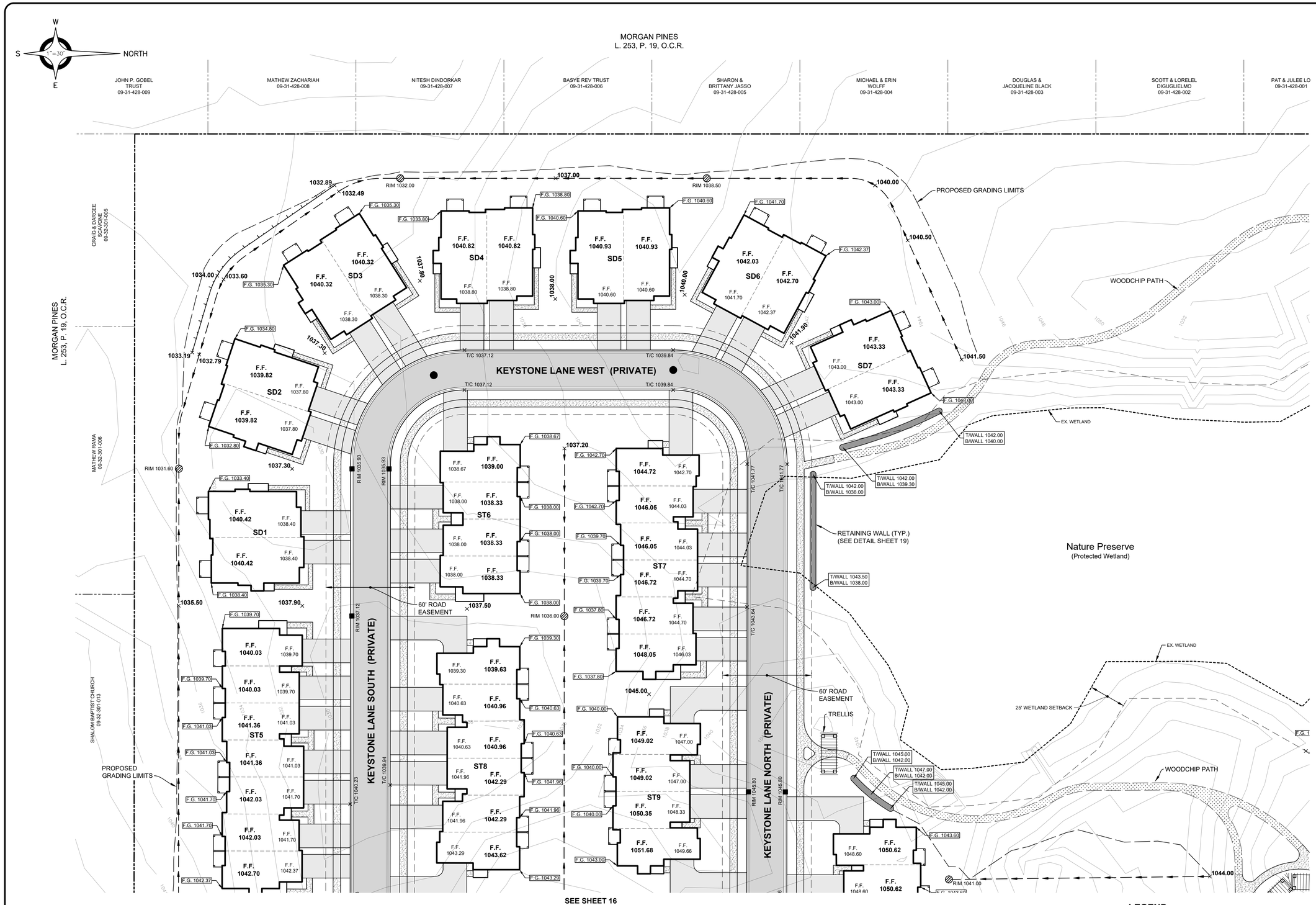
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO. 0361-0067

M:\0361\0361-0067\DWG\CIVIL\02_SITEPLAN_GRADING.DWG
16_Grading--12/7/2022 8:33:21 AM

SHEET NO. 16

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



LEGEND

■	STORM CATCH BASIN (PAVT.)	T/W	TOP OF SIDEWALK
⊘	STORM CATCH BASIN (FIELD)		RETAINING WALL
●	STORM MANHOLE		CONCRETE CURB AND GUTTER
	PROPOSED SWALE		DEEP STRENGTH PAVEMENT
000	EXISTING CONTOUR		STANDARD PAVEMENT
T/C	TOP OF CURB		6" CONCRETE DRIVEWAY
G	GUTTER		4" CONCRETE SIDEWALK

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 435

BALDWIN VILLAGE

SHEET TITLE:

Villas at South Village GRADING PLAN

CLIENT: JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	SVP	DECEMBER 2022

SCALE: 1" = 30'

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

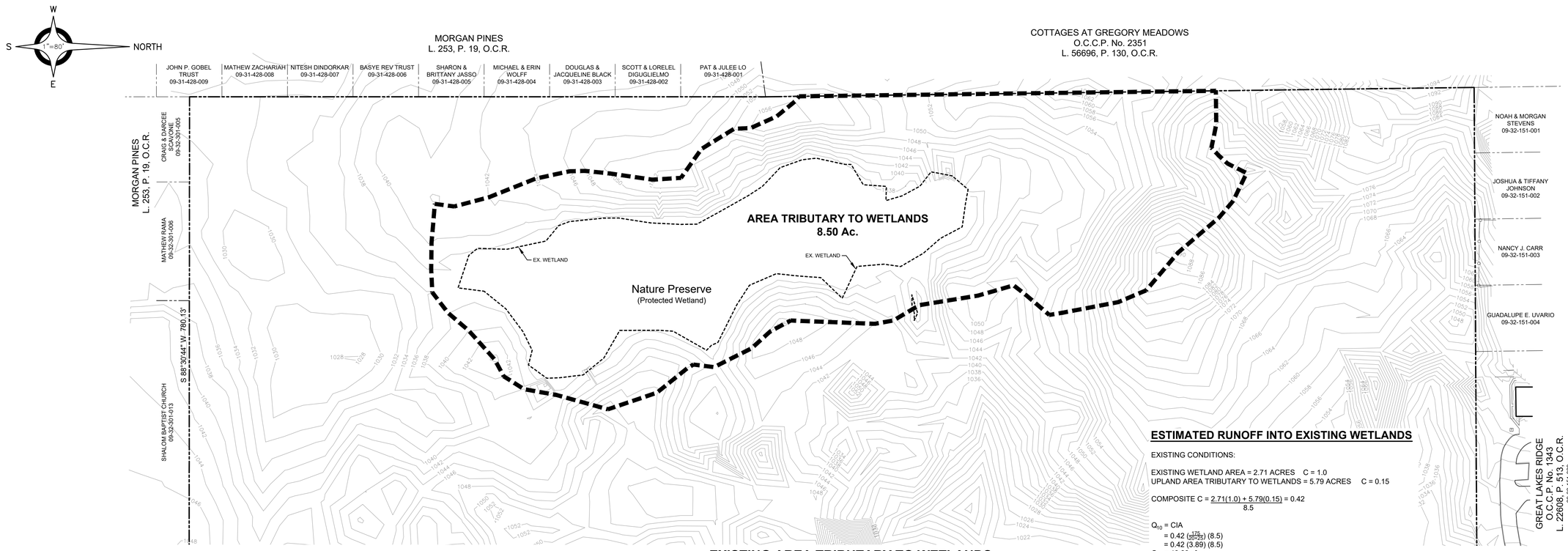
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO. 0361-0067

M:\0361\0361-0067\DWG\CIVIL\02_SITEPLAN_GRADING.DWG
17_Grading--12/7/2022 9:35:35 AM

SHEET NO. 17

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ESTIMATED RUNOFF INTO EXISTING WETLANDS

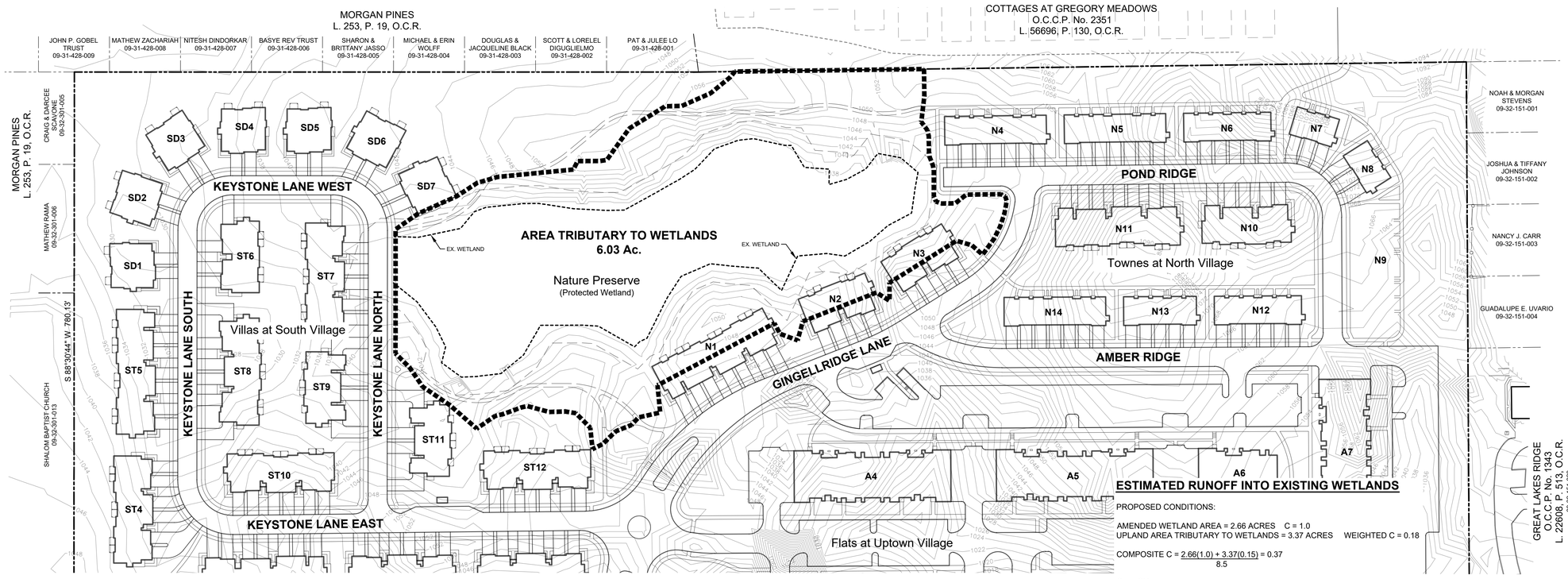
EXISTING CONDITIONS:

EXISTING WETLAND AREA = 2.71 ACRES C = 1.0
UPLAND AREA TRIBUTARY TO WETLANDS = 5.79 ACRES C = 0.15

$$\text{COMPOSITE } C = \frac{2.71(1.0) + 5.79(0.15)}{8.5} = 0.42$$

$Q_{10} = CIA$
$= 0.42\ (\frac{175}{(30+25)})\ (8.5)$
$= 0.42\ (3.89)\ (8.5)$
$Q_{10} = 13.89$ cfs

EXISTING AREA TRIBUTARY TO WETLANDS



ESTIMATED RUNOFF INTO EXISTING WETLANDS

PROPOSED CONDITIONS:

AMENDED WETLAND AREA = 2.66 ACRES C = 1.0
UPLAND AREA TRIBUTARY TO WETLANDS = 3.37 ACRES WEIGHTED C = 0.18

$$\text{COMPOSITE } C = \frac{2.66(1.0) + 3.37(0.15)}{8.5} = 0.37$$

$Q_{10} = CIA$
$= 0.37\ (\frac{175}{(30+25)})\ (8.5)$
$= 0.37\ (3.89)\ (8.5)$
$Q_{10} = 12.23$ cfs

PROPOSED AREA TRIBUTARY TO WETLANDS

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 436

BALDWIN VILLAGE

SHEET TITLE:

WETLAND TRIBUTARY AREA

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE:
1" = 80' HORIZ.
0 40 80 160

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

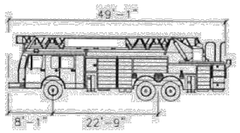
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

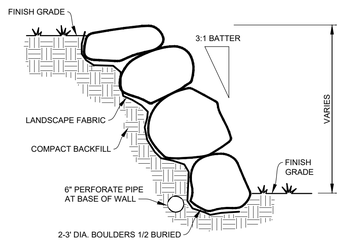
M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
18_Wetlands--12/7/2022 9:51:06 AM

SHEET NO.
18

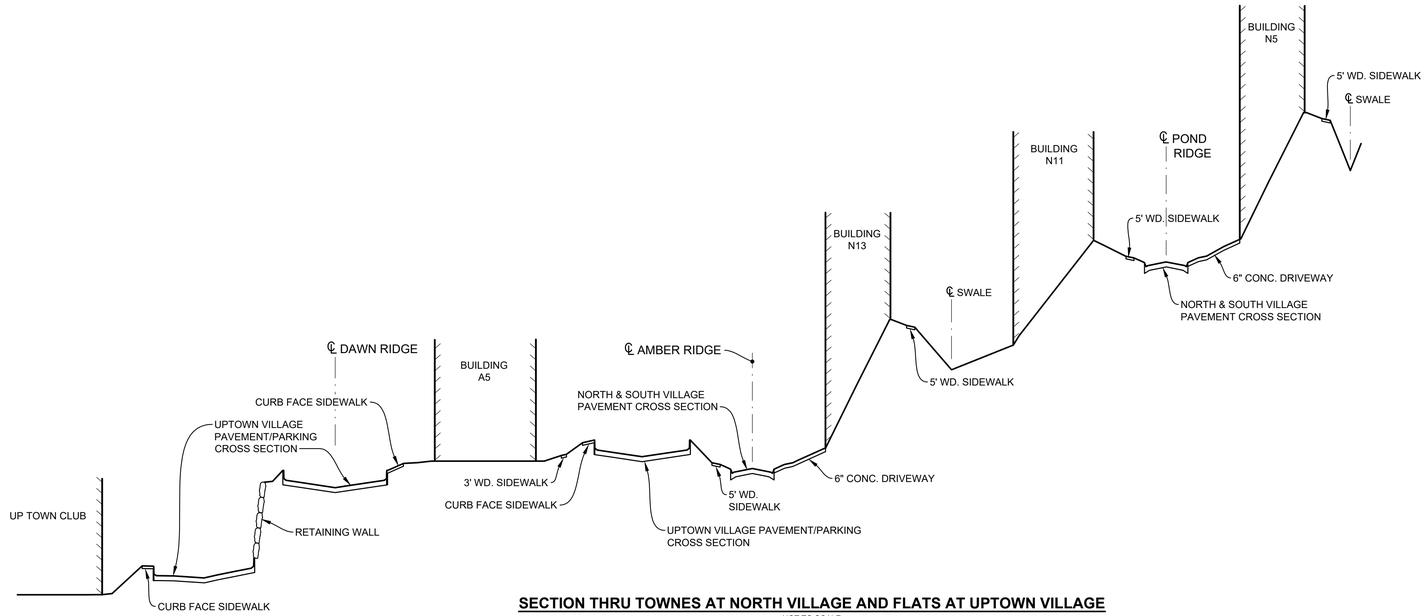
COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



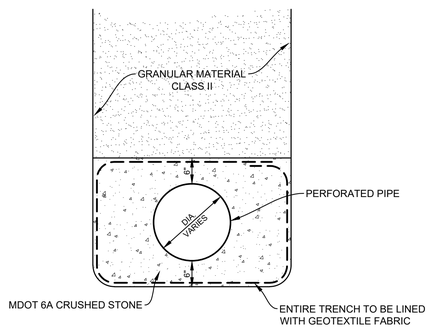
ORION TOWNSHIP PLATFORM TRUCK



RETAINING WALL DETAIL
NOT TO SCALE



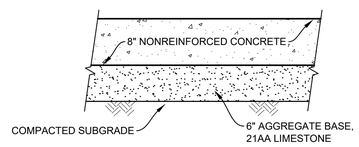
SECTION THRU TOWNES AT NORTH VILLAGE AND FLATS AT UPTOWN VILLAGE
NOT TO SCALE



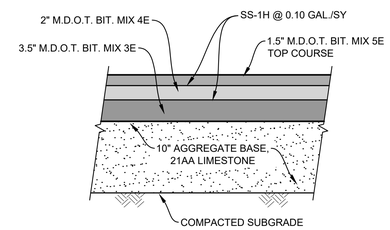
INFILTRATION TRENCH DETAIL
NOT TO SCALE

Infiltration Trench Location	Length	Width	Area	Infiltration Storage
1	155	20	3100	25575
2	124	20	2480	20460
3	100	25	2500	20625
4	100	25	2500	20625
5			3000	24750
6	275	20	5500	45375
			Total	157410
Infiltration Rate			16.5 in/hr	

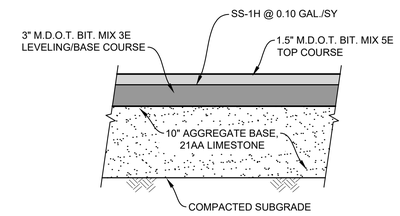
INFILTRATION CALCULATIONS



8" CONCRETE SECTION
NOT TO SCALE



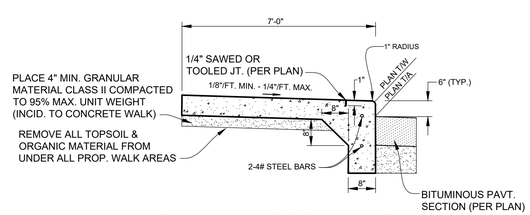
DEEP STRENGTH PAVEMENT SECTION
NOT TO SCALE



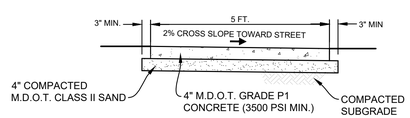
STANDARD PAVEMENT SECTION
NOT TO SCALE

FENCING
Ameristar Montage Plus Majestic 3-Rail Fence with Double Ring Adornments
Finish: Black

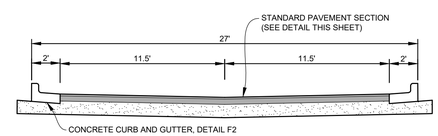
POOL FENCING DETAIL



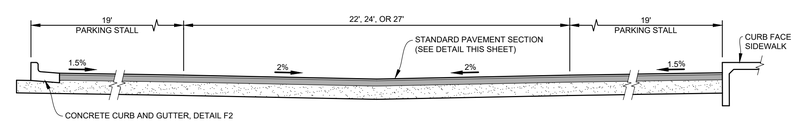
TYPICAL CONCRETE WALK WITH STANDARD CONCRETE CURB FACE
NOT TO SCALE



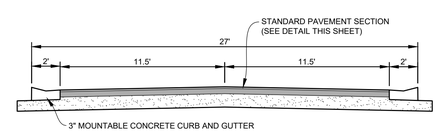
CONCRETE SIDEWALK DETAIL
NOT TO SCALE



FLATS AT UPTOWN VILLAGE PAVEMENT CROSS SECTION
NOT TO SCALE



FLATS AT UPTOWN VILLAGE PAVEMENT/PARKING CROSS SECTION
NOT TO SCALE



NORTH & SOUTH VILLAGE PAVEMENT CROSS SECTION
NOT TO SCALE

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 437

BALDWIN VILLAGE

SHEET TITLE:

MISCELLANEOUS PROJECT DETAILS

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE: AS NOTED

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

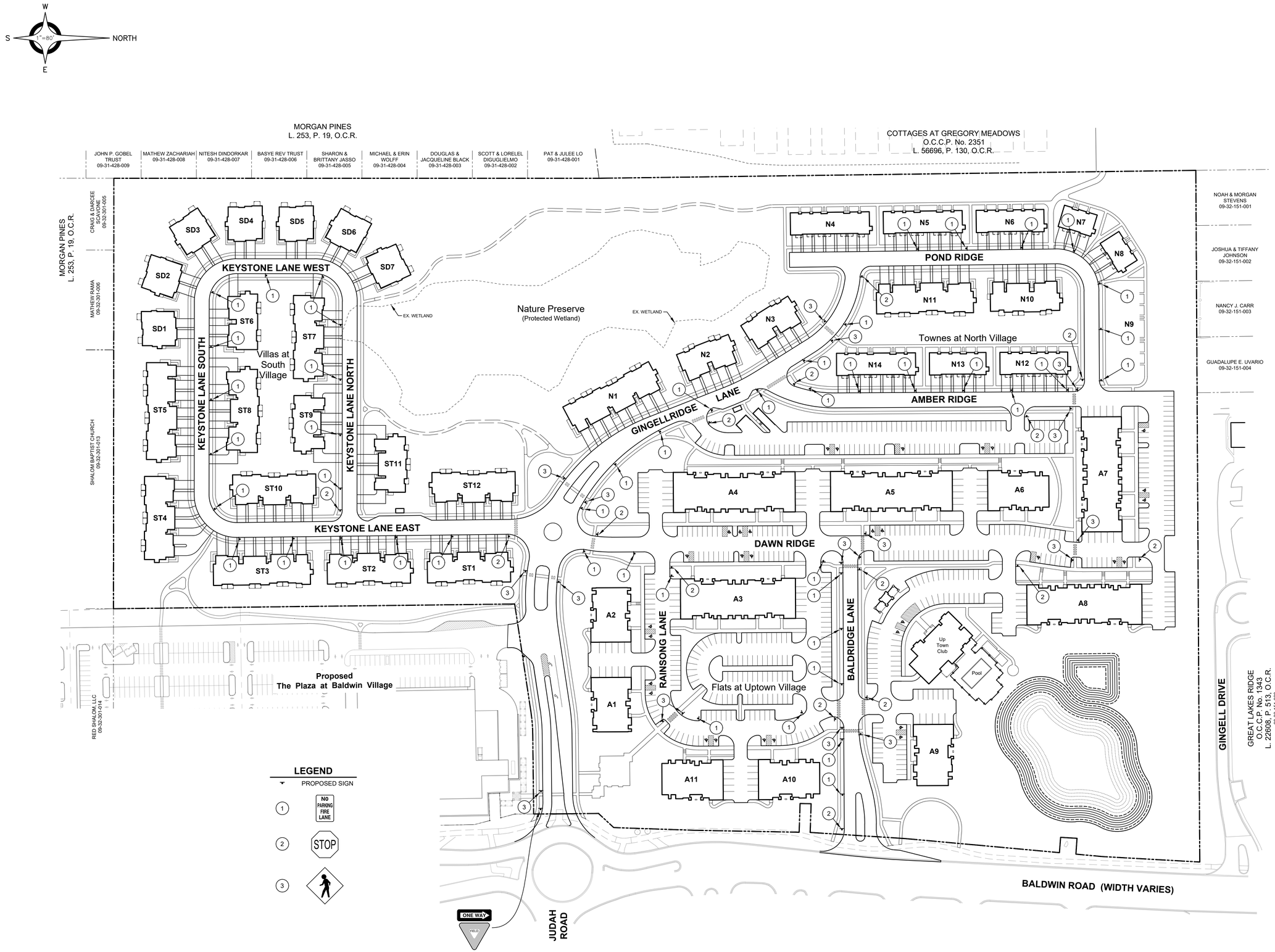
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
19_Details--12/7/2022 9:54:00 AM

SHEET NO.
19

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 438

BALDWIN VILLAGE

SHEET TITLE:

SIGNING PLAN

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY	☐ CONSTRUCTION	☐ RECORD
DRAWN BY: JLA	CHECKED BY: SVP	DATE: NOVEMBER 2022

SCALE:
1" = 80' HORIZ.
0 40 80 160

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

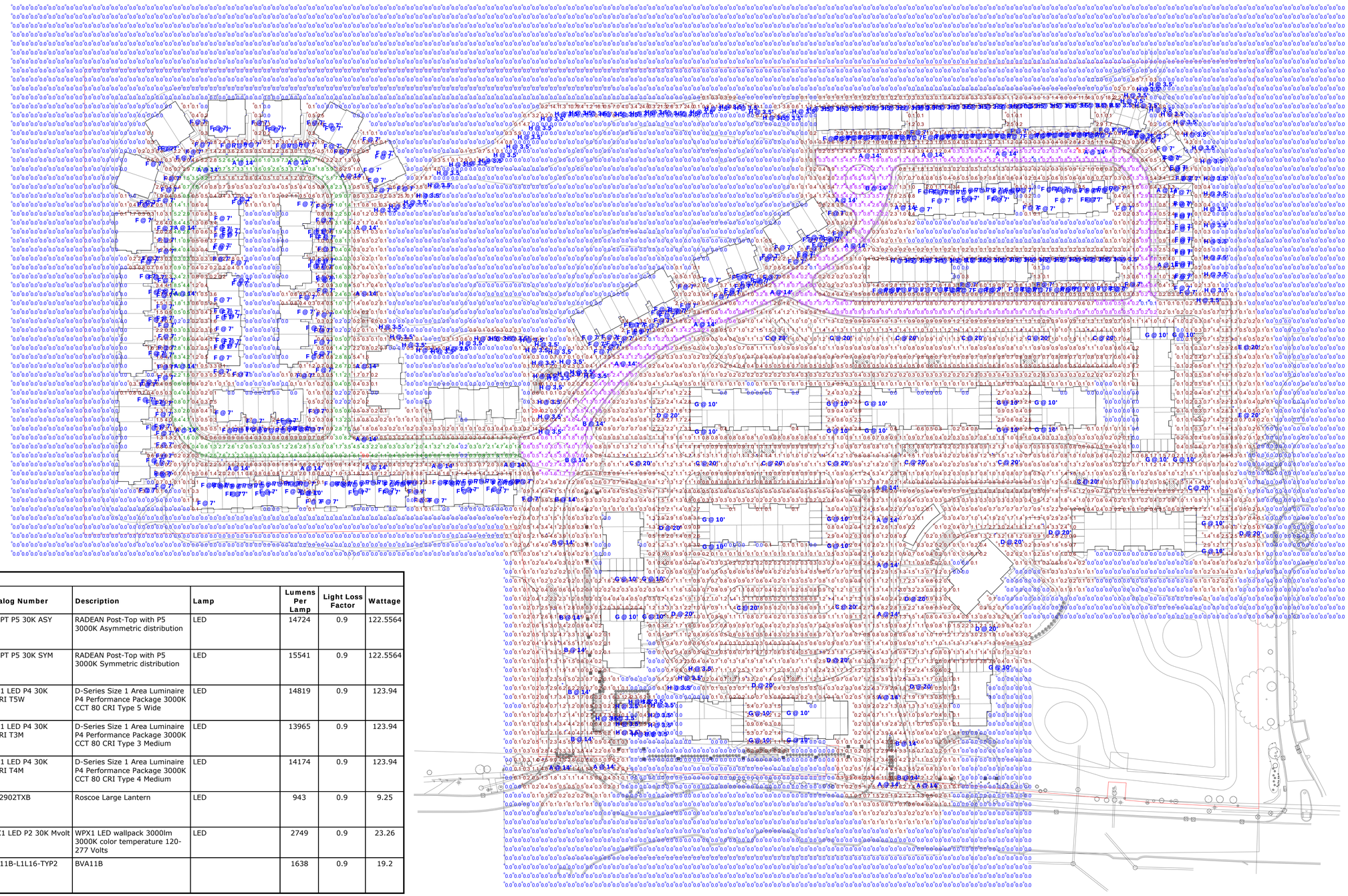
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
20_Signing--12/7/2022 9:58:21 AM

SHEET NO.
20

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



Plan View
Scale - 1" = 80ft

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Lumens Per Lamp	Light Loss Factor	Wattage
	A	39	Lithonia Lighting	RADPT P5 30K ASY	RADEAN Post-Top with P5 3000K Asymmetric distribution	LED	14724	0.9	122.5564
	B	11	Lithonia Lighting	RADPT P5 30K SYM	RADEAN Post-Top with P5 3000K Symmetric distribution	LED	15541	0.9	122.5564
	C	16	Lithonia Lighting	DSX1 LED P4 30K 80CRI T5W	D-Series Size 1 Area Luminaire P4 Performance Package 3000K CCT 80 CRI Type 5 Wide	LED	14819	0.9	123.94
	D	11	Lithonia Lighting	DSX1 LED P4 30K 80CRI T3M	D-Series Size 1 Area Luminaire P4 Performance Package 3000K CCT 80 CRI Type 3 Medium	LED	13965	0.9	123.94
	E	2	Lithonia Lighting	DSX1 LED P4 30K 80CRI T4M	D-Series Size 1 Area Luminaire P4 Performance Package 3000K CCT 80 CRI Type 4 Medium	LED	14174	0.9	123.94
	F	376	Generation Lighting	OL12902TXB	Roscoe Large Lantern	LED	943	0.9	9.25
	G	30	Lithonia Lighting	WPX1 LED P2 30K Mvolt	WPX1 LED wallpack 3000lm 3000K color temperature 120-277 Volts	LED	2749	0.9	23.26
	H	129	Luminis Lighting	BVA11B-L1L16-TYP2	BVA11B		1638	0.9	19.2

General Note

1. SEE DRAWING FOR LUMINAIRE MOUNTING HEIGHT.
2. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"
3. LIGHTING ALTERNATES REQUIRE NEW PHOTOMETRIC CALCULATION AND RESUBMISSION TO CITY FOR APPROVAL.

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705.

FOR ORDERING INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

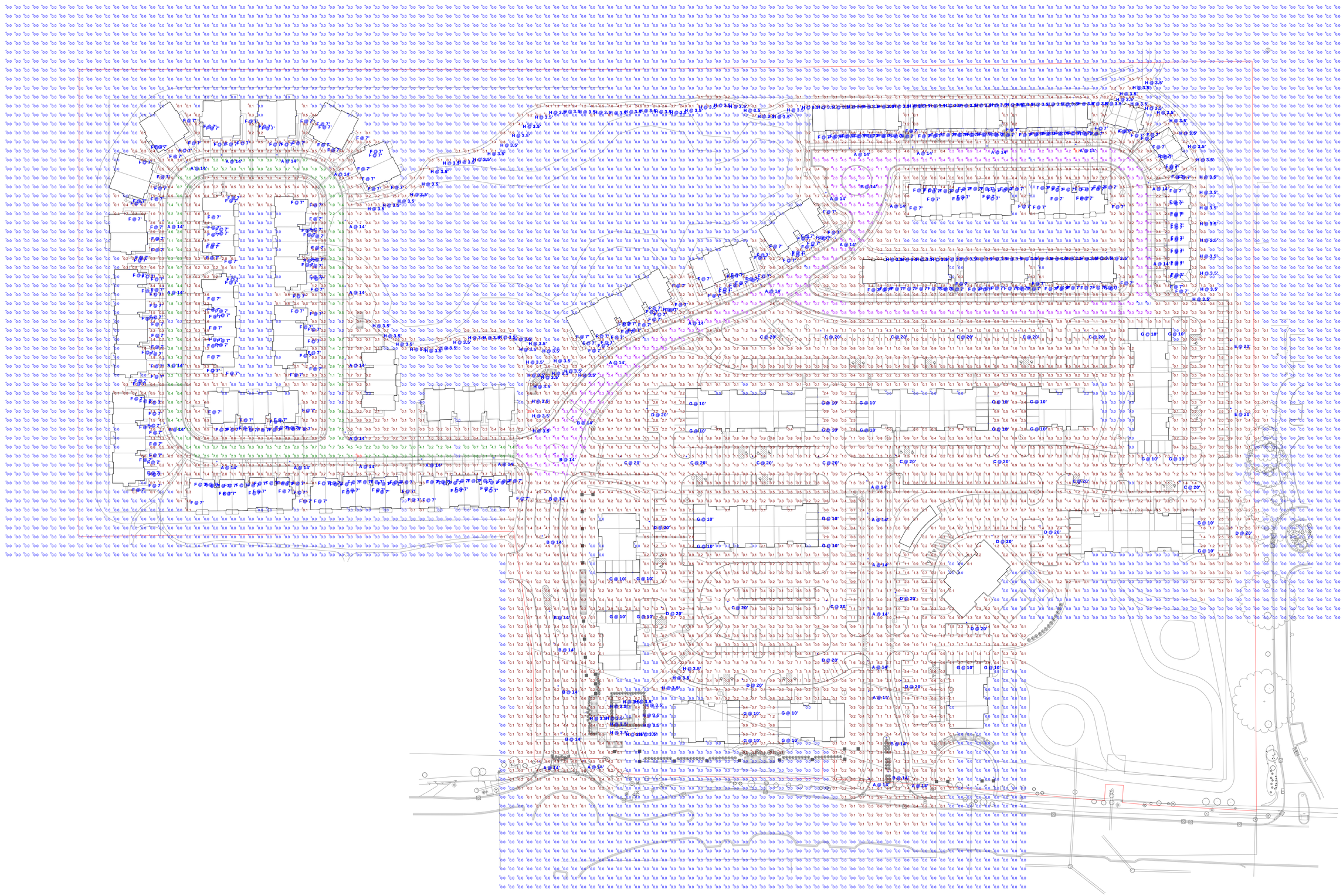
MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
North Village	✳	1.9 fc	8.7 fc	0.1 fc	87.0:1	19.0:1	0.2:1
Overall	+	0.6 fc	29.4 fc	0.0 fc	N/A	N/A	0.0:1
SOUTH VILLAGE	+	2.5 fc	9.0 fc	0.2 fc	45.0:1	12.5:1	0.3:1

BALDWIN VILLAGE
PHOTOMETRIC PLAN
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
DS
Date
11/30/2022
rev. 12/07/2022
Scale
Not to Scale
Drawing No.
#22-82829 V2



Plan View

Scale - 1" = 70ft

440

BALDWIN VILLAGE
PHOTOMETRIC PLAN
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
DS

Date
11/30/2022
rev. 12/07/2022

Scale
Not to Scale

Drawing No.
#22-82829 V2

21A

BENCH MARK LIST (NAVD88)

BENCH MARK NO. 1
CHISELED "X" ON N.E. RIM OF MIDDLE ROAD BASIN @ S. SIDE GINGELL DR., S. SIDE CUL-DE-SAC
ELEVATION: 1038.49

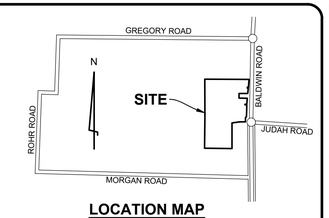
BENCH MARK NO. 2
CHISELED "X" ON N.E. RIM OF ROAD BASIN ON THE S. SIDE OF GINGELL DR. 125'± W. OF BALDWIN RD.
ELEVATION: 1023.96

BENCH MARK NO. 3
TOP OF HYDRANT ON THE W. SIDE OF BALDWIN RD. 200'± S. OF GINGELL DR.
ELEVATION: 1019.76

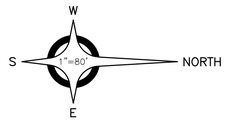
BENCH MARK NO. 4
TOP OF HYDRANT ON W. SIDE OF BALDWIN RD., OPPOSITE #4303
ELEVATION: 1025.09

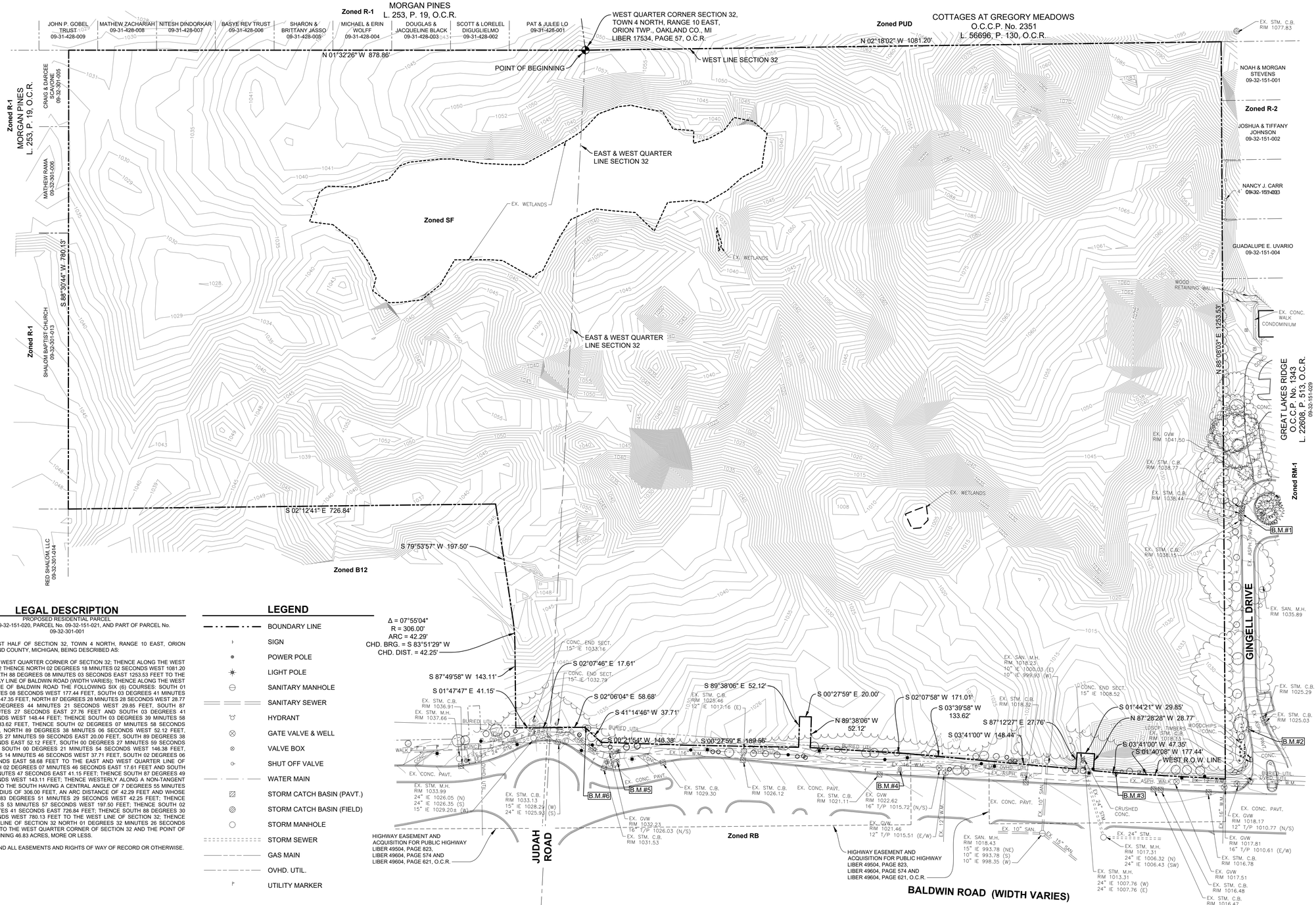
BENCH MARK NO. 5
TOP OF HYDRANT, W. SIDE BALDWIN, 100'± N. OF ℄ JUDAH EXTENDED
ELEVATION: 1034.41

BENCH MARK NO. 6
CHISELED "X" ON N. RIM MBT MH, 40'± W. OF B/CURB BALDWIN, 50'± N. OF ℄ JUDAH EXTENDED.
ELEVATION: 1034.15



LOCATION MAP
NOT TO SCALE





LEGAL DESCRIPTION

PROPOSED RESIDENTIAL PARCEL
PARCEL No. 09-32-151-020, PARCEL No. 09-32-151-021, AND PART OF PARCEL No. 09-32-301-001

PART OF THE WEST HALF OF SECTION 32, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

BEGINNING AT THE WEST QUARTER CORNER OF SECTION 32; THENCE ALONG THE WEST LINE OF SECTION 32 THENCE NORTH 02 DEGREES 18 MINUTES 02 SECONDS WEST 1081.20 FEET; THENCE NORTH 88 DEGREES 08 MINUTES 03 SECONDS EAST 1253.53 FEET TO THE WEST RIGHT OF WAY LINE OF BALDWIN ROAD (WIDTH VARIES); THENCE ALONG THE WEST RIGHT OF WAY LINE OF BALDWIN ROAD THE FOLLOWING SIX (6) COURSES: SOUTH 01 DEGREES 40 MINUTES 08 SECONDS WEST 177.44 FEET, SOUTH 03 DEGREES 41 MINUTES 00 SECONDS WEST 47.35 FEET, NORTH 87 DEGREES 28 MINUTES 28 SECONDS WEST 28.77 FEET, SOUTH 01 DEGREES 44 MINUTES 21 SECONDS WEST 29.85 FEET, SOUTH 87 DEGREES 12 MINUTES 27 SECONDS EAST 27.76 FEET AND SOUTH 03 DEGREES 41 MINUTES 00 SECONDS WEST 148.44 FEET; THENCE SOUTH 03 DEGREES 39 MINUTES 58 SECONDS WEST 133.62 FEET, THENCE SOUTH 02 DEGREES 07 MINUTES 58 SECONDS WEST 171.01 FEET, NORTH 89 DEGREES 38 MINUTES 06 SECONDS WEST 52.12 FEET, SOUTH 00 DEGREES 27 MINUTES 59 SECONDS EAST 20.00 FEET, SOUTH 89 DEGREES 38 MINUTES 06 SECONDS EAST 52.12 FEET, SOUTH 00 DEGREES 27 MINUTES 59 SECONDS EAST 189.56 FEET, SOUTH 00 DEGREES 21 MINUTES 54 SECONDS WEST 146.38 FEET, SOUTH 41 DEGREES 14 MINUTES 46 SECONDS WEST 37.71 FEET, SOUTH 02 DEGREES 06 MINUTES 04 SECONDS EAST 58.68 FEET TO THE EAST AND WEST QUARTER LINE OF SECTION 32, SOUTH 02 DEGREES 07 MINUTES 46 SECONDS EAST 17.61 FEET AND SOUTH 01 DEGREES 47 MINUTES 47 SECONDS EAST 41.15 FEET; THENCE SOUTH 87 DEGREES 49 MINUTES 58 SECONDS WEST 143.11 FEET; THENCE WESTERLY ALONG A NON-TANGENT CURVE CONCAVE TO THE SOUTH HAVING A CENTRAL ANGLE OF 7 DEGREES 55 MINUTES 04 SECONDS, A RADIUS OF 306.00 FEET, AN ARC DISTANCE OF 42.29 FEET AND WHOSE CHORD IS SOUTH 83 DEGREES 51 MINUTES 29 SECONDS WEST 42.25 FEET; THENCE SOUTH 79 DEGREES 53 MINUTES 57 SECONDS WEST 197.50 FEET; THENCE SOUTH 02 DEGREES 12 MINUTES 41 SECONDS EAST 726.84 FEET; THENCE SOUTH 88 DEGREES 30 MINUTES 44 SECONDS WEST 790.13 FEET TO THE WEST LINE OF SECTION 32; THENCE ALONG THE WEST LINE OF SECTION 32 NORTH 01 DEGREES 32 MINUTES 26 SECONDS WEST 878.86 FEET TO THE WEST QUARTER CORNER OF SECTION 32 AND THE POINT OF BEGINNING. CONTAINING 46.83 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.

LEGEND

- BOUNDARY LINE
- SIGN
- POWER POLE
- LIGHT POLE
- SANITARY MANHOLE
- SANITARY SEWER
- HYDRANT
- GATE VALVE & WELL
- VALVE BOX
- SHUT OFF VALVE
- WATER MAIN
- STORM CATCH BASIN (PAVT.)
- STORM CATCH BASIN (FIELD)
- STORM MANHOLE
- STORM SEWER
- GAS MAIN
- OVHD. UTIL.
- UTILITY MARKER

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
12-09-2022	FINAL PUD PLAN SUBMITTAL

PROJECT NAME: 441

BALDWIN VILLAGE

SHEET TITLE:

TOPOGRAPHIC SURVEY

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	NOVEMBER 2022

SCALE:
1" = 80' HORIZ.
0 40 80 160

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

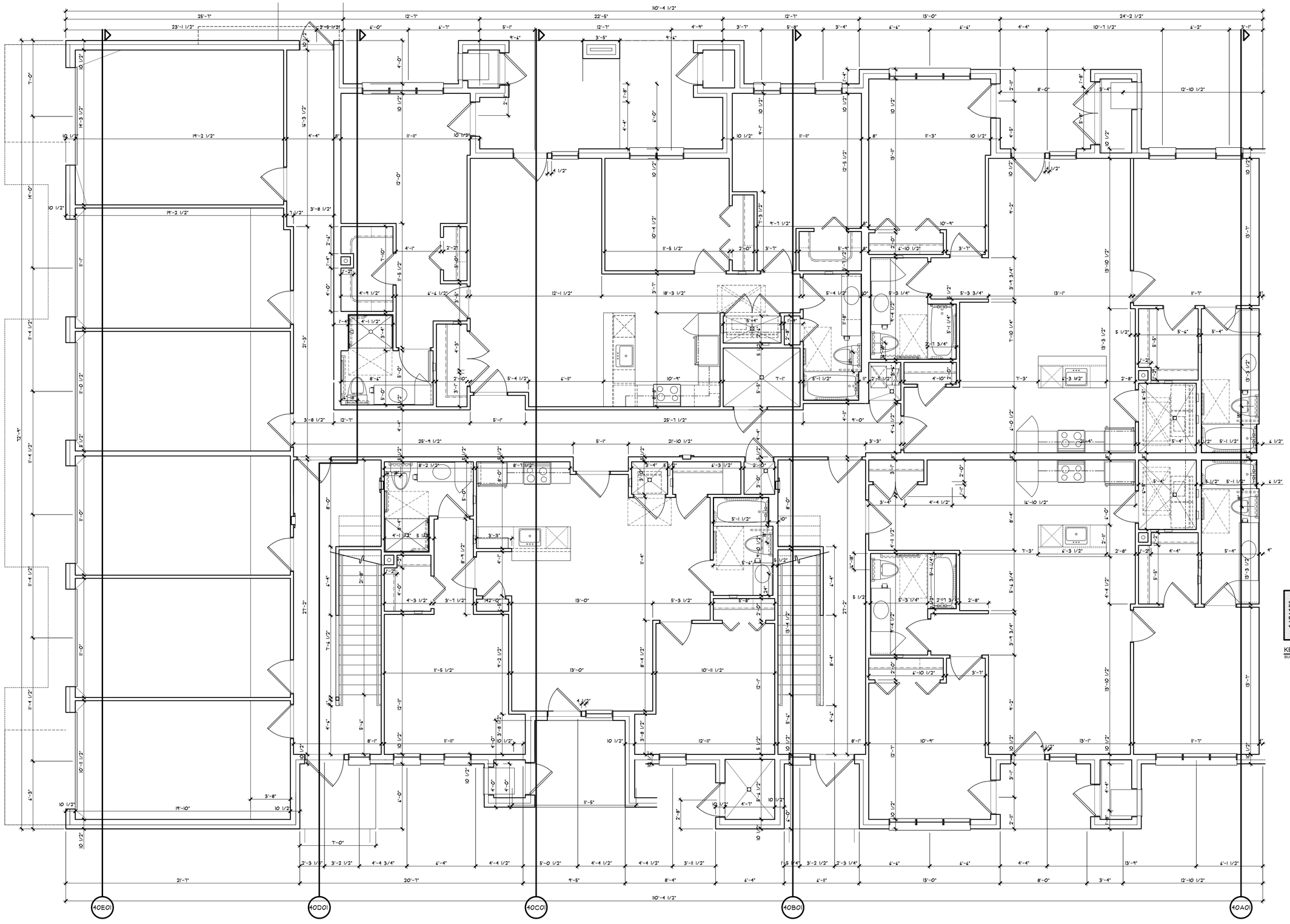
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

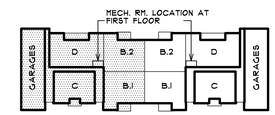
PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_SITEPLAN.DWG
22_Topo--12/7/2022 9:59:30 AM

SHEET NO.
22

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.





KEY PLAN - FIRST FLOOR
BUILDING TYPE 'A' HATCHED AREA SHOWN
NO SCALE

PARTIAL FIRST FLOOR PLAN: LEFT HALF - BUILDING TYPE 'A'

BUILDINGS #3, #5, #6

SCALE: 1/4" = 1'-0"

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL FIRST FLOOR PLAN
BUILDING TYPE 'A' - LEFT HALF

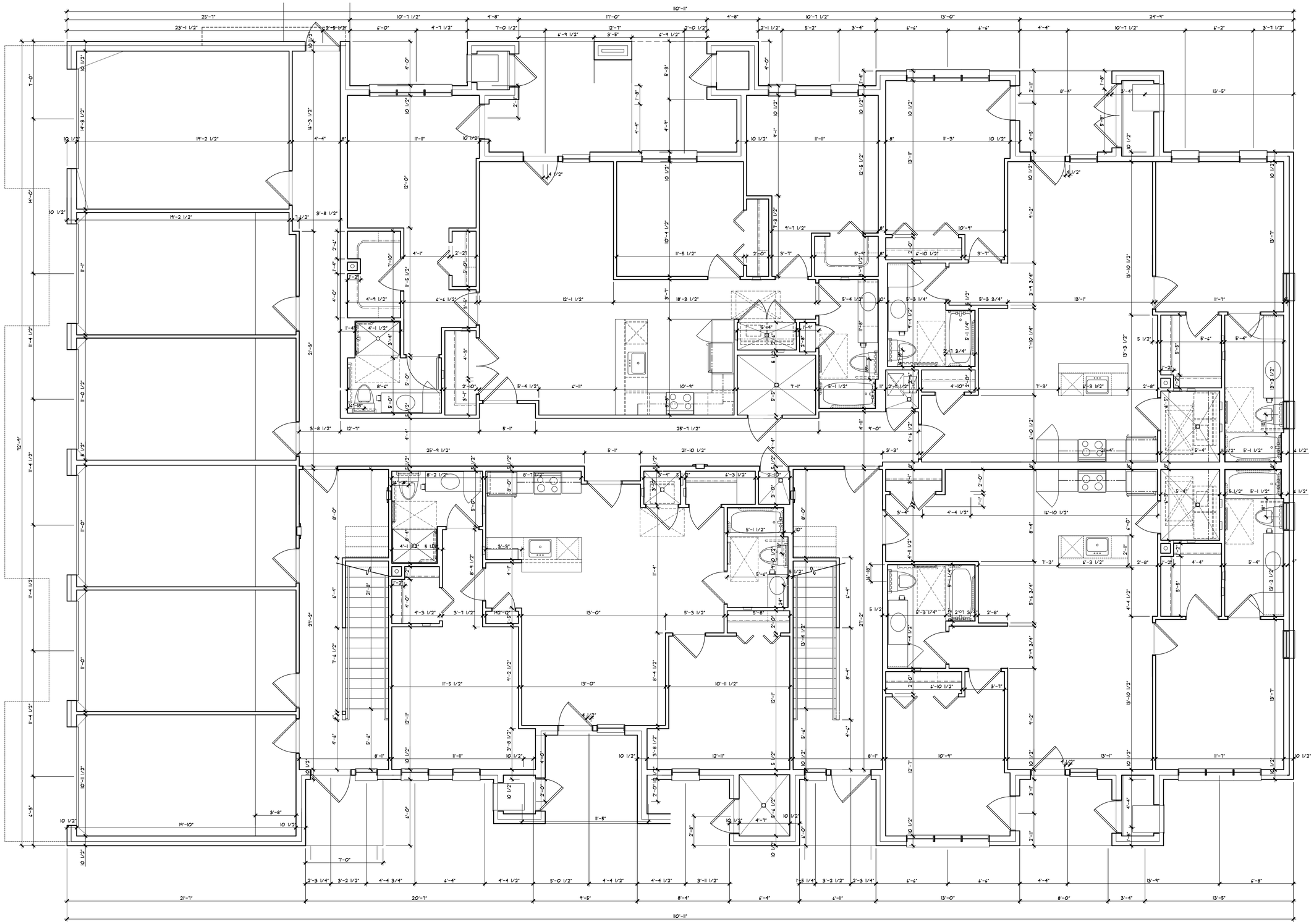
CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP. MICHIGAN

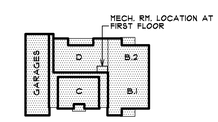
REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
11-02-10
SHEET NUMBER
UP1

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

S:\CURRENT1\client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:19:42 AM





KEY PLAN - FIRST FLOOR

NO SCALE

BUILDING TYPE 'AL.5'
BUILDING TYPE 'EL.5'

HATCHED AREA SHOWN

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE

FIRST FLOOR PLAN

BUILDING TYPE 'AL.5' & EL.5

CLIENT/PROJECT

S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE

ORION TWP. MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

11-02-10

SHEET NUMBER

UP2

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

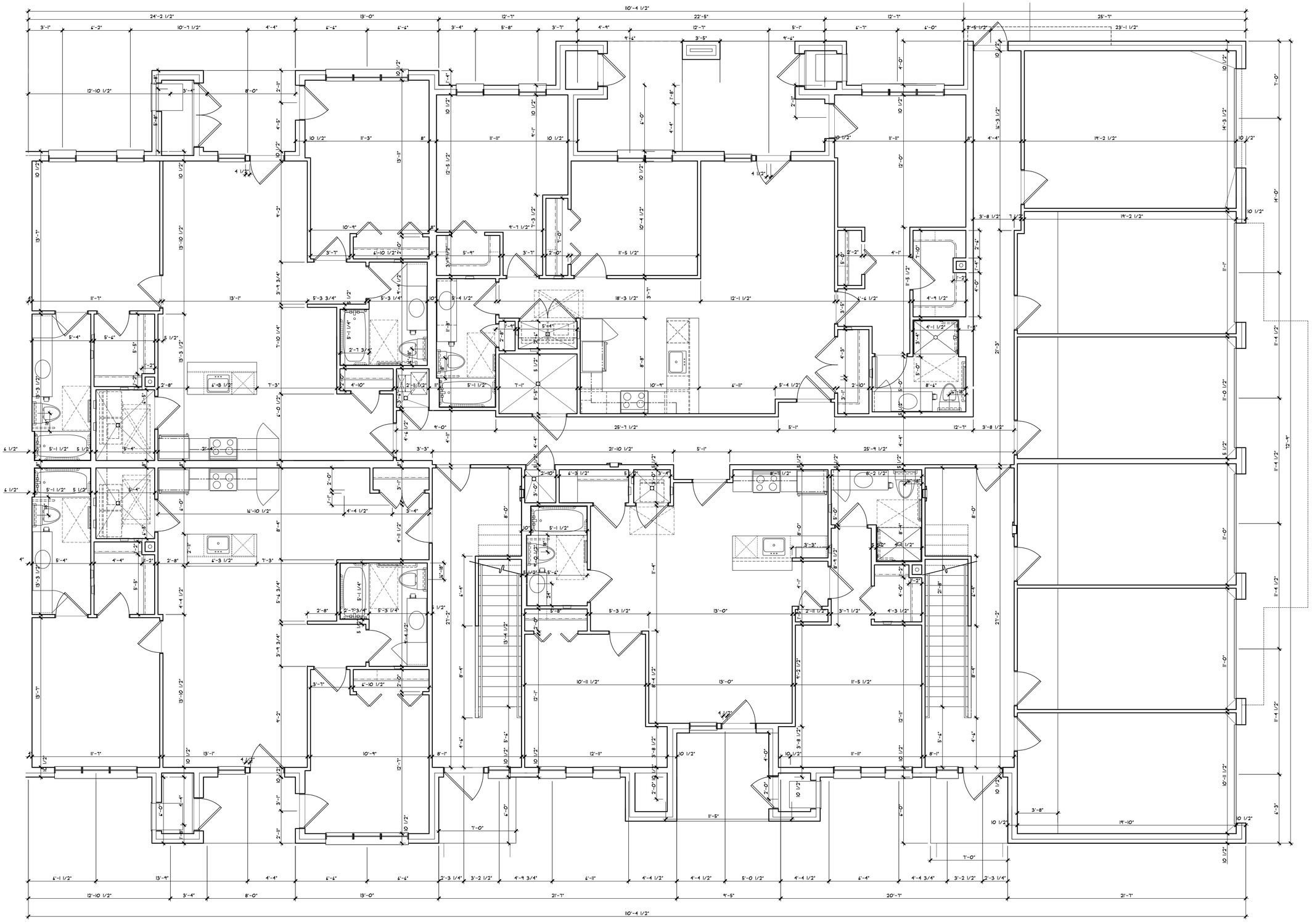
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

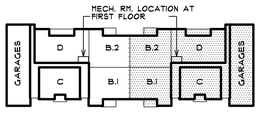
FIRST FLOOR PLAN: BUILDING TYPE 'AL.5' & 'EL.5'

BUILDINGS #

SCALE: 1/4" = 1'-0"

S:\CURRENT\client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:26:23 AM





KEY PLAN - FIRST FLOOR
BUILDING TYPE 'A' HATCHED AREA SHOWN
NO SCALE

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL FIRST FLOOR PLAN
BUILDING TYPE 'A' - RIGHT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP. MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE 11-02-10
SHEET NUMBER UP3

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

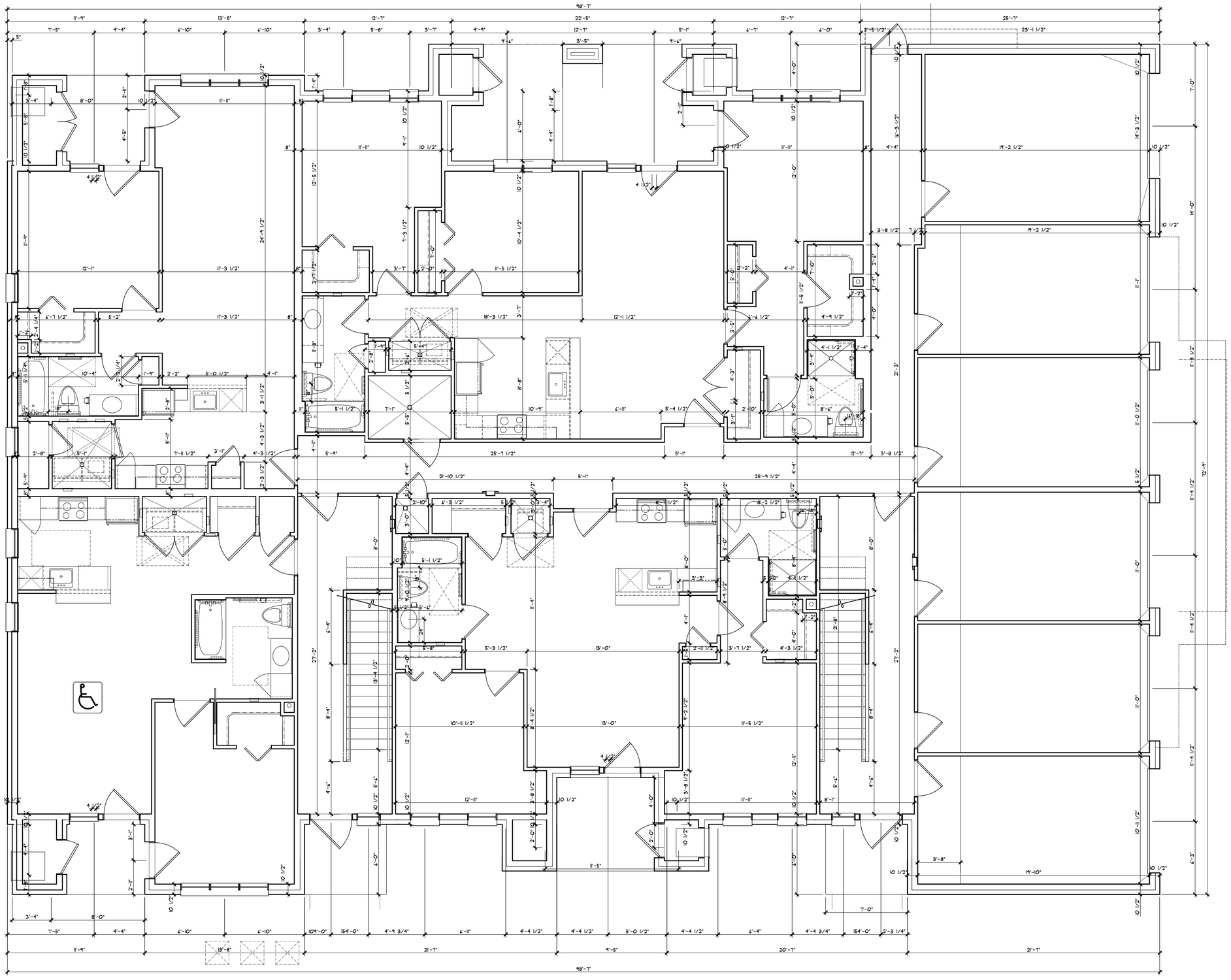
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

PARTIAL FIRST FLOOR PLAN: RIGHT HALF - BUILDING TYPE 'A'

BUILDINGS #3, #5, #6

SCALE: 1/4" = 1'-0"

S:\CURRENT1\client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:20:12 AM



KEY PLAN - FIRST FLOOR NO SCALE

BUILDING TYPE 'ER.5'

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
FIRST FLOOR PLAN
BUILDING TYPE 'E.5R' - RIGHT

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - HOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP4

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

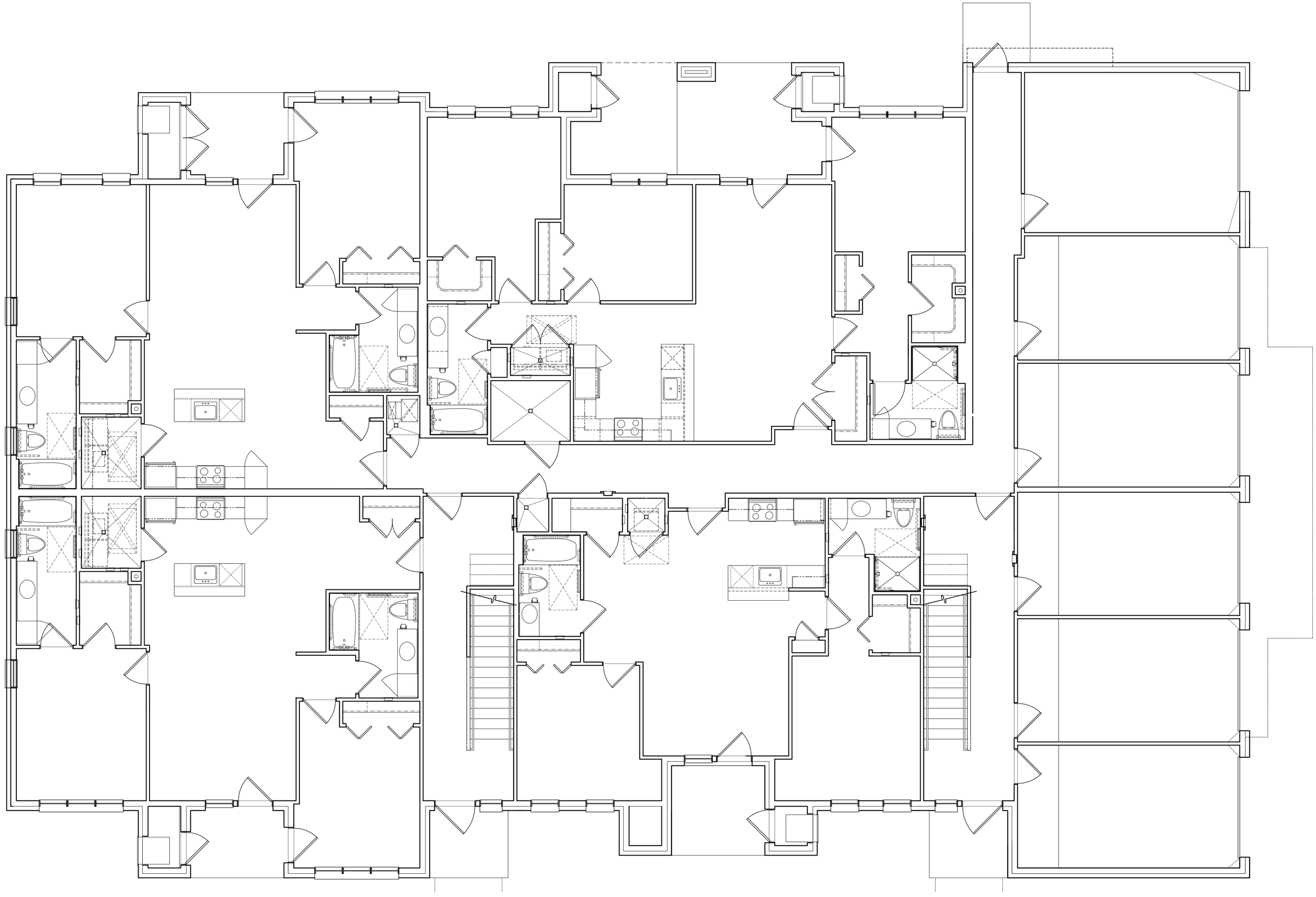
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

FIRST FLOOR PLAN: RIGHT - BUILDING TYPE 'ER.5'

BUILDINGS #7, #9

SCALE: 1/4" = 1'-0"

S:\CURRENT\client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:21:36 AM



KEY PLAN - FIRST FLOOR NO SCALE
BUILDING TYPE 'AR.5'

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE
FIRST FLOOR PLAN
BUILDING TYPE 'AR.5' - RIGHT

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP. MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP5

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

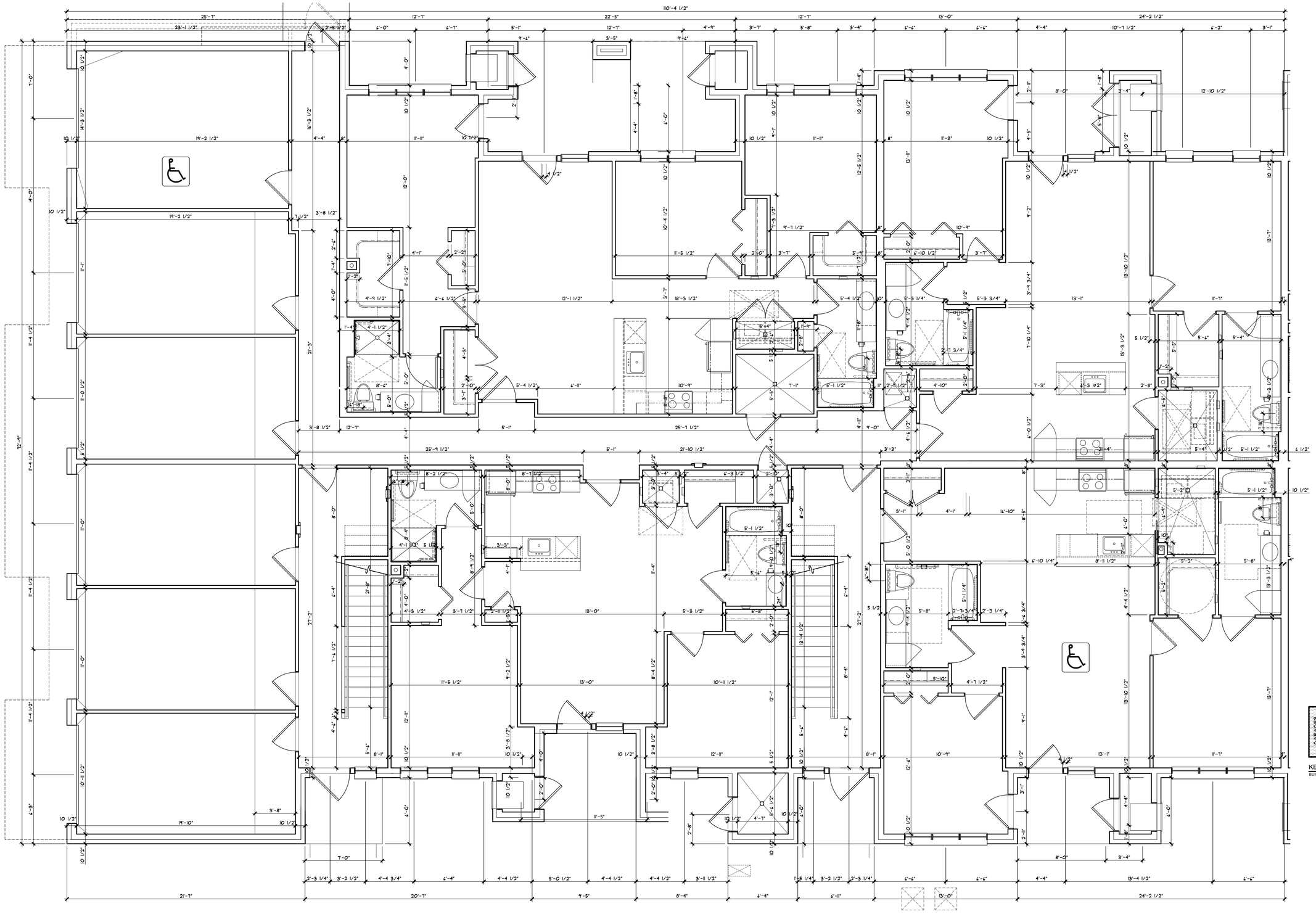
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

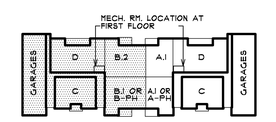
FIRST FLOOR PLAN: RIGHT - BUILDING TYPE 'AR.5'

BUILDINGS #

SCALE: 1/4" = 1'-0"

S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:25:39 AM





KEY PLAN - FIRST FLOOR
BUILDING TYPE 'E' HATCHED AREA SHOWN
NO SCALE

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL FIRST FLOOR PLAN
BUILDING TYPE 'E' - LEFT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP. MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP6

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

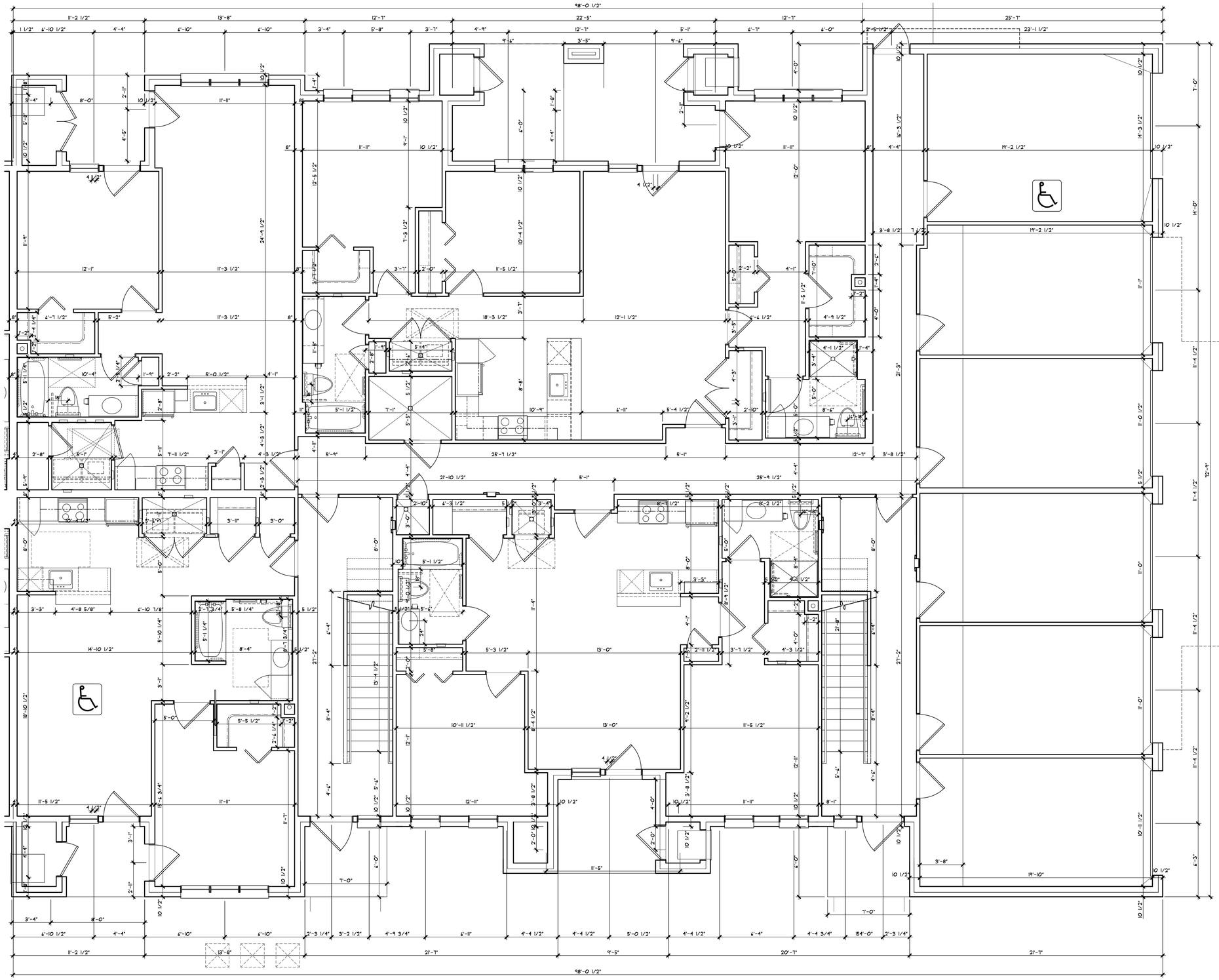
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

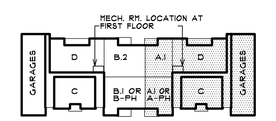
PARTIAL FIRST FLOOR PLAN: LEFT HALF - BUILDING TYPE 'E'

BUILDINGS #2, #4, #8, #10

SCALE: 1/4" = 1'-0"

S:\CURRENT1\client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:20:47 AM





KEY PLAN - FIRST FLOOR

BUILDING TYPE 'E' HATCHED AREA SHOWN

NO SCALE

PARTIAL FIRST FLOOR PLAN: RIGHT HALF - BUILDING TYPE 'E'

BUILDINGS #2, #4, #8, #10

SCALE: 1/4" = 1'-0"

Alexander V. Boggaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

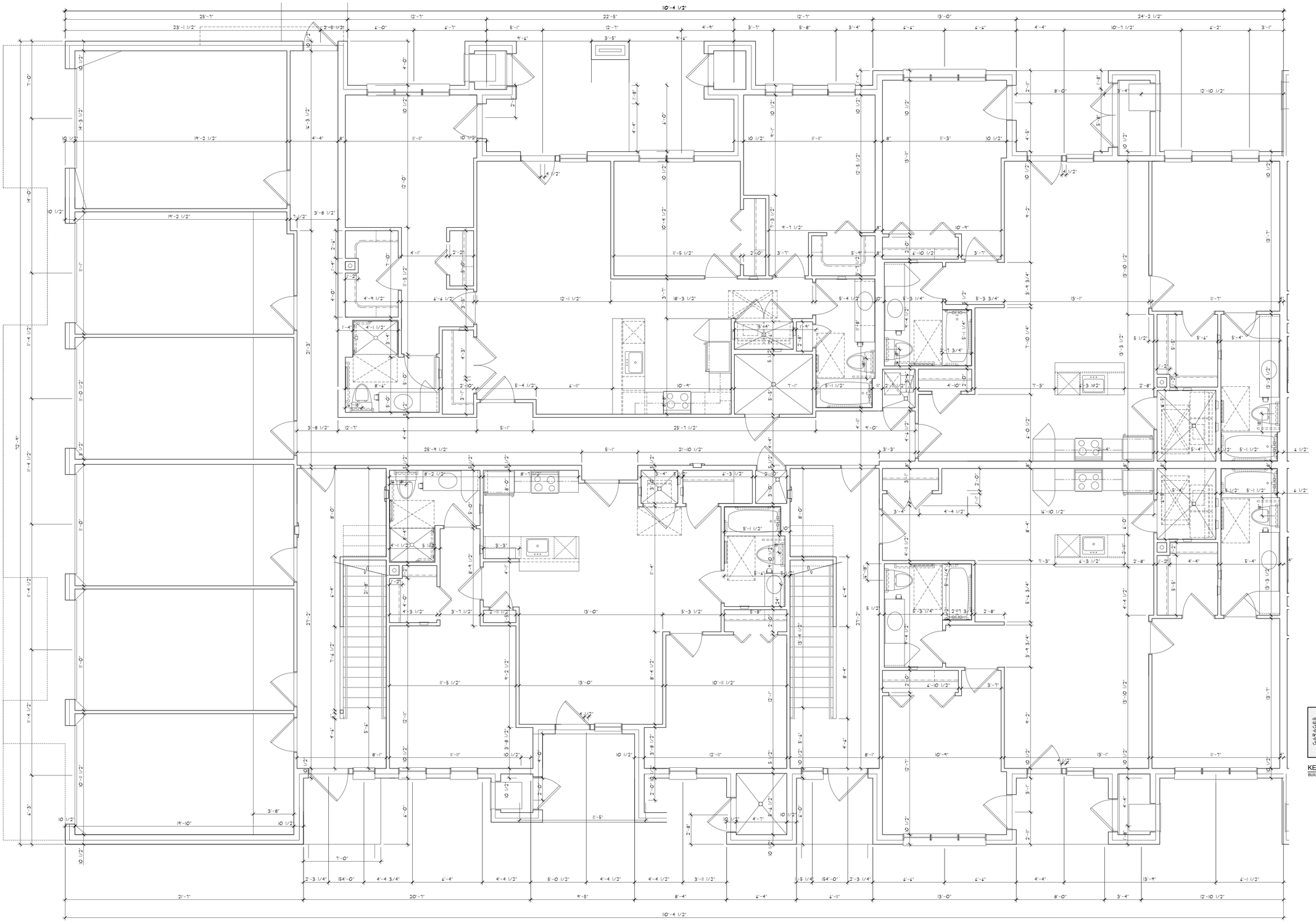
SHEET NUMBER

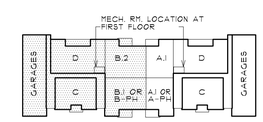
UP7

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

S:\CURRENT\client\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:16:54 AM





KEY PLAN - FIRST FLOOR

BUILDING TYPE 'E' HATCHED AREA SHOWN

NO SCALE

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE

PARTIAL FIRST FLOOR PLAN

BUILDING TYPE 'E' - LEFT HALF

CLIENT/PROJECT

S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE

ORION TWP., MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

SHEET NUMBER

UP8

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

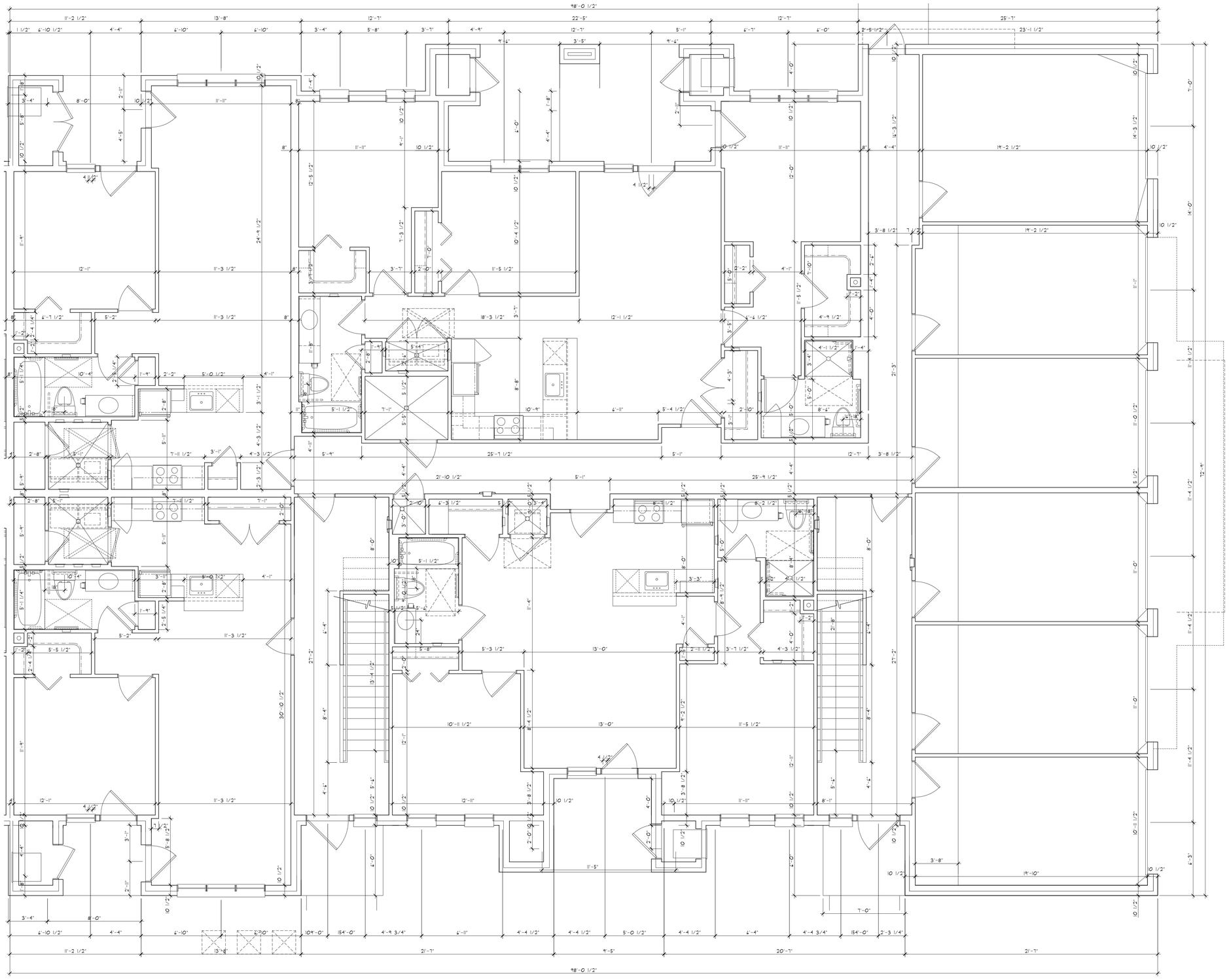
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

PARTIAL FIRST FLOOR PLAN: LEFT HALF - BUILDING TYPE 'E'

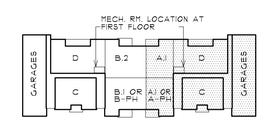
BUILDINGS #7, #9

SCALE: 1/4" = 1'-0"

S:\CURRENT1\client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:16:55 AM



450



KEY PLAN - FIRST FLOOR
BUILDING TYPE 'E'
HATCHED AREA SHOWN
NO SCALE

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE
PARTIAL FIRST FLOOR PLAN
BUILDING TYPE 'E' - RIGHT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP., MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP9

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

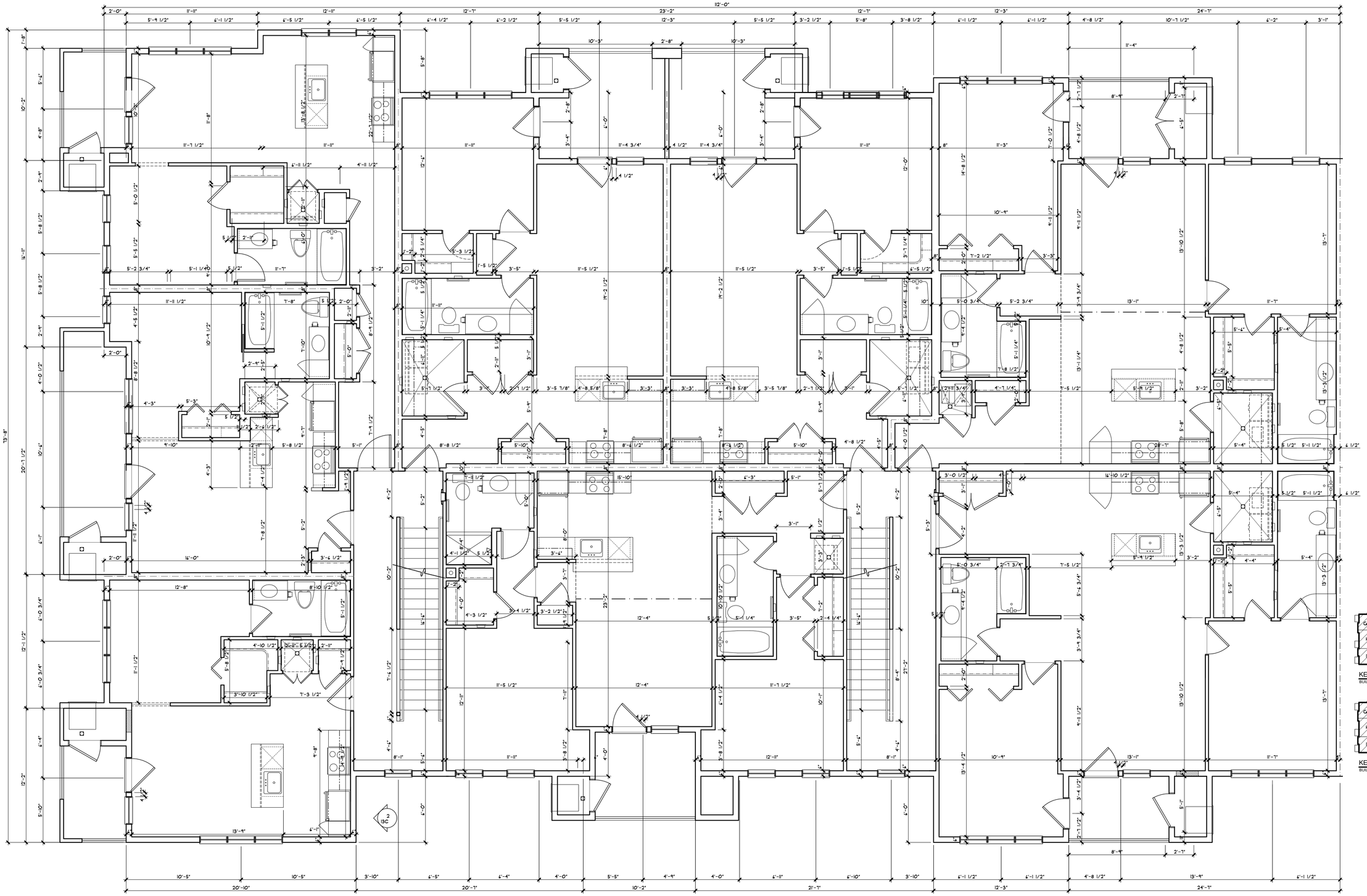
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

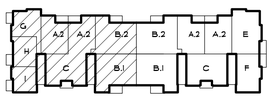
PARTIAL FIRST FLOOR PLAN: RIGHT HALF - BUILDING TYPE 'E'

BUILDINGS #7, #9

SCALE: 1/4" = 1'-0"

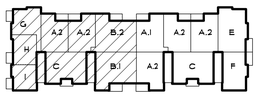
S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_BALD VILL_PLAN.dwg, 11/16/2022 8:16:56 AM





KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPE 'A' HATCHED AREA SHOWN



KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE

PARTIAL SECOND FLOOR PLAN

BUILDING TYPE 'A' & 'E'-LEFT HALF

CLIENT/PROJECT

S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE

ORION TWP, MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

SHEET NUMBER

UP10

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

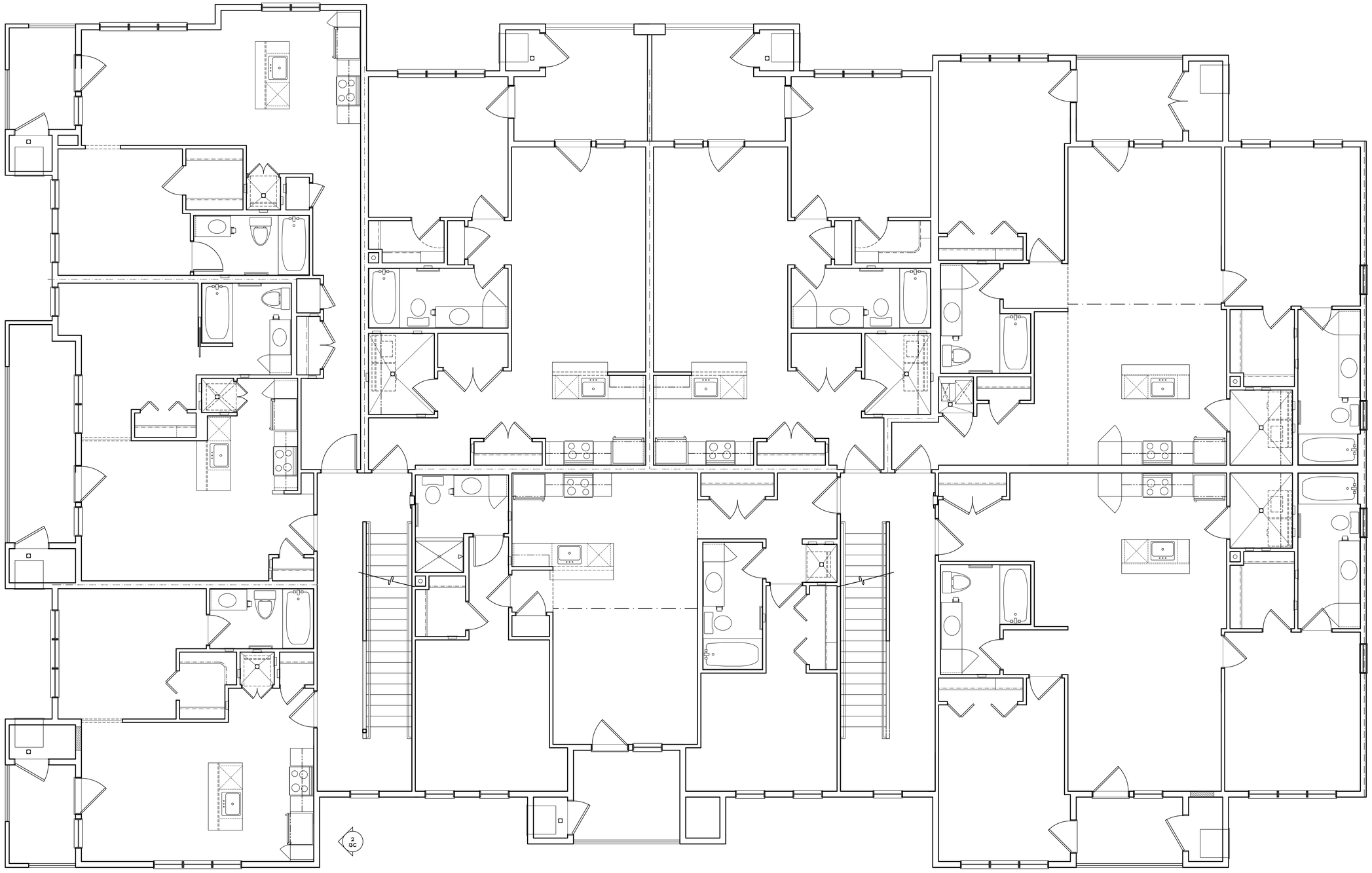
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

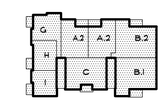
PARTIAL SECOND FLOOR PLAN: LEFT HALF - BUILDING TYPE 'A'

BUILDINGS #2, #3, #4, #5, #6, #7, #8, #9, #10

SCALE: 1/4" = 1'-0"

S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:16:57 AM





KEY PLAN - SECOND & THIRD FLOOR NO SCALE
BUILDING TYPE 'AL.5' HATCHED AREA SHOWN
BUILDING TYPE 'EL.5'

452

SECOND FLOOR PLAN: BUILDING TYPE 'AL.5' & 'EL.5'

BUILDINGS #

SCALE: 1/4" = 1'-0"

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
SECOND FLOOR PLAN
BUILDING TYPE 'AL.5' & EL.5

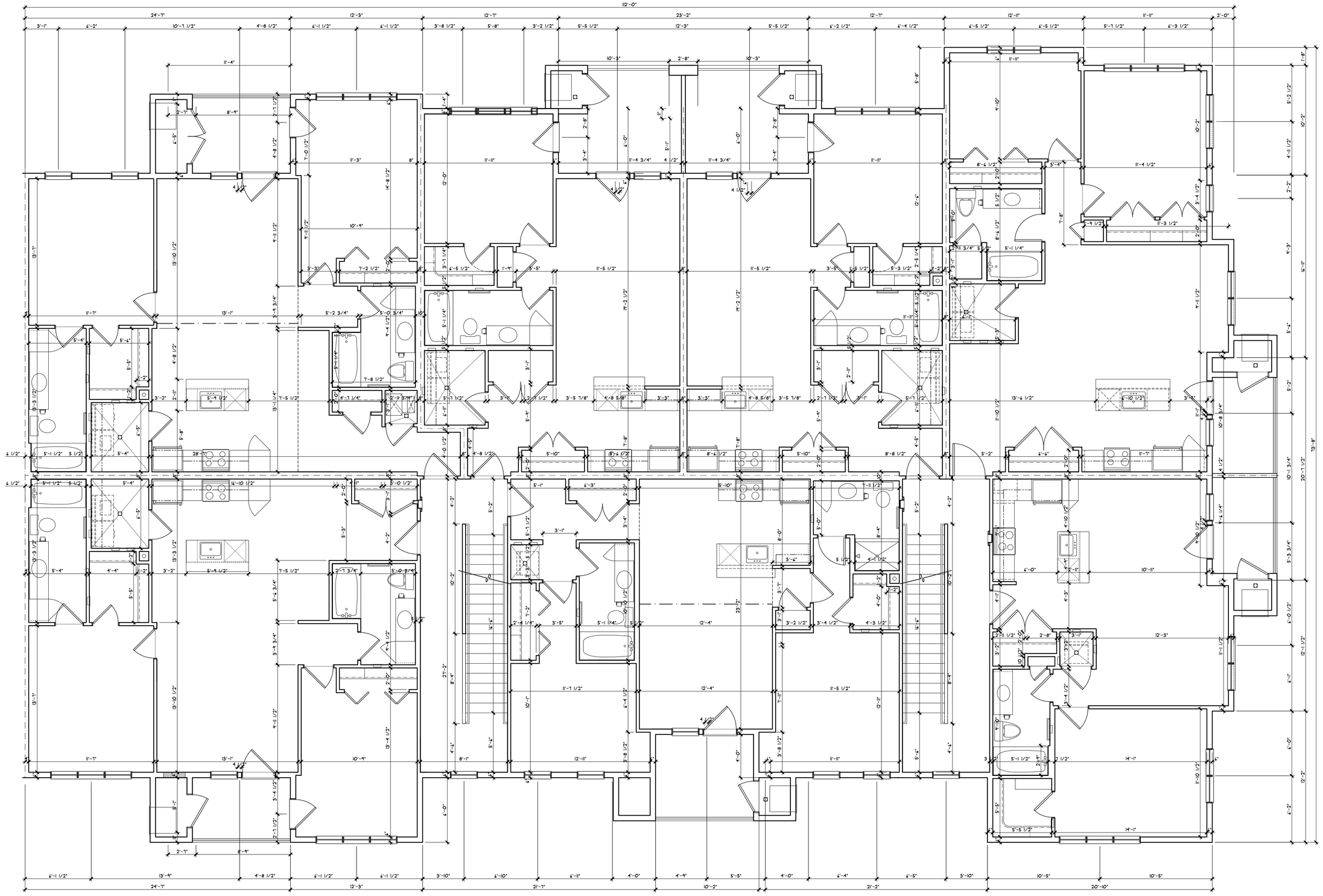
CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

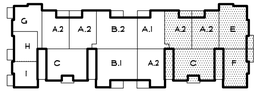
DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP11

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

S:\CURRENT\1client\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\02_ BALD VILL_ PLAN.dwg, 11/16/2022 8:16:57 AM



KEY PLAN - SECOND & THIRD FLOOR NO SCALE
BUILDING TYPE 'A' HATCHED AREA SHOWN



KEY PLAN - SECOND & THIRD FLOOR NO SCALE
BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL SECOND FLOOR PLAN
BUILDING TYPE 'A' - RIGHT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP. MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP12

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

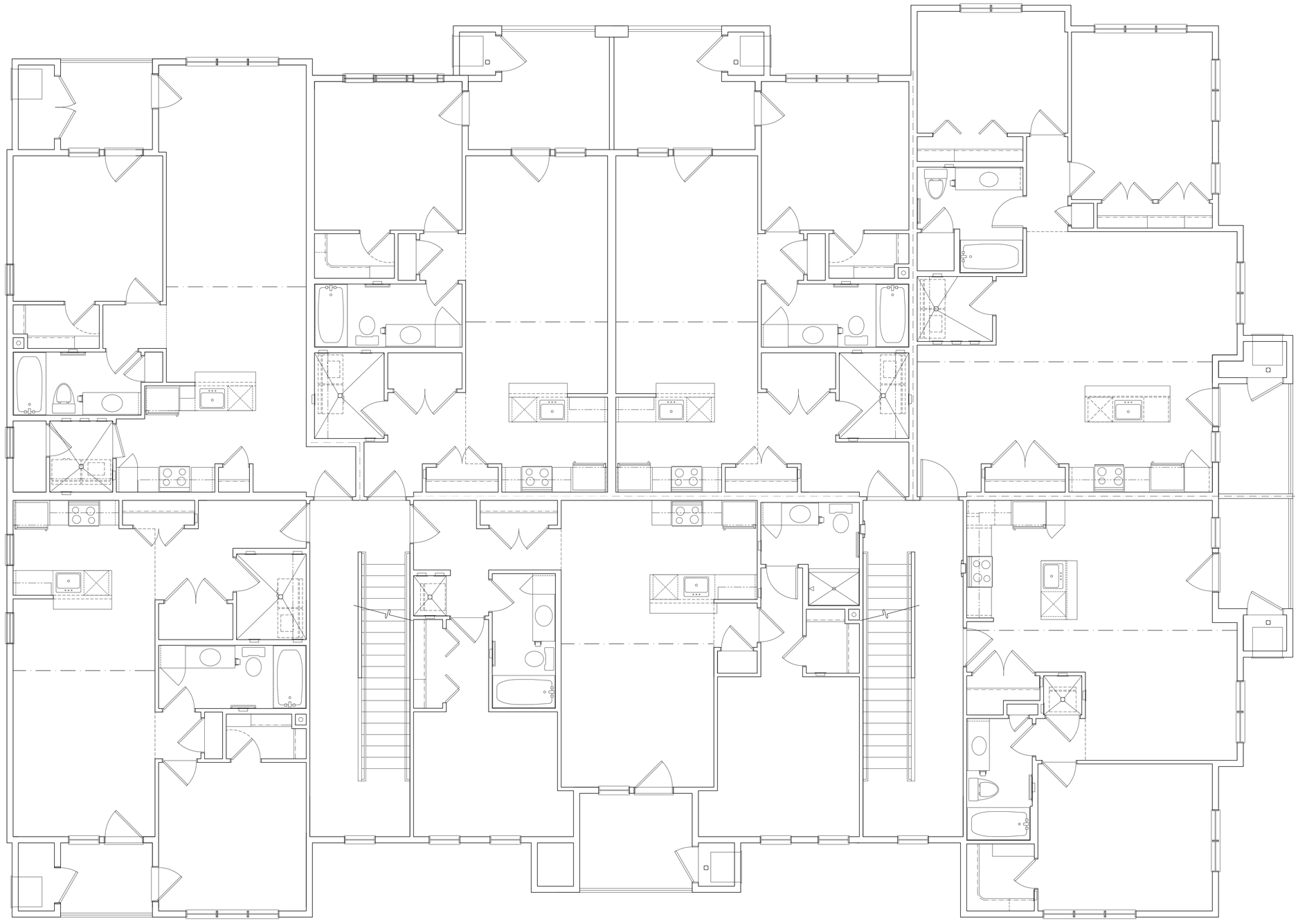
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

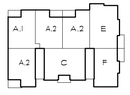
PARTIAL SECOND FLOOR PLAN: RIGHT HALF - BUILDING TYPE 'A'

BUILDINGS #3, #5, #6

SCALE: 1/4" = 1'-0"

S:\CURRENT\1clients\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:16:58 AM





KEY PLAN - 2ND & 3RD FLOOR NO SCALE

BUILDING TYPE 'ER.5'

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE

2ND FLOOR PLAN

BUILDING TYPE 'E.5R' - RIGHT

CLIENT/PROJECT

S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE

ORION TWP, MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

SHEET NUMBER

UP13

COPYRIGHT 2021
ALEXANDER V. BOGAERTS +
ASSOCIATES, P.C.

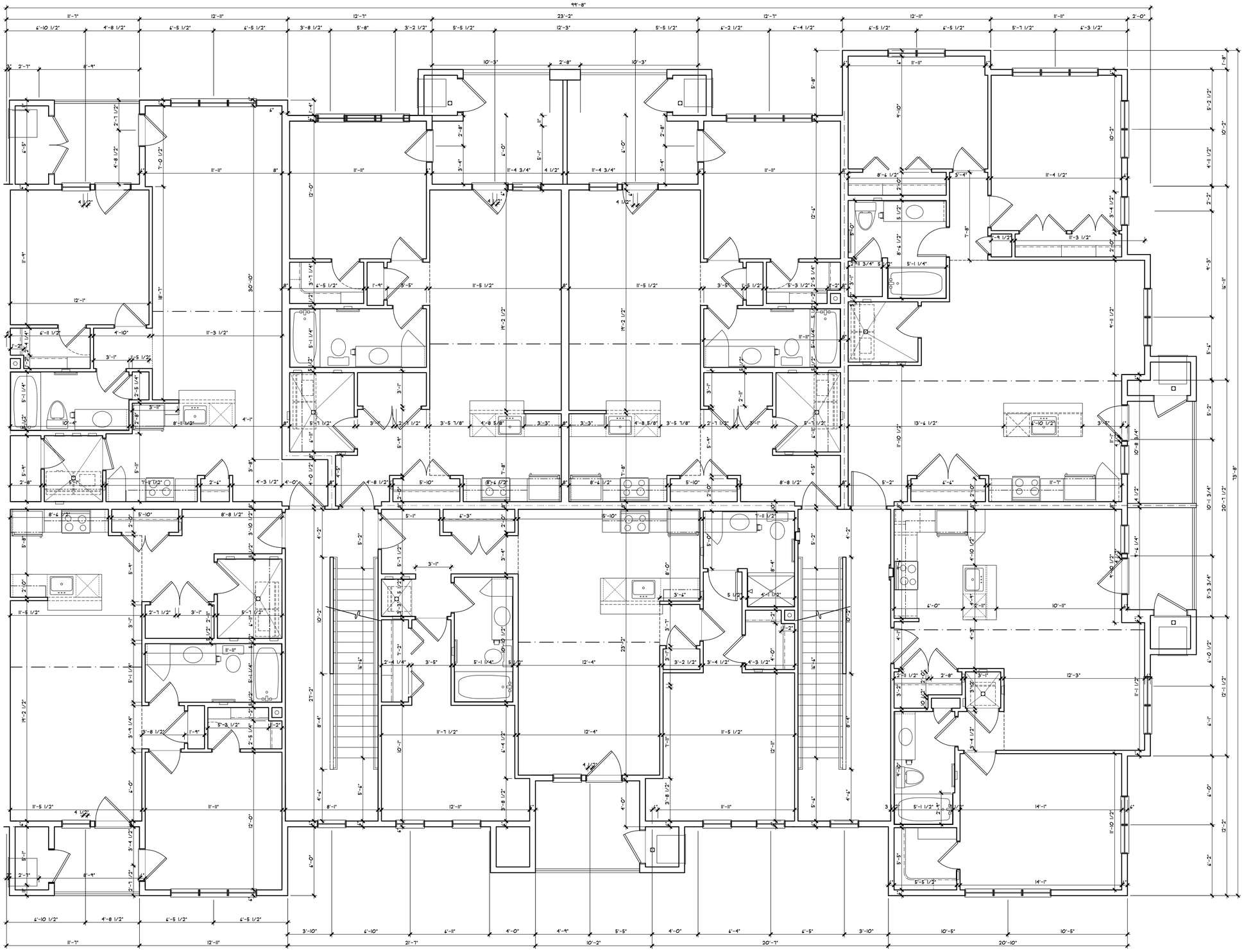
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

2ND FLOOR PLAN: RIGHT - BUILDING TYPE 'ER.5'

BUILDINGS #7, #9

SCALE: 1/4" = 1'-0"

S:\CURRENT\1clients\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:16:59 AM



KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE

PARTIAL SECOND FLOOR PLAN

BUILDING TYPE 'E' - RIGHT HALF

CLIENT/PROJECT

S.R. JACOBSON DEVELOPMENT CORP.
SILVERTAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

SHEET NUMBER

UP14

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

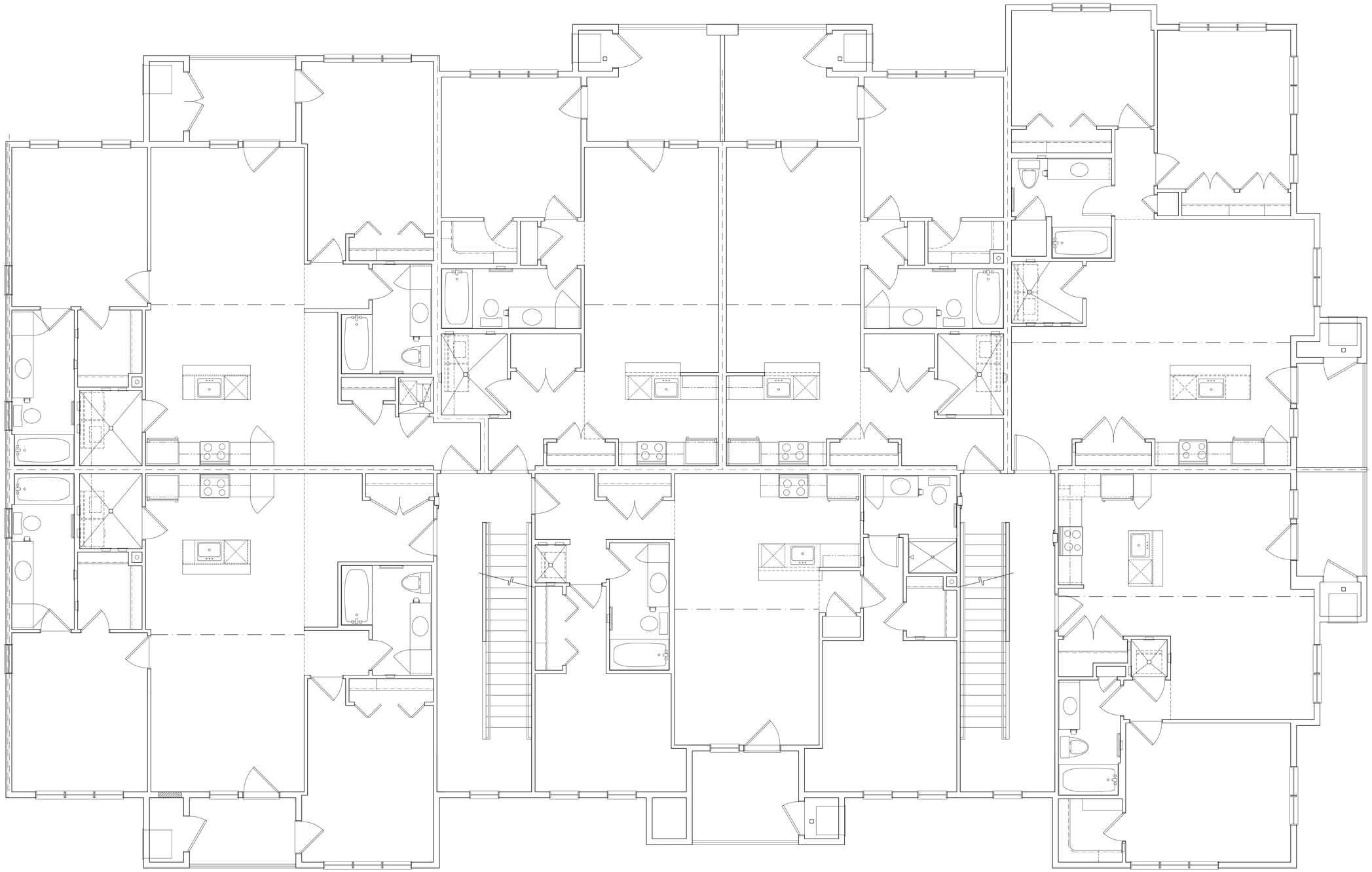
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

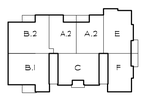
PARTIAL SECOND FLOOR PLAN: RIGHT HALF - BUILDING TYPE 'E'

BUILDINGS #1, #2, #4, #7, #8, #9, #10

SCALE: 1/4" = 1'-0"

S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:17:00 AM





KEY PLAN - 2ND & 3RD FLOOR NO SCALE
BUILDING TYPE 'AR.5'

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE
SECOND FLOOR PLAN
BUILDING TYPE 'AR.5' - RIGHT

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP15

COPYRIGHT 2021
ALEXANDER V. BOGAERTS +
ASSOCIATES, P.C.

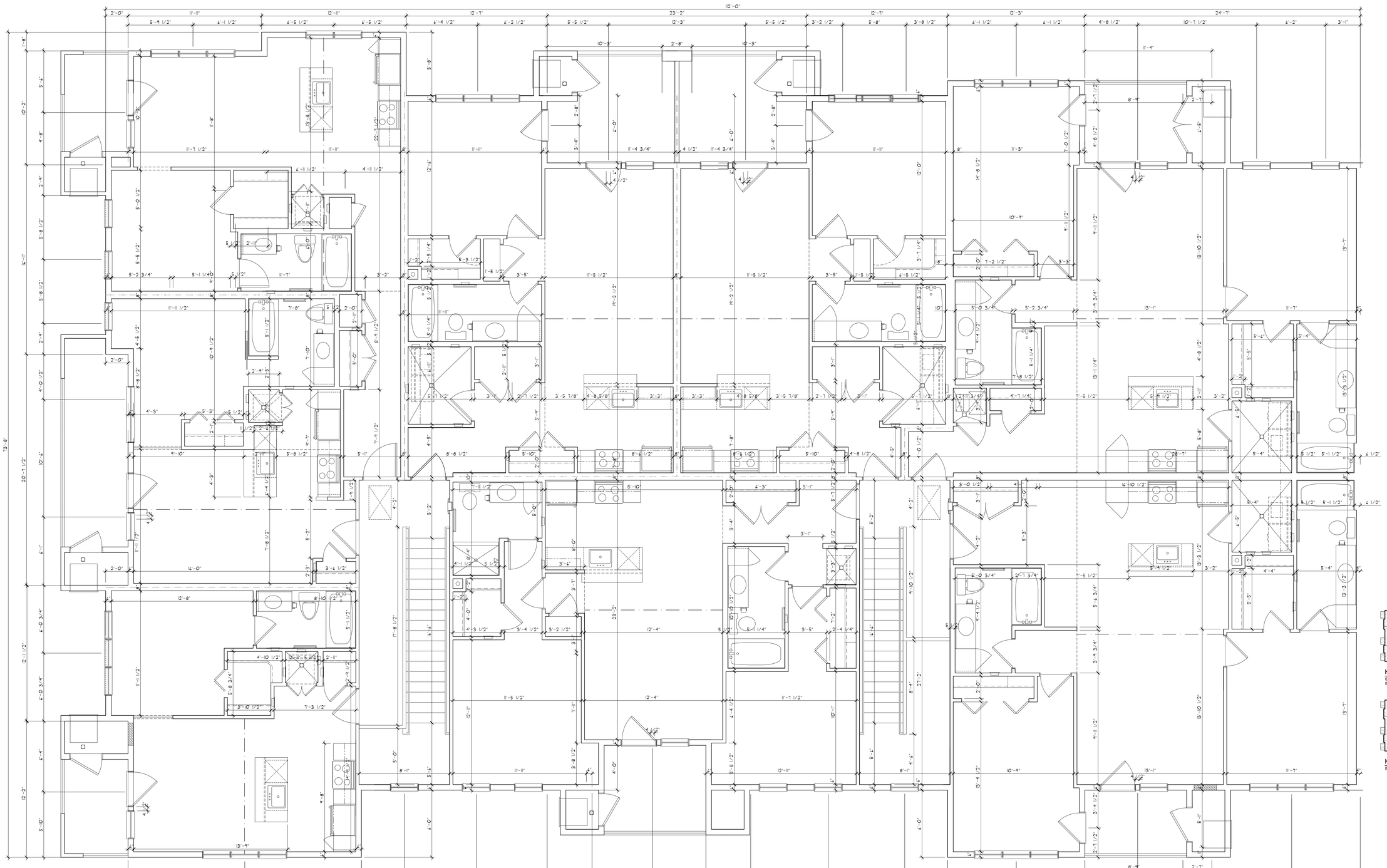
NOT VALID UNLESS SIGNED
AND SEALED IN BLUE INK

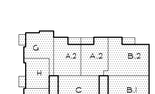
2ND FLOOR PLAN: RIGHT - BUILDING TYPE 'AR.5'

BUILDINGS #7, #9

SCALE: 1/4" = 1'-0"

S:\CURRENT1\client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_BALD VILL_PLAN.dwg, 11/16/2022 8:17:00 AM





KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPE 'AL 5'
BUILDING TYPE 'EL 5'
HATCHED AREA SHOWN

KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL THIRD FLOOR PLAN
BUILDING TYPE 'A' & 'E'-LEFT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP16

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

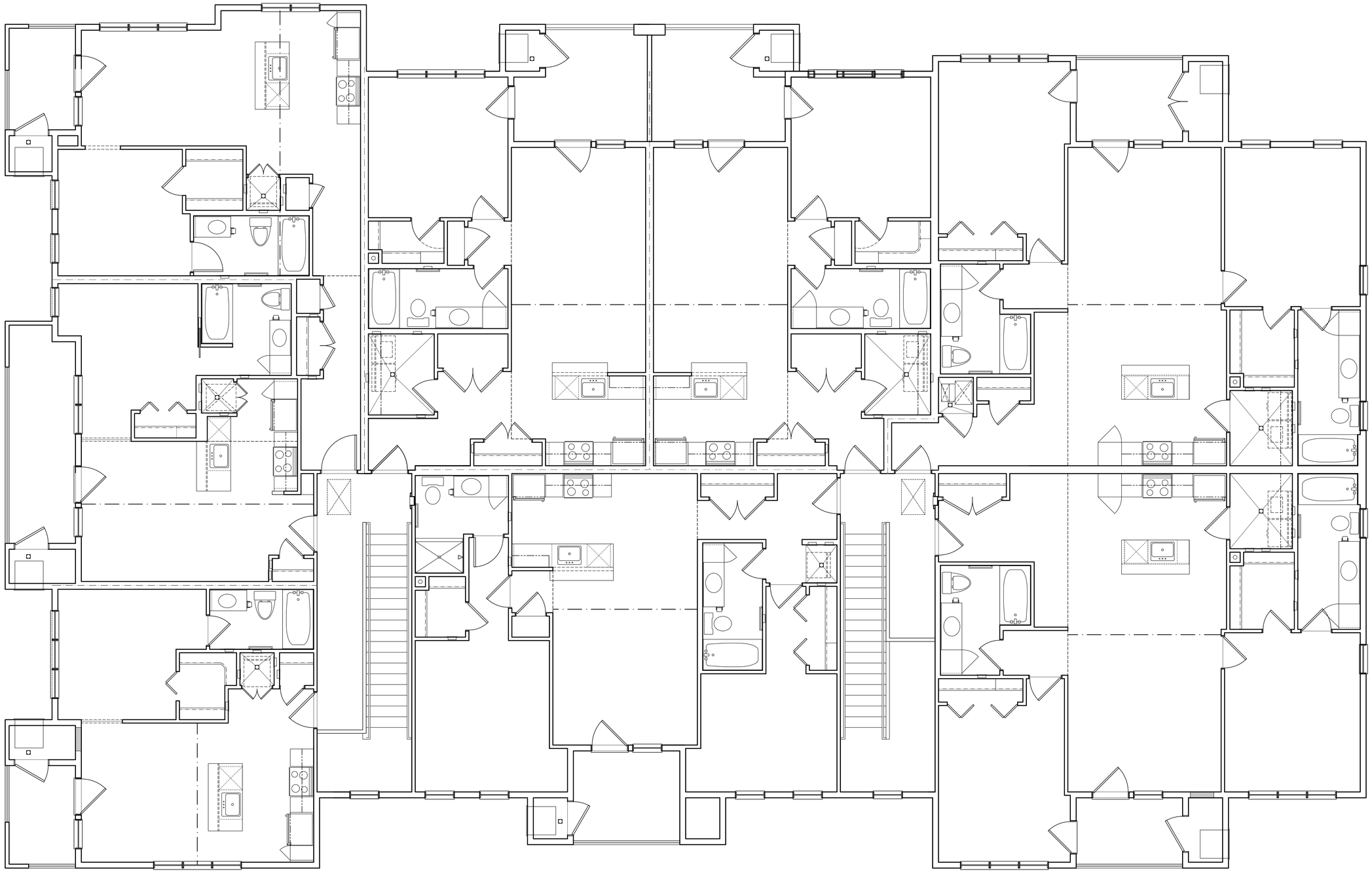
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

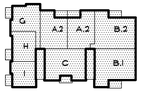
PARTIAL THIRD FLOOR PLAN: LEFT HALF - BUILDING TYPE 'A' & 'E'

BUILDINGS #2, #2, #4, #5, #6, #7, #8, #9, #10

SCALE: 1/4" = 1'-0"

S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:17:01 AM





KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPE 'AL.5' HATCHED AREA SHOWN
BUILDING TYPE 'EL.5'

458

THIRD FLOOR PLAN: BUILDING TYPE 'AL.5' & 'EL.5'

BUILDINGS #

SCALE: 1/4" = 1'-0"

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
THIRD FLOOR PLAN
BUILDING TYPE 'AL.5' & EL.5

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

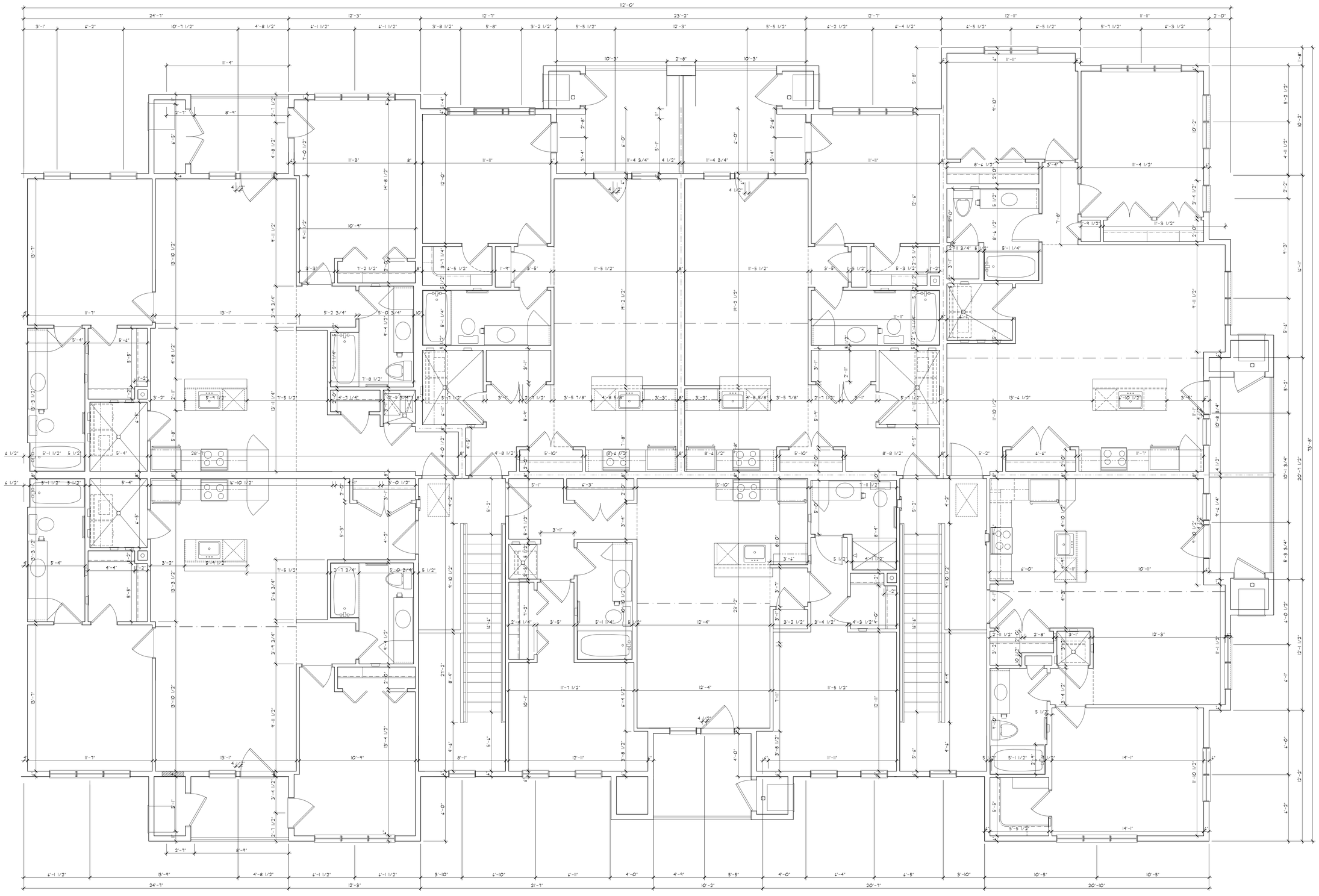
BALDWIN VILLAGE
ORION TWP, MICHIGAN

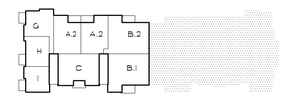
REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP17

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

S:\CURRENT\1client\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\02_ BALD VILL_ PLAN.dwg, 11/16/2022 8:17:02 AM





KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPE 'AL 5' HATCHED AREA SHOWN
BUILDING TYPE 'EL 5'

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE
PARTIAL THIRD FLOOR PLAN
BUILDING TYPE 'A' - RIGHT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP18

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

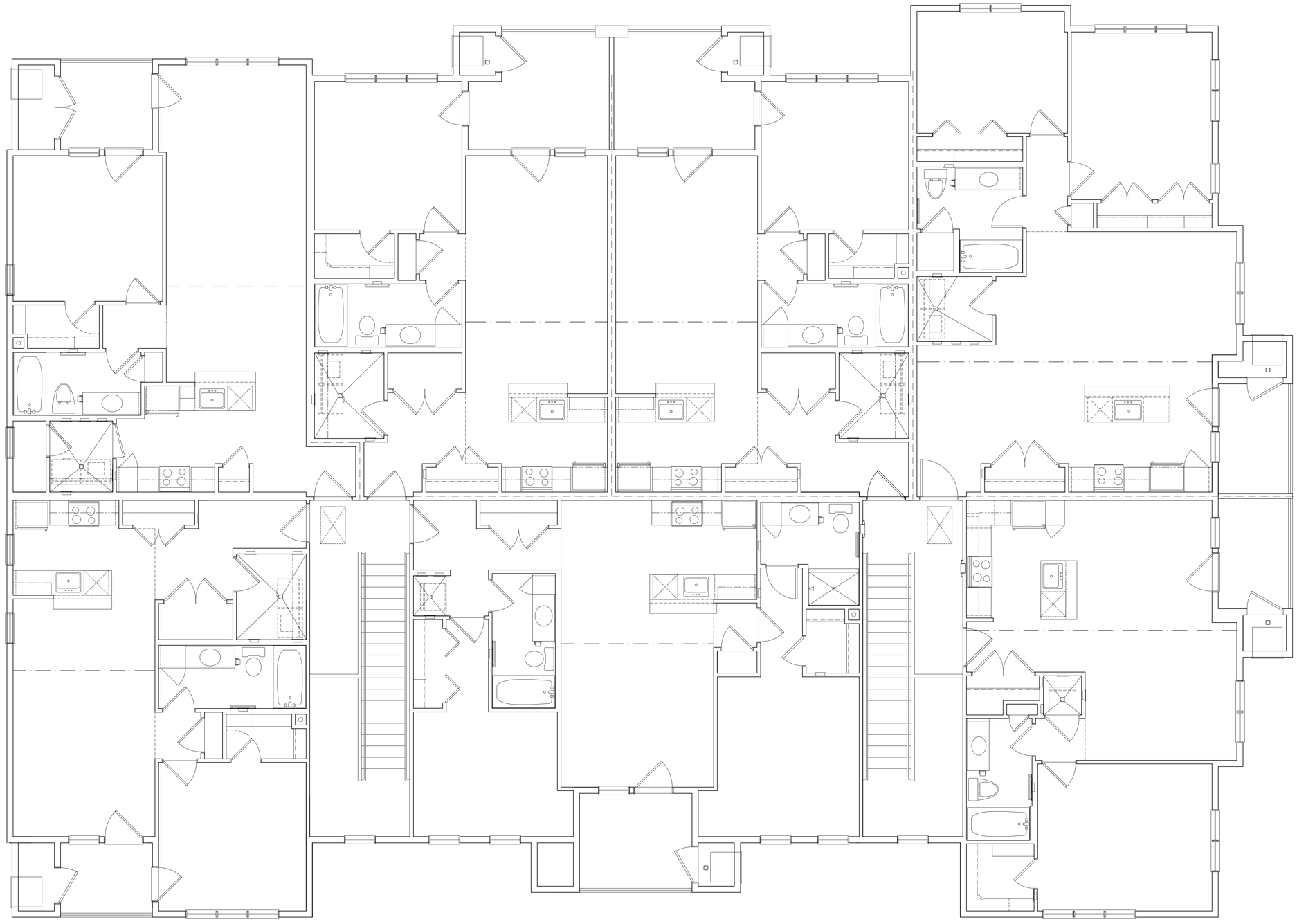
PARTIAL THIRD FLOOR PLAN: RIGHT HALF - BUILDING TYPE 'A'

BUILDINGS #3, #5, #6

SCALE: 1/4" = 1'-0"

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_BALD VILL_PLAN.dwg, 11/16/2022 8:17:03 AM



460

KEY PLAN - 2ND & 3RD FLOOR NO SCALE

BUILDING TYPE 'ER.5'

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE

3RD FLOOR PLAN

BUILDING TYPE 'E.5R' - RIGHT

CLIENT/PROJECT

S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE

ORION TWP, MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

SHEET NUMBER

UP19

COPYRIGHT 2021
ALEXANDER V. BOGAERTS +
ASSOCIATES, P.C.

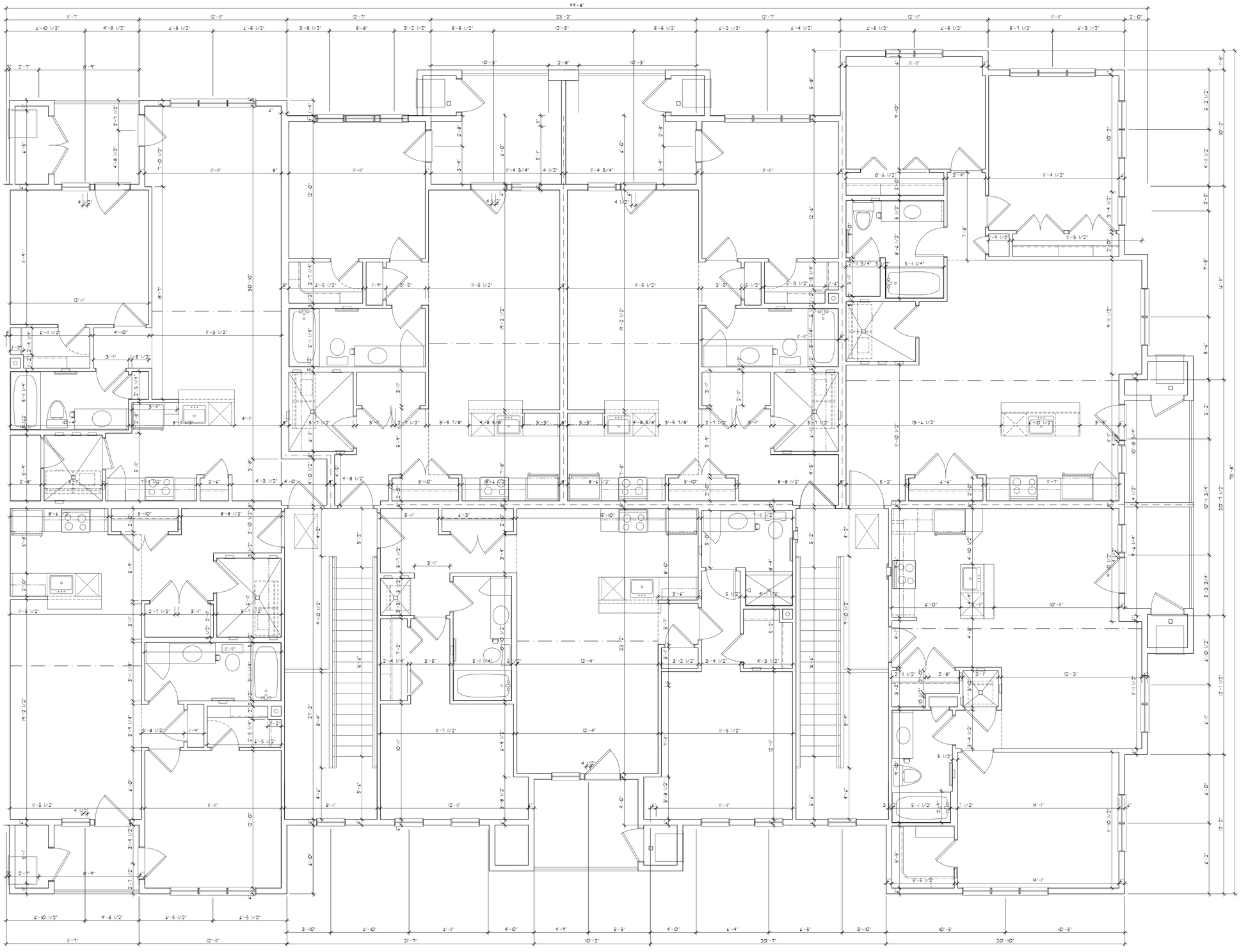
NOT VALID UNLESS SIGNED
AND SEALED IN BLUE INK

3RD FLOOR PLAN: RIGHT - BUILDING TYPE 'ER.5'

BUILDINGS

SCALE: 1/4" = 1'-0"

S:\CURRENT\1client\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:17:03 AM



KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE

PARTIAL THIRD FLOOR PLAN

BUILDING TYPE 'E' & E.1' - RIGHT HALF

CLIENT/PROJECT

S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE

ORION TWP, MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

SHEET NUMBER

UP20

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

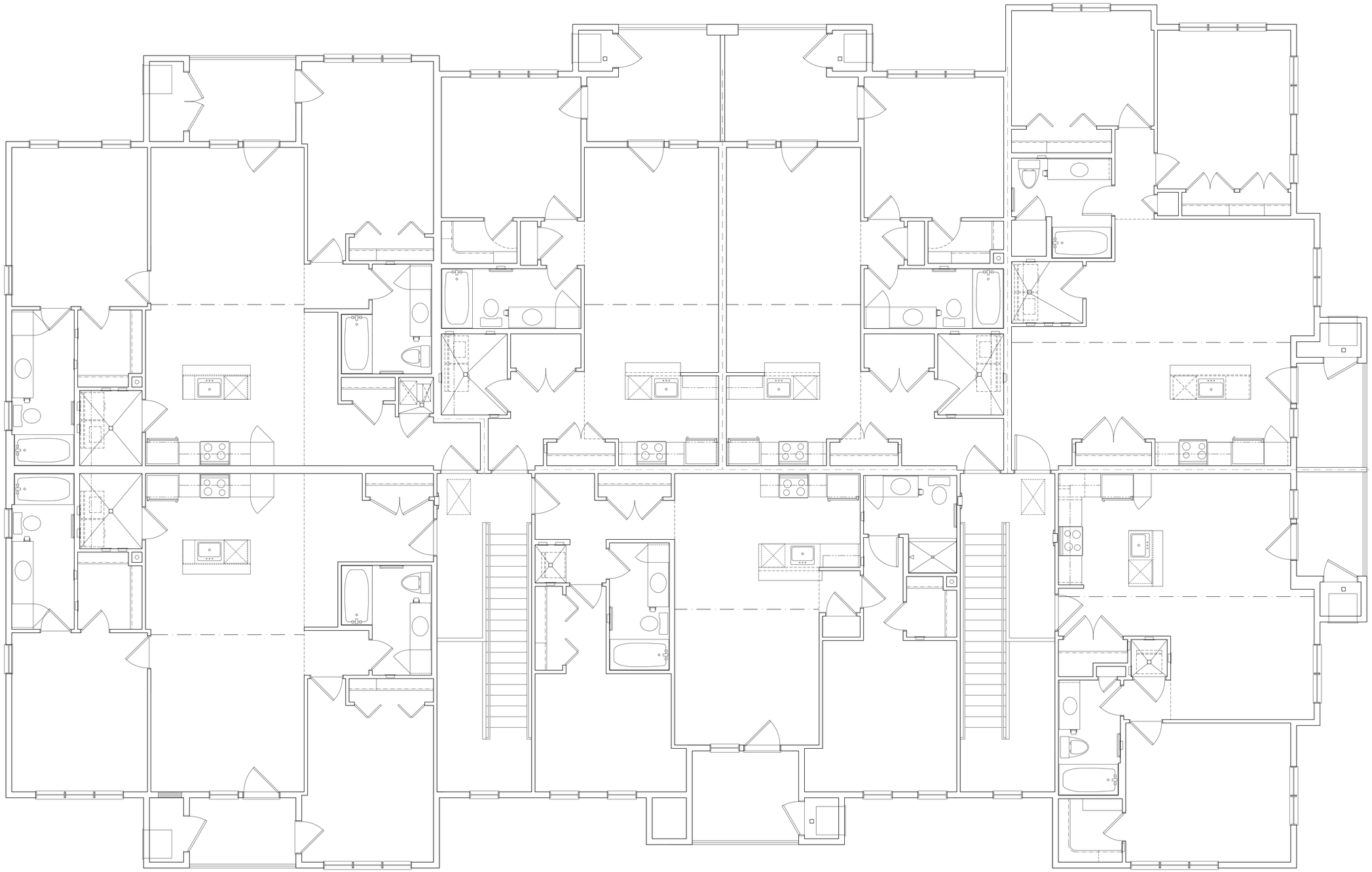
NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

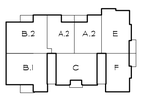
PARTIAL THIRD FLOOR PLAN: RIGHT HALF - BUILDING TYPES 'E'

BUILDINGS #1, #2, #4, #7, #8, #9, #10

SCALE: 1/4" = 1'-0"

S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_ BALD VILL_ PLAN.dwg, 11/16/2022 8:17:04 AM





KEY PLAN - 2ND & 3RD FLOOR NO SCALE
BUILDING TYPE 'AR.5'

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE
3RD FLOOR PLAN
BUILDING TYPE 'AR.5' - RIGHT

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP21

COPYRIGHT 2021
ALEXANDER V. BOGAERTS +
ASSOCIATES, P.C.

NOT VALID UNLESS SIGNED
AND SEALED IN BLUE INK

3RD FLOOR PLAN: RIGHT - BUILDING TYPE 'AR.5'

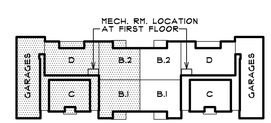
BUILDINGS #

SCALE: 1/4" = 1'-0"

S:\CURRENT1\client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\03_BALD VILL_PLAN.dwg, 11/16/2022 8:17:05 AM

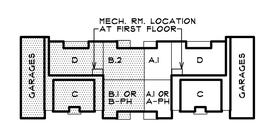
11A01 **PARTIAL FRONT ELEVATION: LEFT HALF - BUILDING TYPE 'A' & 'E'**

SCALE: 1/4" = 1'-0"

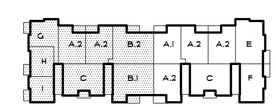


KEY PLAN - FIRST FLOOR NO SCALE
BUILDING TYPE 'A' HATCHED AREA SHOWN

KEY PLAN - SECOND & THIRD FLOOR NO SCALE
BUILDING TYPE 'A' HATCHED AREA SHOWN



KEY PLAN - FIRST FLOOR NO SCALE
BUILDING TYPE 'E' HATCHED AREA SHOWN



KEY PLAN - SECOND & THIRD FLOOR NO SCALE
BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL FRONT ELEVATION
BUILDING TYPES 'A' & 'E'
LEFT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP22

COPYRIGHT 2021
ALEXANDER V. BOGAERTS +
ASSOCIATES, P.C.

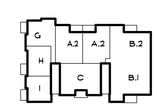
S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ ELEVATIONS.dwg, 11/16/2022 8:30:49 AM

11A01

FRONT ELEVATION: LEFT - BUILDING TYPE 'AL.5' & 'EL.5'

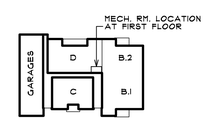
BUILDING AR.5 OPPOSITE

SCALE: 1/4" = 1'-0"



KEY PLAN - 2ND & 3RD FLOOR NO SCALE

BUILDING TYPE 'AL.5'
BUILDING TYPE 'EL.5'



KEY PLAN - FIRST FLOOR NO SCALE

BUILDING TYPE 'AL.5'
BUILDING TYPE 'EL.5'

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
FRONT ELEVATION
BUILDING TYPES 'AL.5' & 'EL.5'
LEFT

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP. MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP23

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

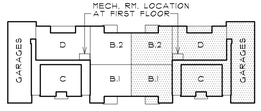
S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ ELEVATIONS.dwg, 11/16/2022 8:30:57 AM

11B02 **FRONT ELEVATION: BUILDING TYPE 'A'**

SCALE: 3/32" = 1'-0"

11B01 **PARTIAL FRONT ELEVATION: RIGHT HALF - BUILDING TYPE 'A'**

SCALE: 1/4" = 1'-0"



KEY PLAN - FIRST FLOOR NO SCALE

BUILDING TYPE 'A' HATCHED AREA SHOWN

KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPE 'A' HATCHED AREA SHOWN

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL FRONT ELEVATION
BUILDING TYPE 'A'
RIGHT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS
04-08-19

DRAWN BY

PERMITS

JOB NUMBER

DATE

SHEET NUMBER
UP24

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

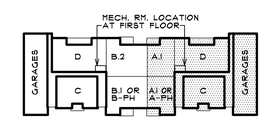
S:\CURRENT\1client\JACOBSON,SR\MUL\TIF-AM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ ELEVATIONS.dwg, 11/16/2022 8:31:07 AM

11C02 **FRONT ELEVATION: BUILDING TYPE 'E'**

SCALE: 3/32" = 1'-0"

11C01 **PARTIAL FRONT ELEVATION: RIGHT HALF - BUILDING TYPE 'E'**

SCALE: 1/4" = 1'-0"



KEY PLAN - FIRST FLOOR NO SCALE

BUILDING TYPE 'E' HATCHED AREA SHOWN

KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Boggaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL FRONT ELEVATION
BUILDING TYPES 'E'
RIGHT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP25

COPYRIGHT 2021
ALEXANDER V. BOGGAERTS + ASSOCIATES, P.C.

S:\CURRENT\1client\JACOBSON,SR\MUL TIF-AM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ ELEVATIONS.dwg, 11/16/2022 8:31:19 AM

11C01 **FRONT ELEVATION: RIGHT - BUILDING TYPE 'ER.5'**

KEY PLAN - FIRST FLOOR NO SCALE
BUILDING TYPE 'ER.5'

KEY PLAN - 2ND & 3RD FLOOR NO SCALE
BUILDING TYPE 'ER.5'

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
FRONT ELEVATION
BUILDING TYPE 'ER.5

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP26

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

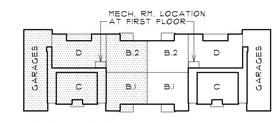
S:\CURRENT\1client\JACOBSON,SR\MUL TIF-AM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ ELEVATIONS.dwg, 11/16/2022 8:31:31 AM

12A02 **REAR ELEVATION: BUILDING TYPE 'A'**

SCALE: 3/32" = 1'-0"

12A01 **PARTIAL REAR ELEVATION: LEFT HALF - BUILDING TYPE 'A'**

SCALE: 1/4" = 1'-0"



KEY PLAN - FIRST FLOOR NO SCALE

BUILDING TYPE 'A' HATCHED AREA SHOWN

KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPE 'A' HATCHED AREA SHOWN

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE
PARTIAL REAR ELEVATION
BUILDING TYPE 'A'
LEFT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP. MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

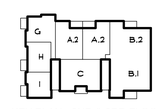
SHEET NUMBER
UP27

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

S:\CURRENT\1clients\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL__ELEVATIONS.dwg, 11/16/2022 8:31:39 AM

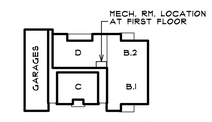
12A01 **REAR ELEVATION: BUILDING TYPE 'AL.5' & EL.5**

SCALE: 1/4" = 1'-0"



KEY PLAN - 2ND & 3RD FLOOR NO SCALE

BUILDING TYPE 'AL.5'
BUILDING TYPE 'EL.5'



KEY PLAN - FIRST FLOOR NO SCALE

BUILDING TYPE 'AL.5'
BUILDING TYPE 'EL.5'

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE
PARTIAL REAR ELEVATION
BUILDING TYPE 'A'
LEFT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP. MICHIGAN

REVISIONS

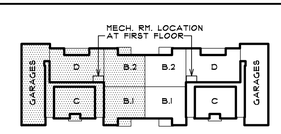
DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP28

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES P.C.

S:\CURRENT\1client\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ELEVATIONS.dwg, 11/16/2022 8:31:48 AM

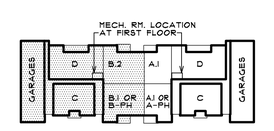
12B01 **PARTIAL REAR ELEVATION: RIGHT HALF - BUILDING TYPES 'A' & 'E'**

SCALE: 1/4" = 1'-0"

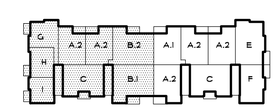


KEY PLAN - FIRST FLOOR NO SCALE
BUILDING TYPE 'A' HATCHED AREA SHOWN

KEY PLAN - SECOND & THIRD FLOOR NO SCALE
BUILDING TYPE 'A' HATCHED AREA SHOWN



KEY PLAN - FIRST FLOOR NO SCALE
BUILDING TYPE 'E' HATCHED AREA SHOWN



KEY PLAN - SECOND & THIRD FLOOR NO SCALE
BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
PARTIAL REAR ELEVATION
BUILDING TYPES 'A' & 'E'
RIGHT HALF

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP29

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

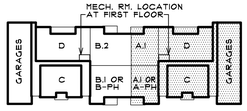
S:\CURRENT1\clients\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_BALD VILL_ELEVATIONS.dwg, 11/16/2022 8:31:55 AM

12C02 **REAR ELEVATION: BUILDING TYPE 'E'**

SCALE: 3/32" = 1'-0"

12C01 **PARTIAL REAR ELEVATION: LEFT HALF - BUILDING TYPE 'E'**

SCALE: 1/4" = 1'-0"



KEY PLAN - FIRST FLOOR NO SCALE

BUILDING TYPE 'E' HATCHED AREA SHOWN

KEY PLAN - SECOND & THIRD FLOOR NO SCALE

BUILDING TYPES 'E' & 'E.1' HATCHED AREA SHOWN

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Boggaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE

PARTIAL REAR ELEVATION

BUILDING TYPE 'E' LEFT HALF

CLIENT/PROJECT

S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA

BALDWIN VILLAGE
ORION TWP., MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

SHEET NUMBER

UP30

COPYRIGHT 2021
ALEXANDER V. BOGGAERTS + ASSOCIATES, P.C.

S:\CURRENT\client\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ ELEVATIONS.dwg, 11/16/2022 8:32:04 AM

12C01 **REAR ELEVATION: LEFT - BUILDING TYPE 'ER.5'**

SCALE: 1/4" = 1'-0"

KEY PLAN - FIRST FLOOR NO SCALE
BUILDING TYPE 'ER.5'

KEY PLAN - 2ND & 3RD FLOOR NO SCALE
BUILDING TYPE 'ER.5'

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
REAR ELEVATION
BUILDING TYPE 'ER.5'

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP31

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

S:\CURRENT\1client\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_BALD VILL_ELEVATIONS.dwg, 11/16/2022 8:32:14 AM

13A01

LEFT SIDE ELEVATION - BUILDING TYPES 'A' , 'E' & 'EL.5'

BUILDINGS #

SCALE: 1/4" = 1'-0"

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
LEFT SIDE ELEVATION
BUILDING TYPES 'A' & 'E'

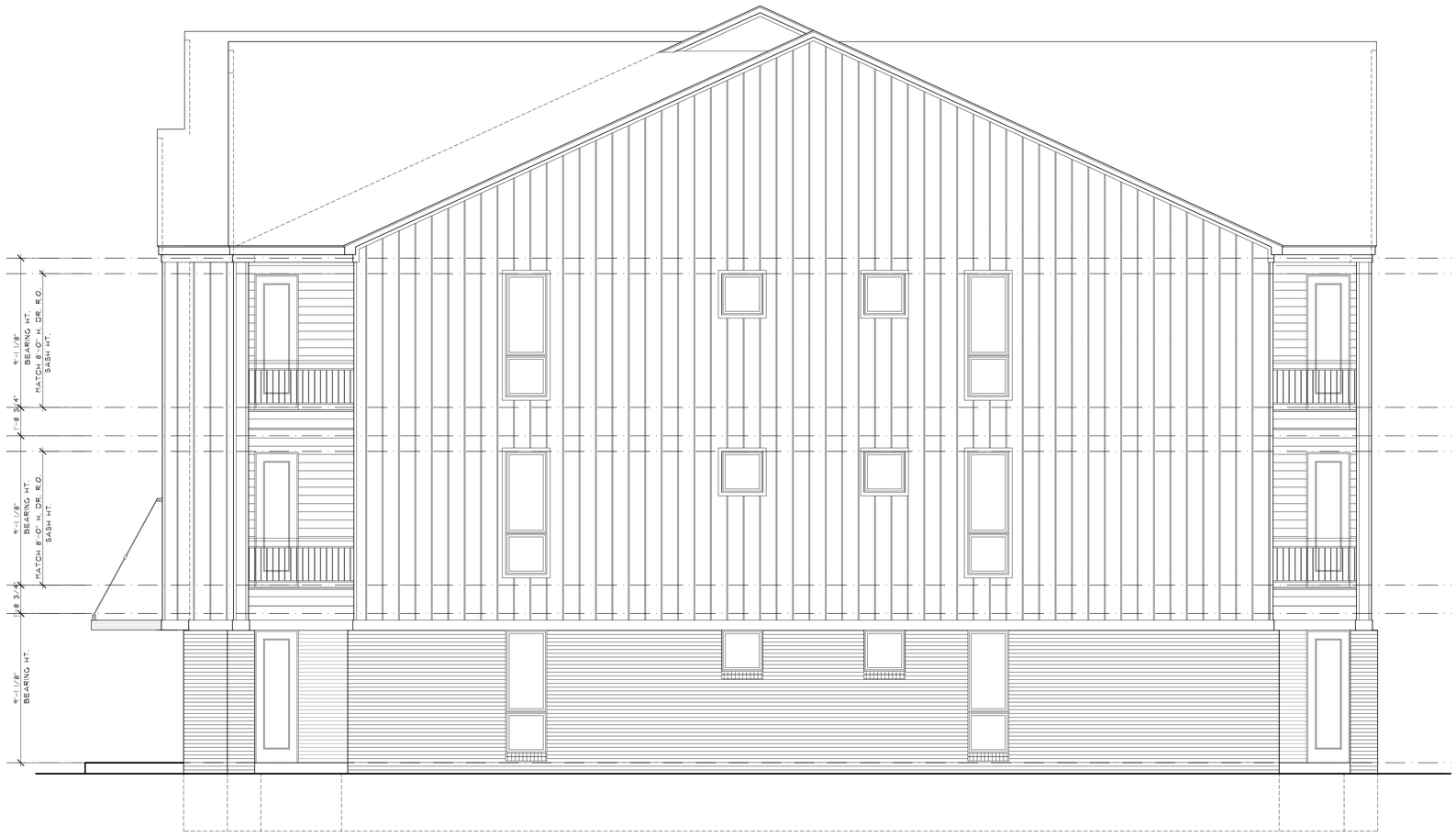
CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP32

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

S:\CURRENT\1client\JACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ ELEVATIONS.dwg, 11/16/2022 8:32:22 AM



13A01

LEFT SIDE ELEVATION - BUILDING TYPE 'ER.5'

BUILDINGS #

SCALE: 1/4" = 1'-0"

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248•334•5000

SHEET TITLE
LEFT SIDE ELEVATION
BUILDING TYPE 'ER.5'

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP33

COPYRIGHT 2021
ALEXANDER V. BOGAERTS +
ASSOCIATES, P.C.

NOT VALID UNLESS SIGNED
AND SEALED IN BLUE INK

S:\CURRENT\1clients\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_BALD VILL_ELEVATIONS.dwg, 11/16/2022 8:32:30 AM

13B01

RIGHT SIDE ELEVATION - UNITS E & F
BUILDINGS 'A', 'E', & 'ER.5'

SCALE: 1/4" = 1'-0"

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
RIGHT SIDE ELEVATION
BUILDING TYPES 'A', 'E' & 'E.5'

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP. MICHIGAN

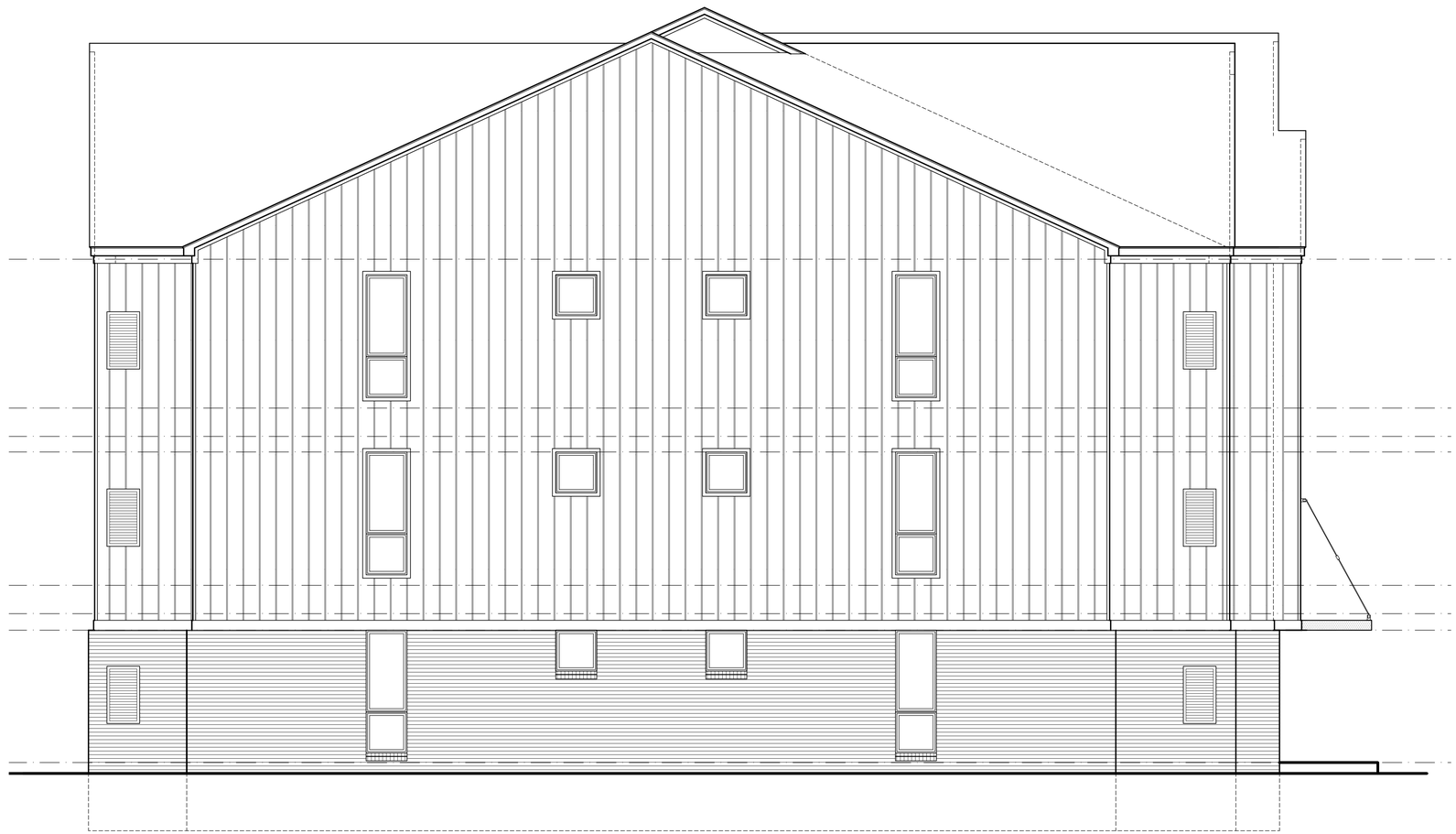
REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP34

COPYRIGHT 2021
ALEXANDER V. BOGAERTS +
ASSOCIATES, P.C.

NOT VALID UNLESS SIGNED
AND SEALED IN BLUE INK

S:\CURRENT\1clientJACOBSON.SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ELEVATIONS.dwg, 11/16/2022 8:32:38 AM



13B01

RIGHT SIDE ELEVATION - BUILDINGS 'AL.5' & 'EL.5'

BUILDINGS #

SCALE: 1/4" = 1'-0"

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE
RIGHT SIDE ELEVATION
BUILDING TYPES 'AL.5' & 'EL.5'

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY

PERMITS

JOB NUMBER

DATE

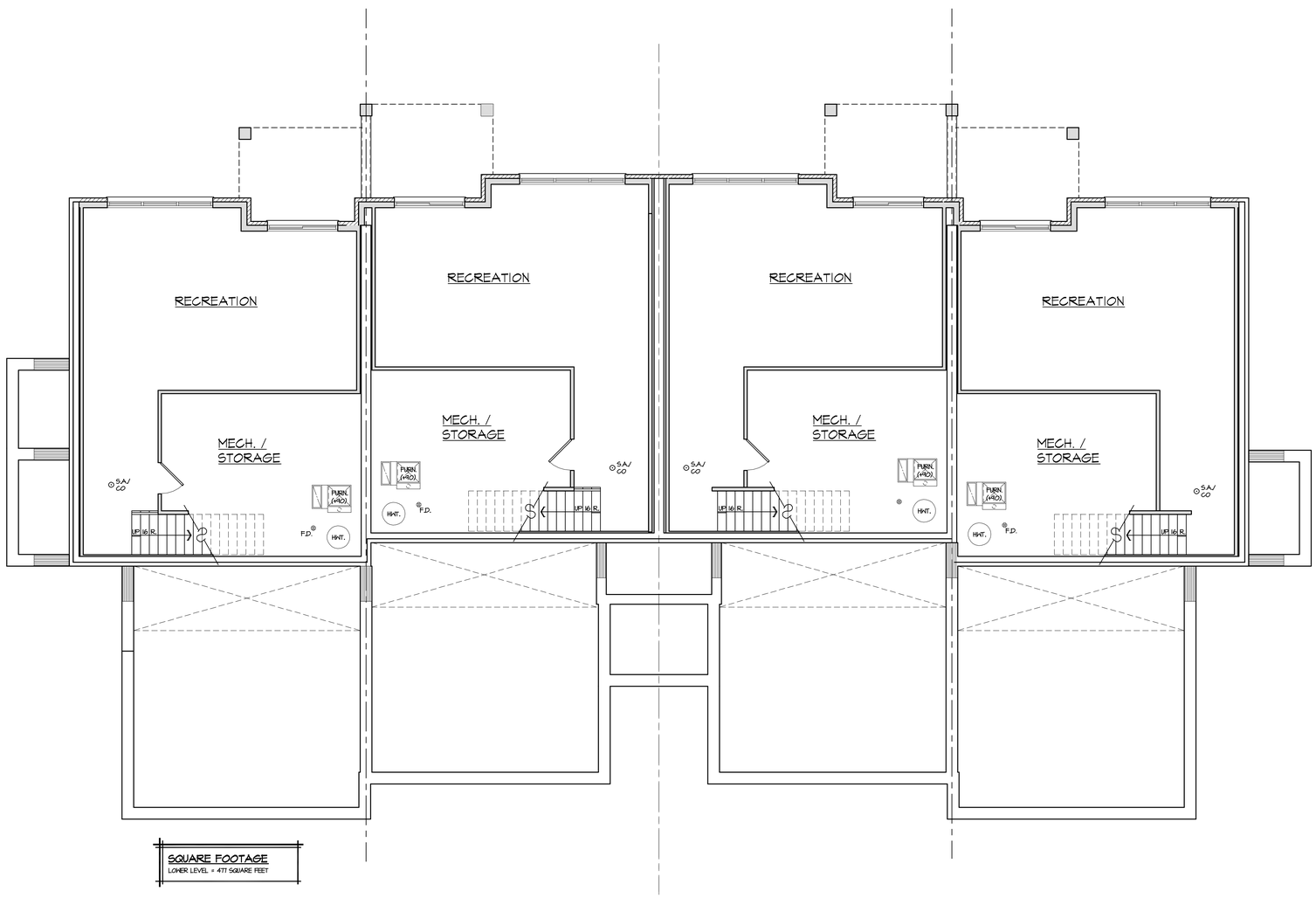
SHEET NUMBER
UP35

COPYRIGHT 2021
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

S:\CURRENT\1client\JACOBSON,SR\MULTIFAM\ORION BALDWIN VILLAGE - uptown half bldg\04 DRAWINGS\04_ BALD VILL_ ELEVATIONS.dwg, 11/16/2022 8:32:46 AM

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SQUARE FOOTAGE
LOWER LEVEL = 477 SQUARE FEET

LOWER LEVEL PLAN
SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-2
4-PLEX 2-CAR FRONT ENTRY

Review Set: 11/14/22
Permit:
Final Set:
Revisions:

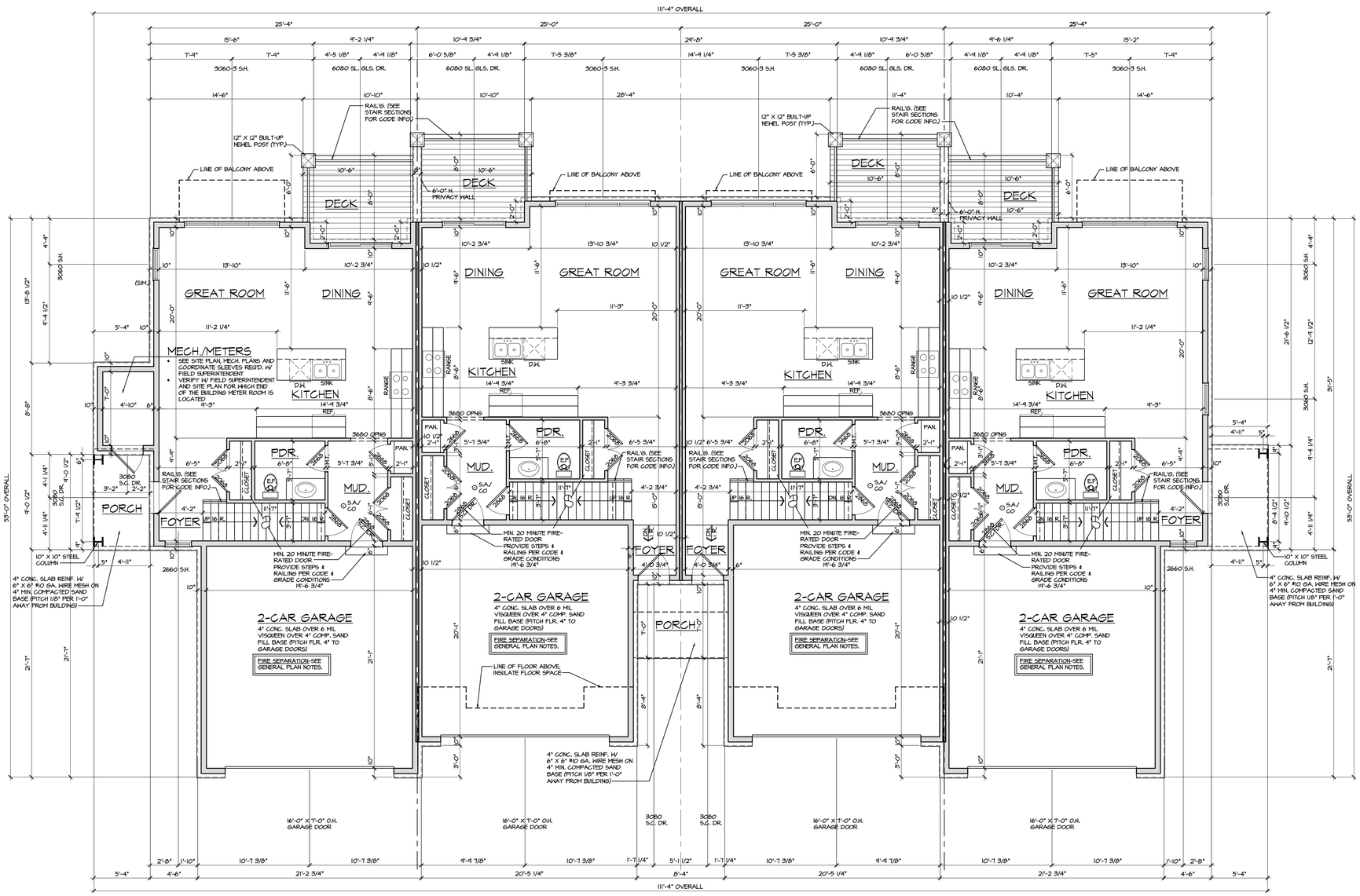
Drwn: B.H.
Chkd:

Job No. 22178

Sheet No. NV1

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SQUARE FOOTAGE
1ST FLOOR = 1710 SQUARE FEET
2ND FLOOR = 1156 SQUARE FEET
TOTAL = 1426 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 1185 SQUARE FEET
2ND FLOOR = 1076 SQUARE FEET
TOTAL = 1861 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 1185 SQUARE FEET
2ND FLOOR = 1076 SQUARE FEET
TOTAL = 1861 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = [redacted] SQUARE FEET
2ND FLOOR = [redacted] SQUARE FEET
TOTAL = 1426 SQUARE FEET

FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-2
4-PLEX 2-CAR FRONT ENTRY

Review Set: 11/14/22
Permit:
Final Set:
Revisions:

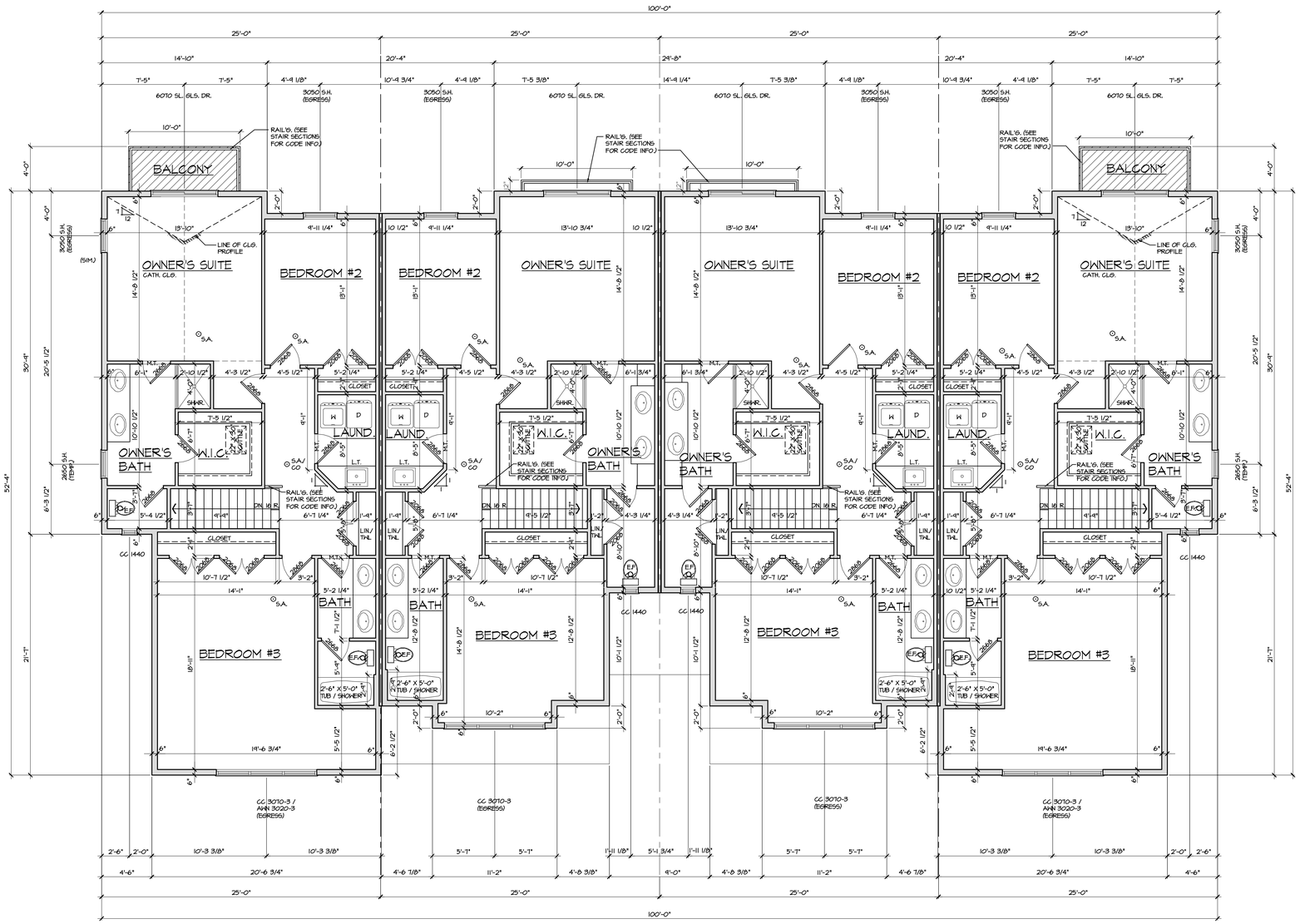
Drwn: B.H.
Chkd:

Job No. 22178

Sheet No. NV2

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-2
4-PLEX 2-CAR FRONT ENTRY

Review Set: 11/14/22
Permit:
Final Set:
Revisions:

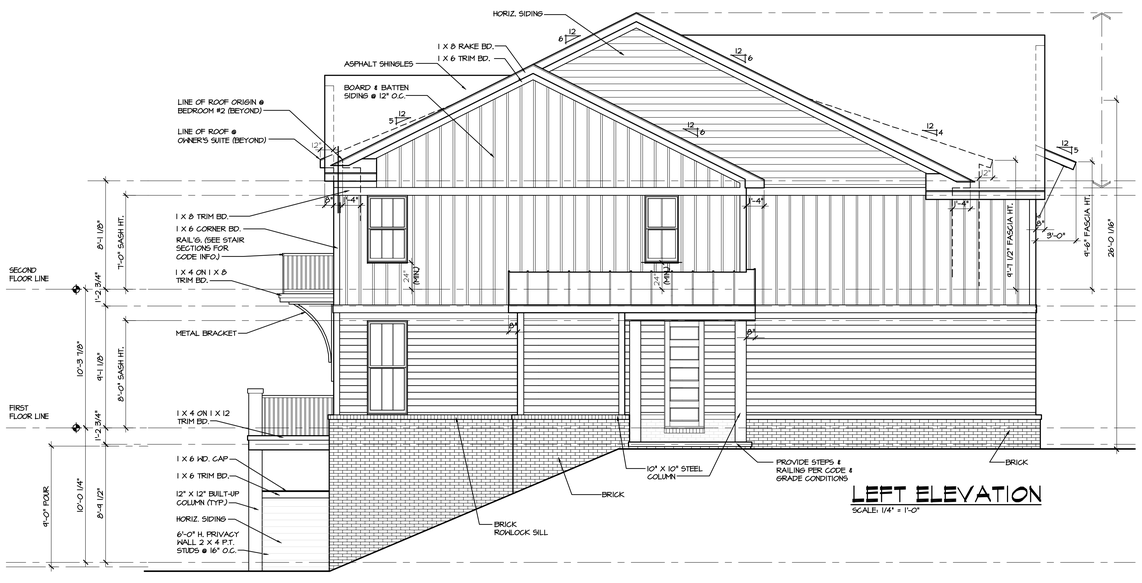
Drwn: B.H.
Chkd:
Job No. 22178
Sheet No. NV3

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

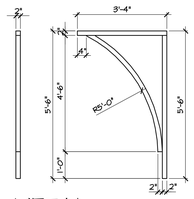
FRONT ELEVATION

SCALE: 1/4" = 1'-0"



LEFT ELEVATION

SCALE: 1/4" = 1'-0"



METAL BRACKET DETAIL

SCALE: 1/2" = 1'-0"

7/6.1

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-2
4-PLEX 2-CAR FRONT ENTRY

Review Set: 11/14/22
Permit:
Final Set:
Revisions:

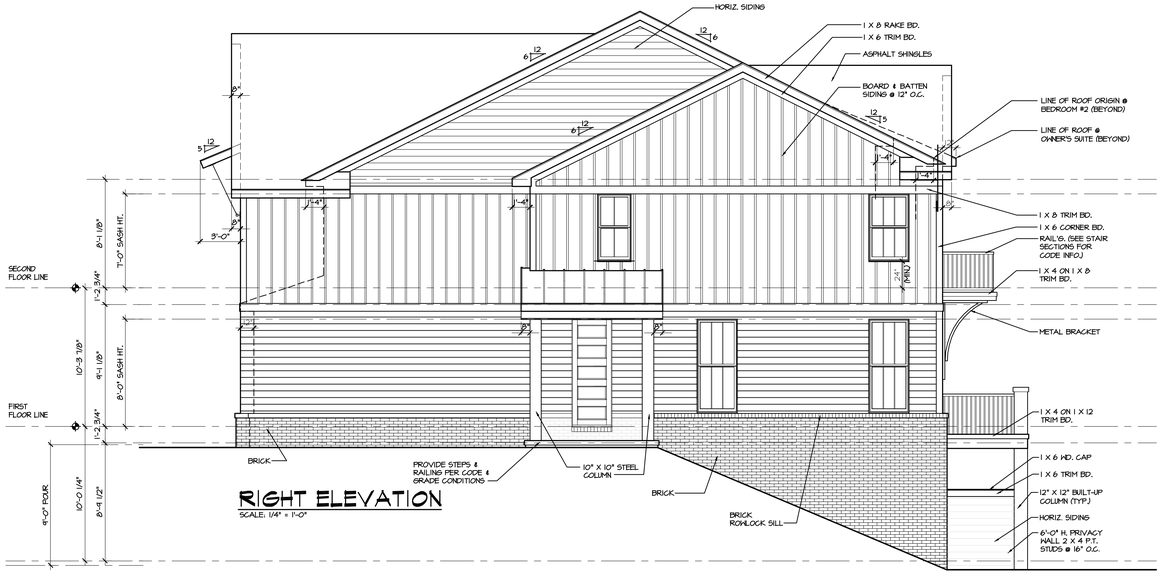
Drwn: B.J.L.
Chkd:

Job No. 22178

Sheet No. NV4

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

REAR ELEVATION

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

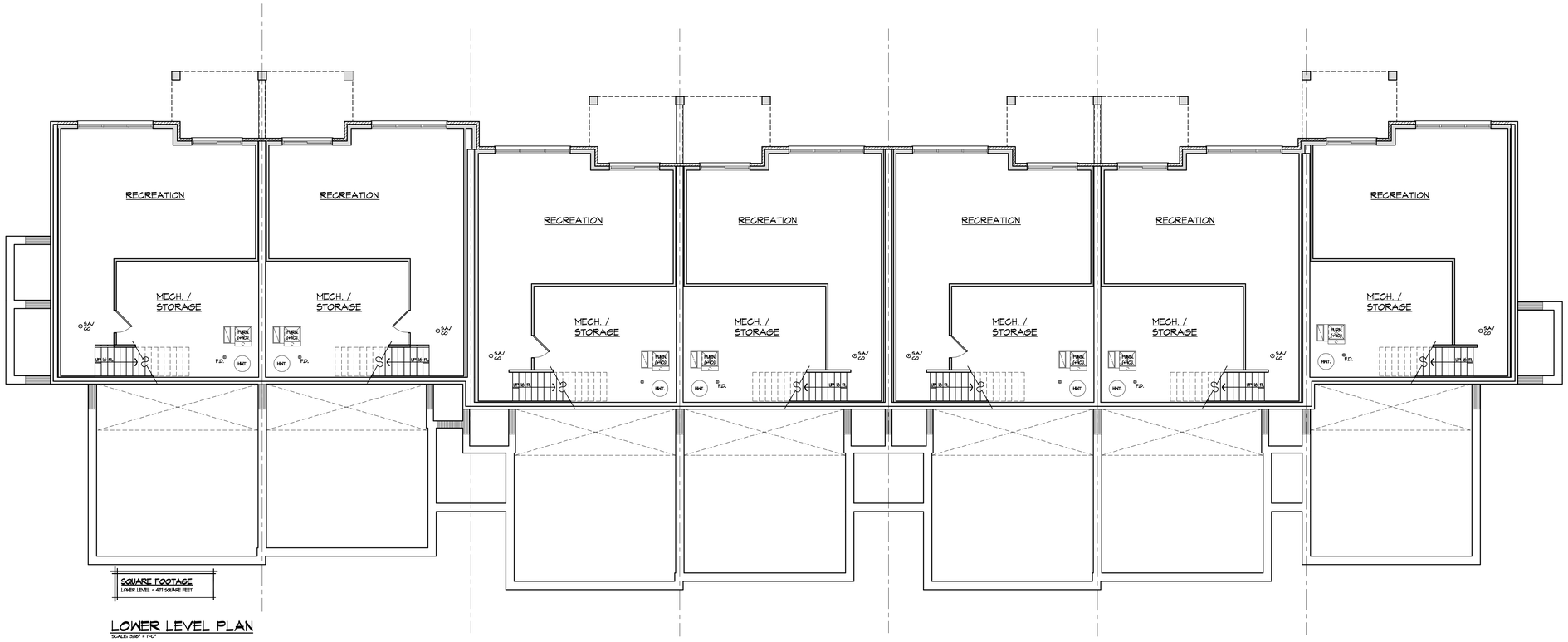
MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-2
4-PLEX 2-CAR FRONT ENTRY

Review Set: 11/14/22
Permit:
Final Set:
Revisions:

Drwn: B.J.H.
Chkd:
Job No. 22178
Sheet No. NV5

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SQUARE FOOTAGE
LOWER LEVEL = 4171 SQUARE FEET

LOWER LEVEL PLAN

SCALE: 3/16" = 1'-0"

MOCERI
STRUCTURE · INTEGRITY · TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-II
T-PLEX 2-CAR FRONT ENTRY

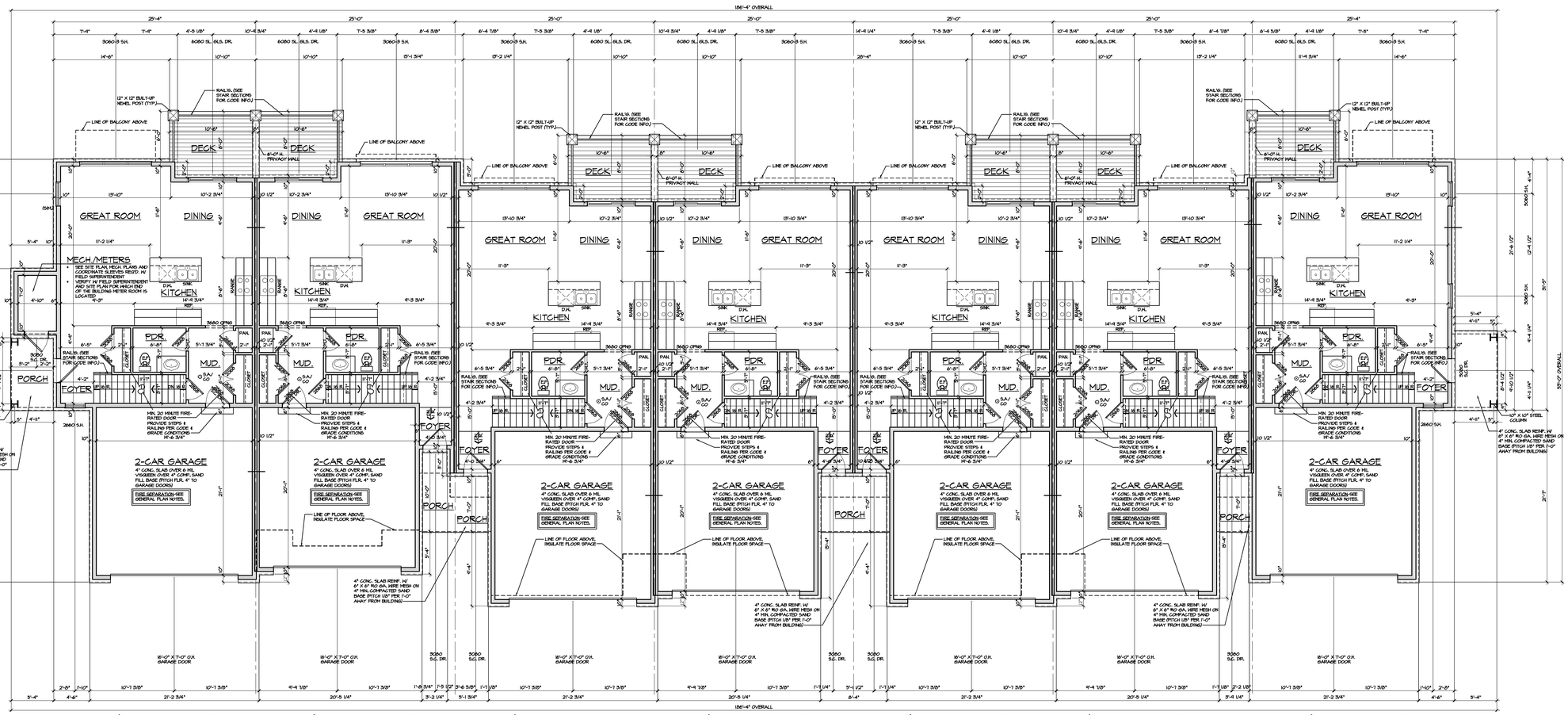
Review Set: 11/10/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22179

Sheet No. NV6

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FIRST FLOOR PLAN

SCALE: 3/16" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTarchitects.com

MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-II
T-PLEX 2-CAR FRONT ENTRY

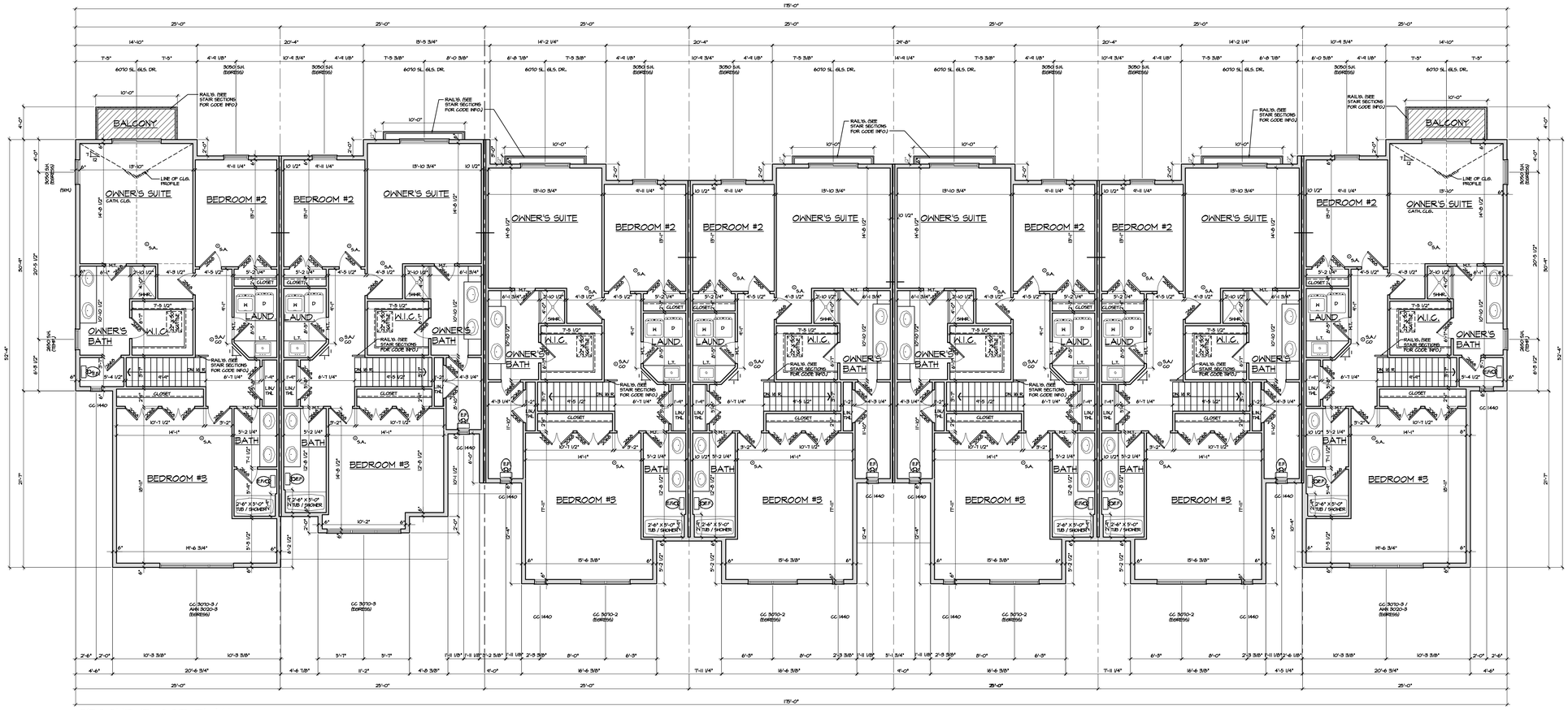
Review Set: 11/10/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22179

Sheet No. NV7

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SECOND FLOOR PLAN

SCALE: 3/16" = 1'-0"

MOCERI
STRUCTURE · INTEGRITY · TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248.340.9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-II
T-PLEX 2-CAR FRONT ENTRY

Review Set: 11/10/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:

Job No. 22179

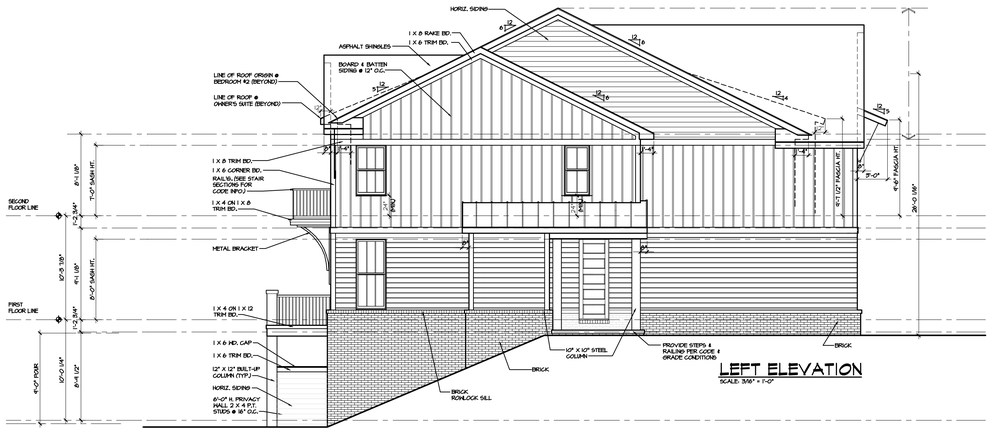
Sheet No. NV8

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

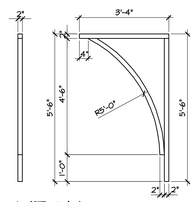
FRONT ELEVATION

SCALE: 3/16" = 1'-0"



LEFT ELEVATION

SCALE: 3/16" = 1'-0"



METAL BRACKET DETAIL

SCALE: 1/2" = 1'-0"

7/6.1

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-II
1-PLEX 2-CAR FRONT ENTRY

Review Set: 11/10/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:

Job No. 22179

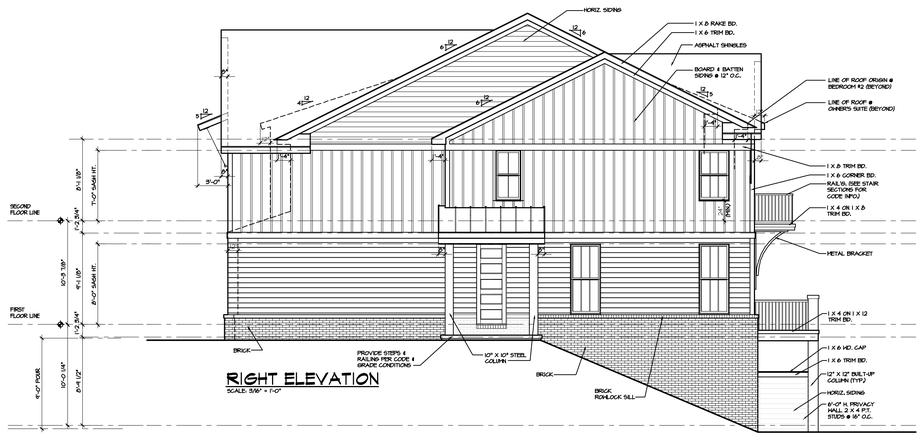
Sheet No. NV9

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

REAR ELEVATION

SCALE: 3/16" = 1'-0"



RIGHT ELEVATION

SCALE: 3/16" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

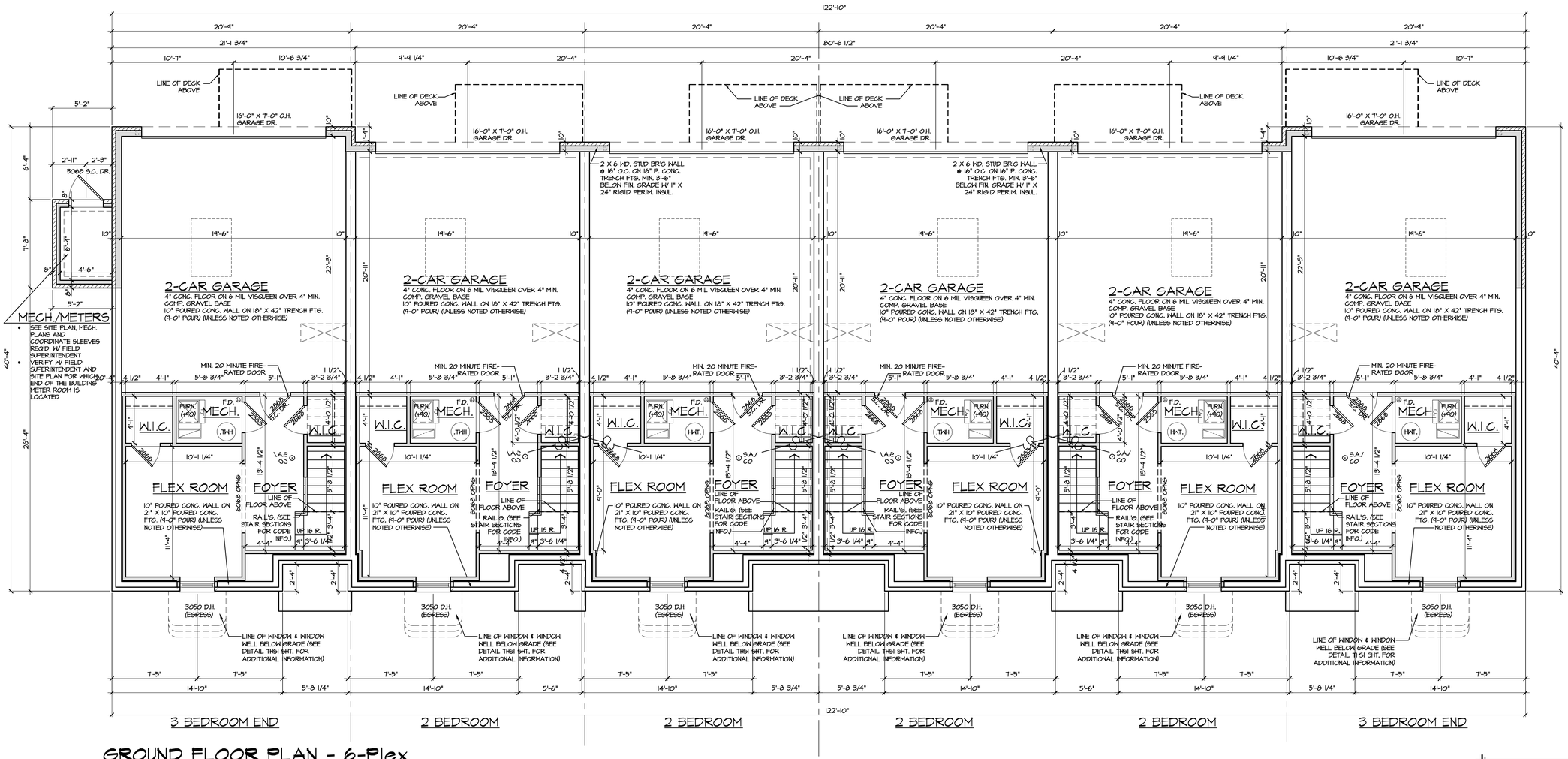
MOCERI
BALDWIN VILLAGE NORTH
BUILDING N-II
T-PLEX 2-CAR FRONT ENTRY

Review Set: 11/10/22
Permit:
Final Set:
Revisions:

Drwn: B.J.L.
Chkd:
Job No. 22179
Sheet No. NV10

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



GROUND FLOOR PLAN - 6-Plex

SCALE: 1/4" = 1'-0"

NOTE:
SEE BRACED WALL DESIGN SHEETS FOR ANY ANCHORS TO BE POURED IN PLACE INTO CONCRETE WALLS AND OR TRENCH FOOTINGS.

NOTE:
SEE STRUCTURAL SHEETS FOR ADDITIONAL NOTES AND DETAILS.

LEGEND:
- = POINT LOAD
- = LOAD BEARING WALLS
- = POINT LOAD FROM ABOVE
- = LOAD BEARING WALLS FROM ABOVE
- = INDICATES AREA OF RAISED CLG. IN TRUSS PROFILE

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

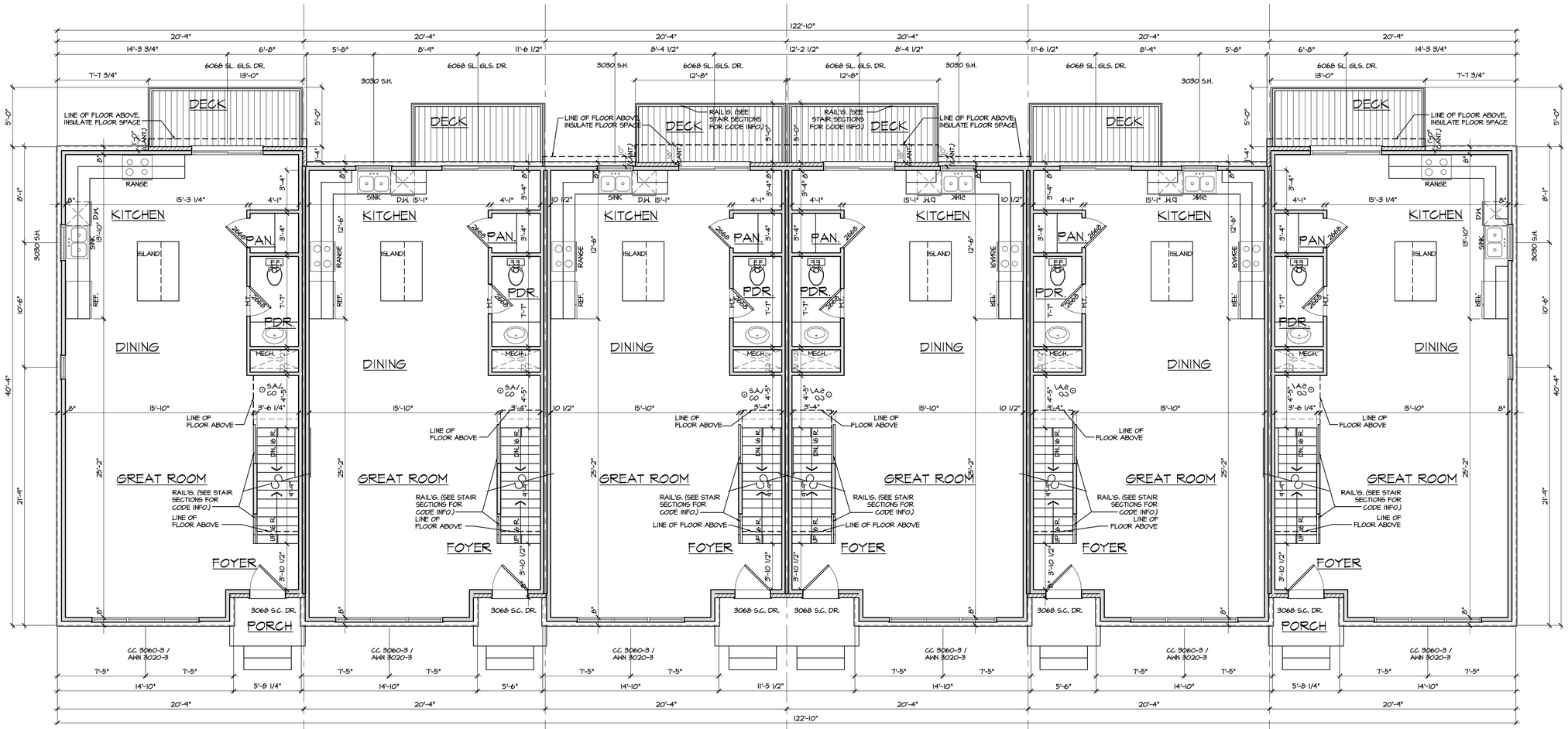
MOCERI
BALDWIN VILLAGE NORTH
6-PLEX 3-STORY TOWNHOUSE
BUILDING N-6

Review Set: 10/20/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22176
Sheet No. NV11

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ENTRY FLOOR PLAN - 6-Plex

SCALE: 1/4" = 1'-0"

SQUARE FOOTAGE
ENTRY FLOOR = 823 SQUARE FEET
UPPER FLOOR = 754 SQUARE FEET
GROUND LEVEL = 298 SQUARE FEET
TOTAL = 1874 SQUARE FEET

SQUARE FOOTAGE
ENTRY FLOOR = 780 SQUARE FEET
UPPER FLOOR = 724 SQUARE FEET
GROUND LEVEL = 298 SQUARE FEET
TOTAL = 1805 SQUARE FEET

SQUARE FOOTAGE
ENTRY FLOOR = 780 SQUARE FEET
UPPER FLOOR = 754 SQUARE FEET
GROUND LEVEL = 291 SQUARE FEET
TOTAL = 1834 SQUARE FEET

SQUARE FOOTAGE
ENTRY FLOOR = 780 SQUARE FEET
UPPER FLOOR = 754 SQUARE FEET
GROUND LEVEL = 291 SQUARE FEET
TOTAL = 1834 SQUARE FEET

SQUARE FOOTAGE
ENTRY FLOOR = 780 SQUARE FEET
UPPER FLOOR = 724 SQUARE FEET
GROUND LEVEL = 298 SQUARE FEET
TOTAL = 1805 SQUARE FEET

SQUARE FOOTAGE
ENTRY FLOOR = 823 SQUARE FEET
UPPER FLOOR = 754 SQUARE FEET
GROUND LEVEL = 298 SQUARE FEET
TOTAL = 1874 SQUARE FEET

NOTE:
SEE STRUCTURAL SHEETS FOR ADDITIONAL NOTES AND DETAILS.

ALL DOOR NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
3080 = 3'-0" X 8'-0"

ALL WINDOW NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
2040-2 = 2'-0" X 4'-0", 2-WIDE WINDOW UNIT

NOTE:
ALL FIRST FLOOR CEILING HEIGHTS TO BE 9'-1 1/8" HIGH UNLESS NOTED OTHERWISE.

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

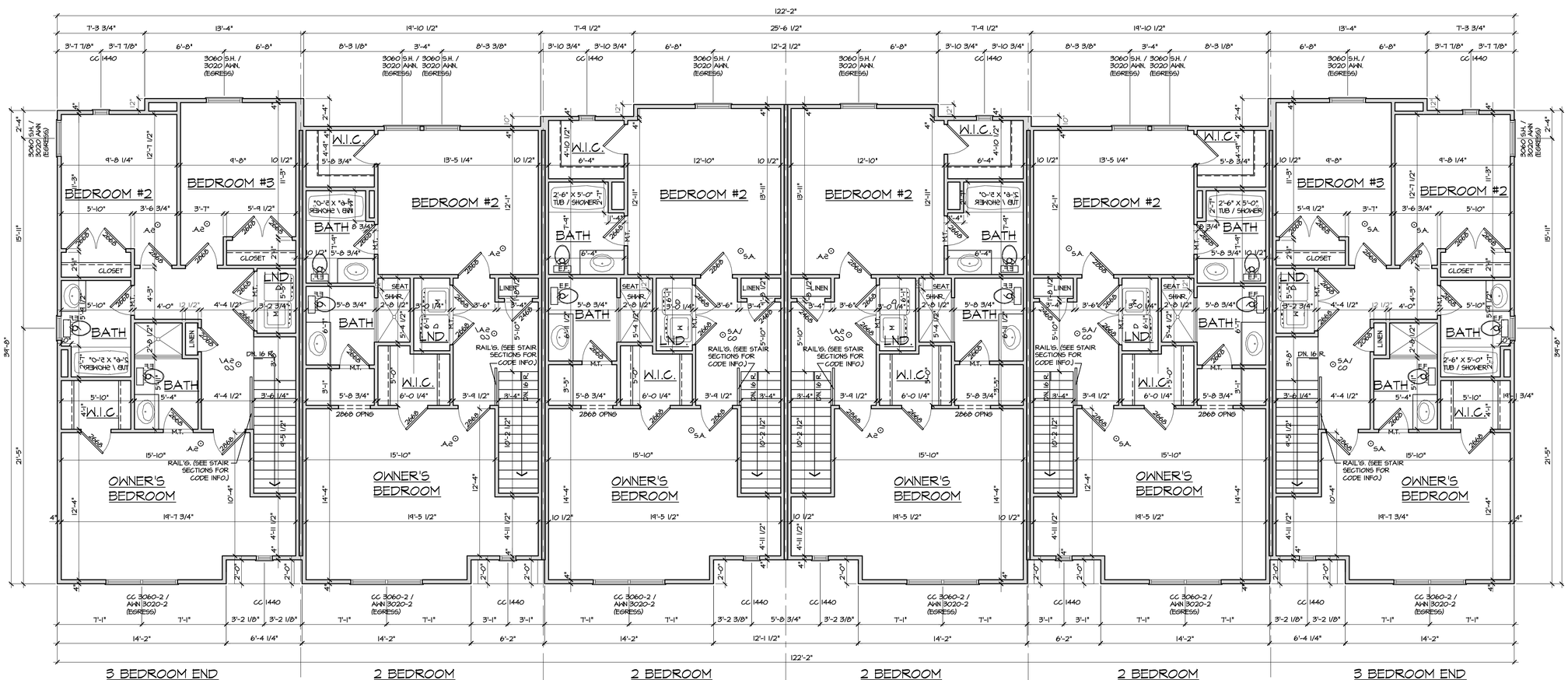
MOCERI
BALDWIN VILLAGE NORTH
6-PLEX 3-STORY TOWNHOUSE
BUILDING N-6

Review Set: 10/20/22
Permit:
Final Set:
Revisions:

Drawn: B.H.
Child:
Job No. 22176
Sheet No. NV12

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



UPPER FLOOR PLAN - 6-Plex

SCALE: 1/4" = 1'-0"

ALL WINDOW NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
2040-2 = 2'-0" X 4'-0", 2-WIDE WINDOW UNIT

ALL DOOR NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
3080 = 3'-0" X 8'-0"

NOTE:
SEE STRUCTURAL SHEETS FOR ADDITIONAL NOTES AND DETAILS.

NOTE:
ALL SECOND FLOOR CEILING HEIGHTS TO BE 8'-1 1/8" HIGH UNLESS NOTED OTHERWISE.

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

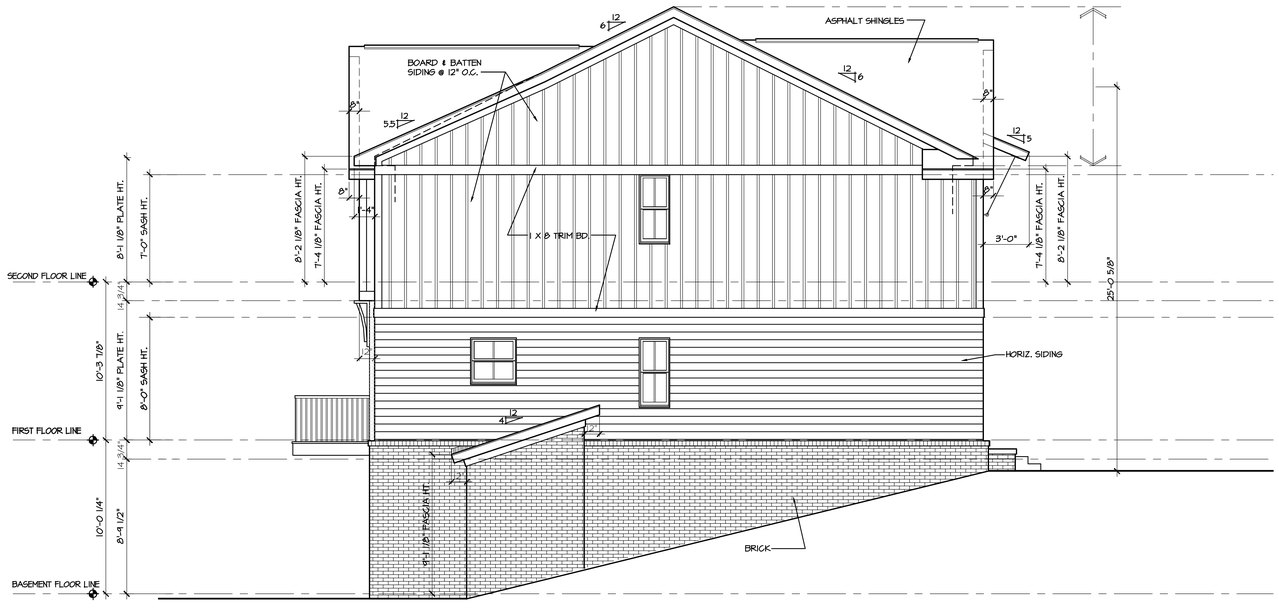
MOCERI
BALDWIN VILLAGE NORTH
6-PLEX 3-STORY TOWNHOUSE
BUILDING N-6

Review Set: 10/20/22
Permit:
Final Set:
Revisions:

Drawn: B.H.
Chkd:
Job No. 22176
Sheet No. NV13

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



LEFT ELEVATION

SCALE: 1/4" = 1'-0"

3 BEDROOM END | 2 BEDROOM | 2 BEDROOM | 2 BEDROOM | 2 BEDROOM | 3 BEDROOM END

FRONT ELEVATION - 6-Plex

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

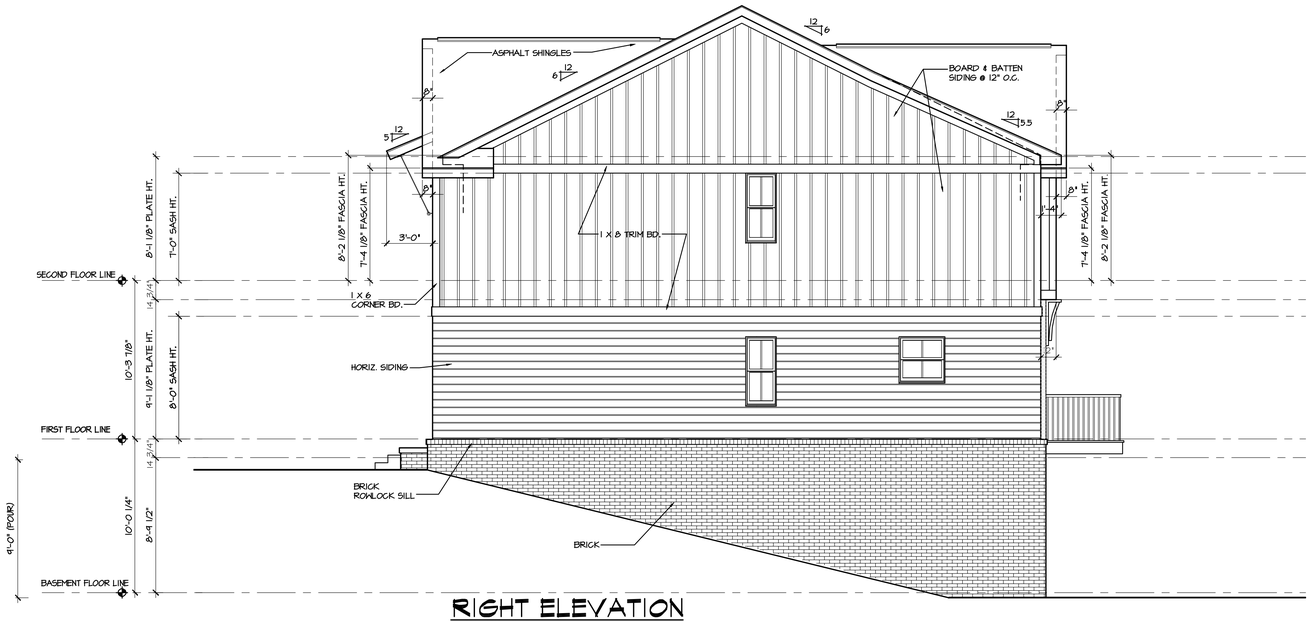
MOCERI
BALDWIN VILLAGE NORTH
6-PLEX 3-STORY TOWNHOUSE
BUILDING N-6

Review Set: 10/20/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22176
Sheet No. NV14

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

REAR ELEVATION

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTarchitects.com

MOCERI
BALDWIN VILLAGE NORTH
6-PLEX 3-STORY TOWNHOUSE
BUILDING N-6

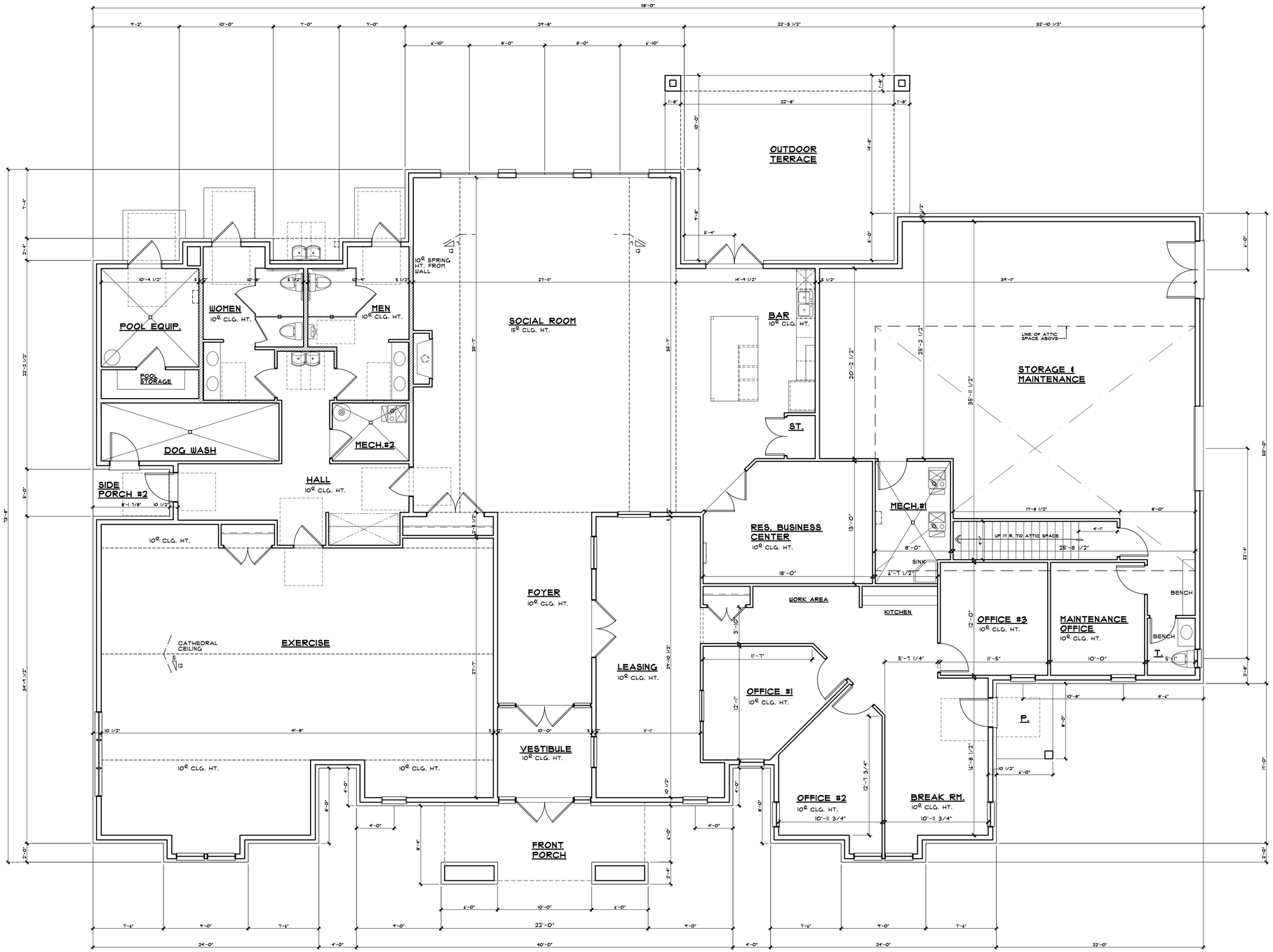
Review Set: 10/20/22
Permit:
Final Set:
Revisions:

Drawn: B.H.
Chkd:

Job No. 22176

Sheet No. NV15

LIFESTYLE BY DESIGN



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

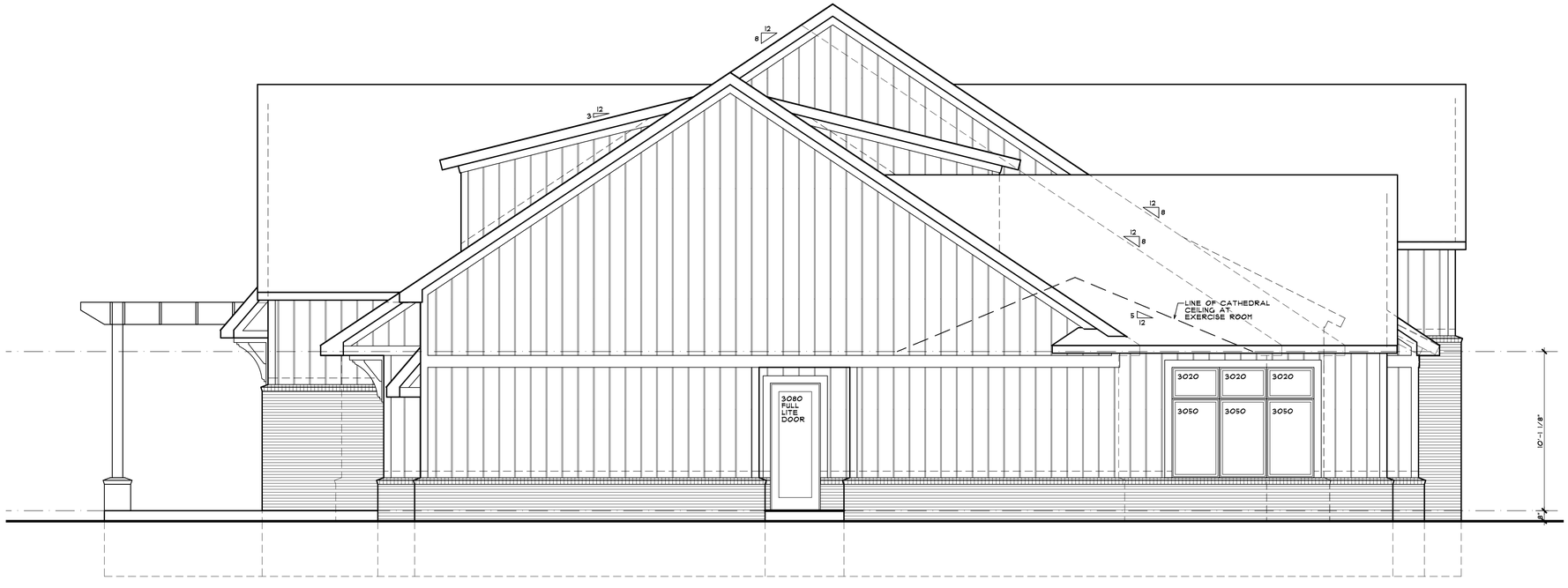
SHEET TITLE

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP36

COPYRIGHT 2022
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.



LEFT SIDE ELEVATION

SCALE: 1/4" = 1'-0"

OVERHANGS & DRAINAGE

PROVIDE GUTTERS AND DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE CONNECTED TO THE STORM WATER COLLECTION SYSTEM. SEE CIVIL ENGINEERING DRAWINGS FOR CONNECTION DETAILS/LOCATIONS.

DOWNSPOUT LOCATIONS ARE T.B.D. BY BUILDER.

UNLESS NOTED OTHERWISE OVERHANG DIMENSIONS ARE 12" FROM FRAME. RAKE DIMENSIONS ARE 4" AT BRICK AND 6" AT SIDING.

STEEL LINTEL SCHEDULE

LOOSE STEEL LINTELS FOR MASONRY - EXTERIOR ANGLES FOR BRICK OR STONE (NO FLOOR LOAD)

MAX. CLEAR SPAN	LINTEL SIZE
5'-0" OR LESS	3 1/2" x 3 1/2" x 5/16"
7'-0" OR LESS	4" x 3 1/2" x 5/16"
8'-0" OR LESS	5" x 3 1/2" x 5/16"
9'-0" OR LESS	5" x 3 1/2" x 3/8"
10'-0" OR LESS	6" x 3 1/2" x 3/8"

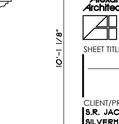
NOTE: THIS SCHEDULE APPLIES UNLESS NOTED OTHERWISE ON THE PLANS AND/OR ELEVATIONS.

NOTE: STEEL ANGLE LINTELS REQUIRE A SHOP COAT OF RUST-INHIBITIVE PAINT EXCEPT FOR LINTELS MADE OF CORROSION-RESISTANT STEEL.

TYP. WINDOW DESIGNATION

GENERAL REFERENCE FOR ROUGH OPENING SIZES ONLY.

CONSULT WITH WINDOW MANUFACTURER FOR EXACT WINDOW SIZES & REQUIREMENTS.



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

ALL INTERIOR PARTITION DIMENSIONS ARE 3 1/2" UNLESS NOTED OTHERWISE.

BEFORE CONSTRUCTION OBTAIN WINDOW & DOOR ROUGH OPENING SIZES FROM WINDOW/DOOR SUPPLIER.

TRUSS DESIGNER/FABRICATOR SEE SHEET # FOR ADDITIONAL NOTES & INFORMATION

493
SEE SHEETS # & # FOR ADDITIONAL DETAILS REGARDING DRAWINGS & CONSTRUCTION

SEE SHEET # FOR ADDITIONAL NOTES REGARDING DRAWINGS & CONSTRUCTION.

DO NOT SCALE THESE DRAWINGS. USE CALCULATED DIMENSIONS. IF VARIATIONS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE

CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP37

COPYRIGHT 2022
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

RIGHT SIDE ELEVATION

SCALE: 1/4" = 1'-0"

REAR ELEVATION

SCALE: 1/4" = 1'-0"

OVERHANGS & DRAINAGE

PROVIDE GUTTERS AND DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE CONNECTED TO THE STORM WATER COLLECTION SYSTEM. SEE CIVIL ENGINEERING DRAWINGS FOR CONNECTION DETAILS/LOCATIONS.

DOWNSPOUT LOCATIONS ARE T.B.D. BY BUILDER.

UNLESS NOTED OTHERWISE OVERHANG DIMENSIONS ARE 12" FROM FRAME. RAKE DIMENSIONS ARE 4" AT BRICK AND 4" AT SIDING.

STEEL LINTEL SCHEDULE

LOOSE STEEL LINTELS FOR MASONRY - EXTERIOR ANGLES FOR BRICK OR STONE (NO FLOOR LOAD)

MAX. CLEAR SPAN	LINTEL SIZE
5'-0" OR LESS	3 1/2" x 3 1/2" x 5/14"
7'-0" OR LESS	4" x 3 1/2" x 5/14"
8'-0" OR LESS	5" x 3 1/2" x 5/14"
9'-0" OR LESS	5" x 3 1/2" x 3/8"
10'-0" OR LESS	6" x 3 1/2" x 3/8"

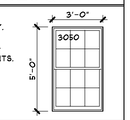
NOTE: THIS SCHEDULE APPLIES UNLESS NOTED OTHERWISE ON THE PLANS AND/OR ELEVATIONS.

NOTE: STEEL ANGLE LINTELS REQUIRE A SHOP COAT OF RUST-INHIBITIVE PAINT EXCEPT FOR LINTELS MADE OF CORROSION-RESISTANT STEEL.

TYP. WINDOW DESIGNATION

GENERAL REFERENCE FOR ROUGH OPENING SIZES ONLY.

CONSULT WITH WINDOW MANUFACTURER FOR EXACT WINDOW SIZES & REQUIREMENTS.



ALL INTERIOR PARTITION DIMENSIONS ARE 3 1/2" UNLESS NOTED OTHERWISE.

BEFORE CONSTRUCTION OBTAIN WINDOW & DOOR ROUGH OPENING SIZES FROM WINDOW/DOOR SUPPLIER.

TRUSS DESIGNER/FABRICATOR SEE SHEET # FOR ADDITIONAL NOTES & INFORMATION

SEE SHEETS # & # FOR ADDITIONAL DETAILS REGARDING DRAWINGS & CONSTRUCTION

SEE SHEET # FOR ADDITIONAL NOTES REGARDING DRAWINGS & CONSTRUCTION.

DO NOT SCALE THESE DRAWINGS. USE CALCULATED DIMENSIONS. IF VARIATIONS OCCUR CONTACT ARCHITECT FOR CLARIFICATION.

NOT VALID UNLESS SIGNED AND SEALED IN BLUE INK

Alexander V. Bogaerts + Associates, P.C.
Architecture • Planning • Interior Design
2445 Franklin Road
Bloomfield Hills, MI 48302
248-334-5000

SHEET TITLE

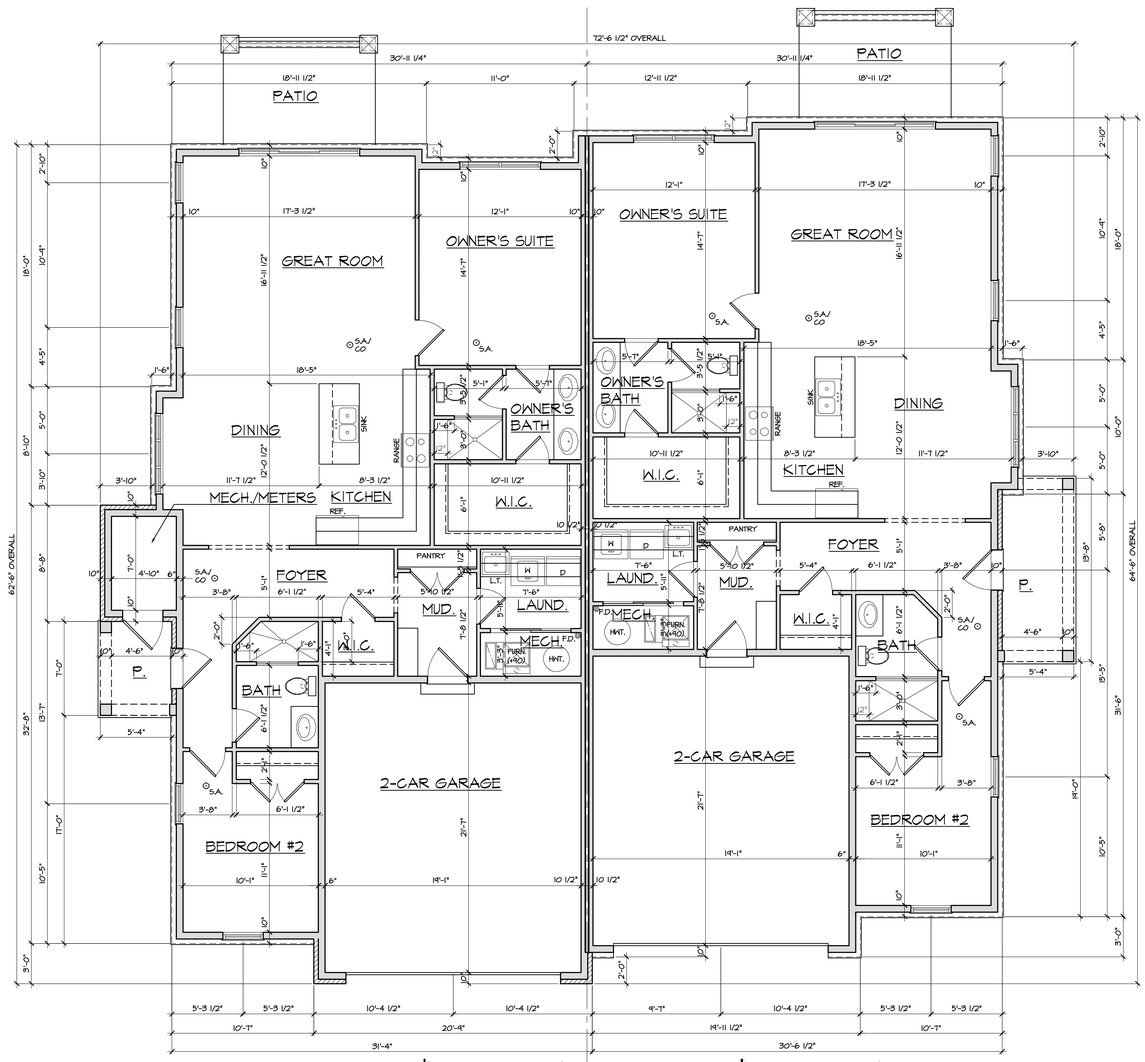
CLIENT/PROJECT
S.R. JACOBSON DEVELOPMENT CORP.
SILVERMAN - MOCERI - ALRIG USA
BALDWIN VILLAGE
ORION TWP, MICHIGAN

REVISIONS

DRAWN BY
PERMITS
JOB NUMBER
DATE
SHEET NUMBER
UP38

COPYRIGHT 2022
ALEXANDER V. BOGAERTS + ASSOCIATES, P.C.

© Copyright 2021 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248.340.9400
www.DTArchitects.com

BALDWIN VILLAGE SOUTH
DUPLEX
LAKE ORION, MICHIGAN
BUILDING 5D-1

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd: X.X.
Job No. 22180
Sheet No. SV1

LIFESTYLE BY DESIGN

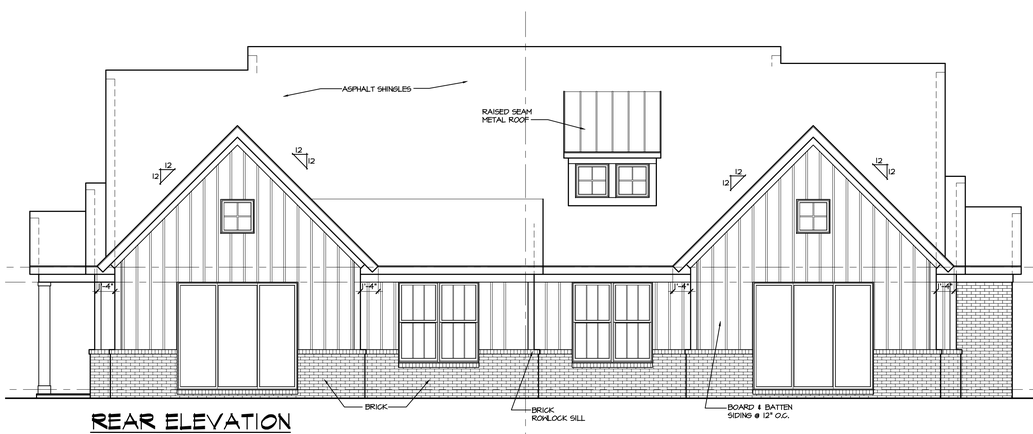
© Copyright 2021 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

LEFT ELEVATION

SCALE: 1/4" = 1'-0"

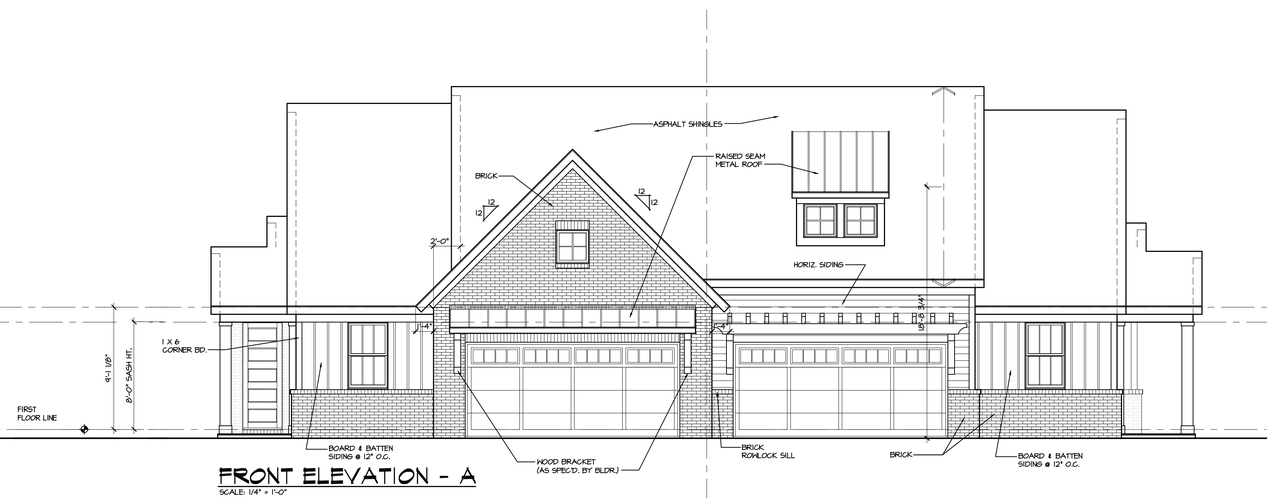
RIGHT ELEVATION

SCALE: 3/16" = 1'-0"



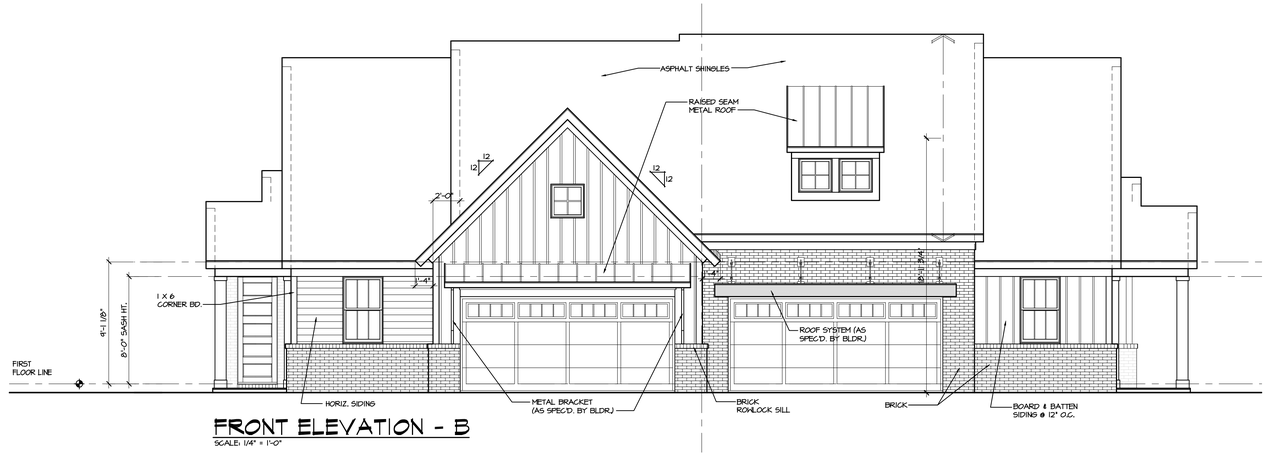
REAR ELEVATION

SCALE: 3/16" = 1'-0"



FRONT ELEVATION - A

SCALE: 1/4" = 1'-0"



FRONT ELEVATION - B

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTarchitects.com

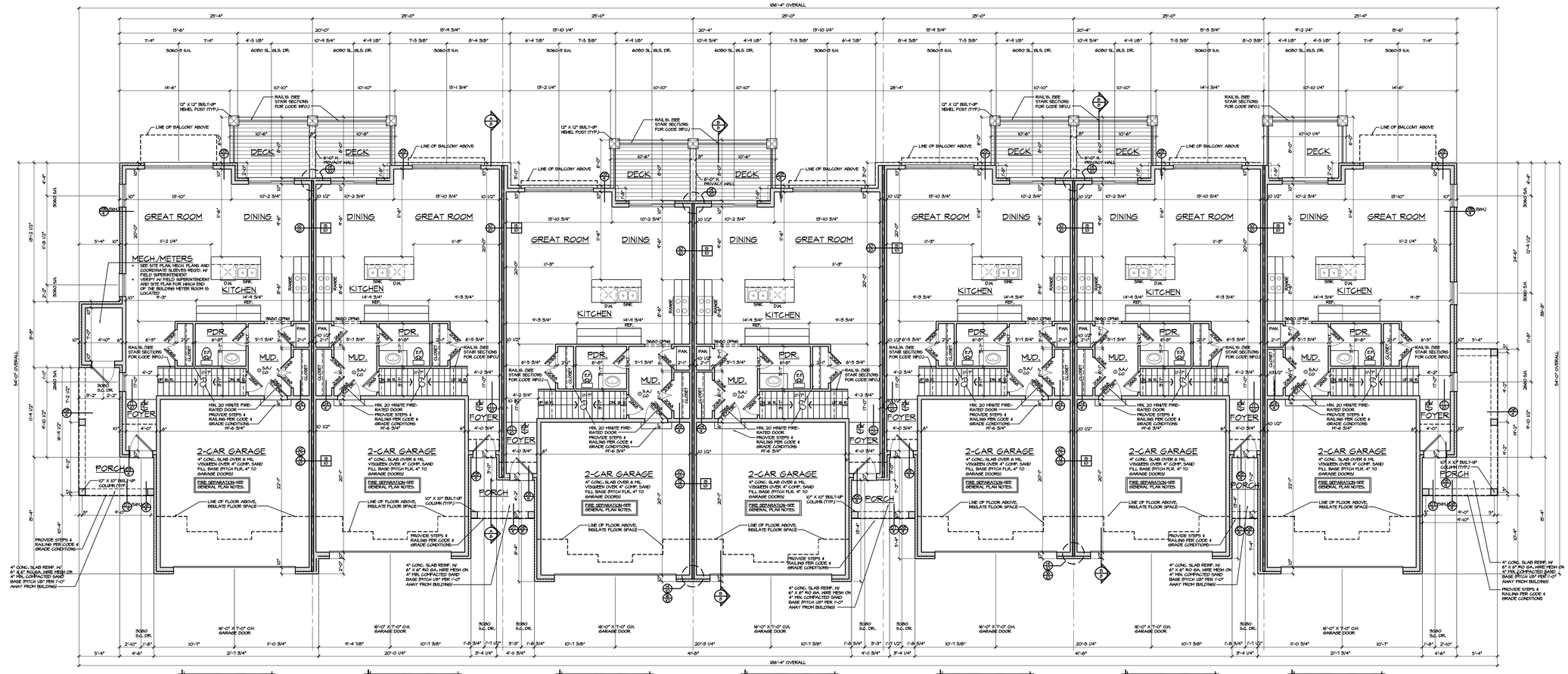
BALDWIN VILLAGE SOUTH
DUPLEX
LAKE ORION, MICHIGAN
BUILDING 5D-1

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd: X.X.
Job No. 22180
Sheet No. SV2

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SQUARE FOOTAGE

1ST FLOOR = 808 SQUARE FEET
2ND FLOOR = 1,070 SQUARE FEET
TOTAL = 1,878 SQUARE FEET

SQUARE FOOTAGE

1ST FLOOR = 795 SQUARE FEET
2ND FLOOR = 1,083 SQUARE FEET
TOTAL = 1,878 SQUARE FEET

SQUARE FOOTAGE

1ST FLOOR = 795 SQUARE FEET
2ND FLOOR = 1,083 SQUARE FEET
TOTAL = 1,878 SQUARE FEET

SQUARE FOOTAGE

1ST FLOOR = 795 SQUARE FEET
2ND FLOOR = 1,083 SQUARE FEET
TOTAL = 1,878 SQUARE FEET

SQUARE FOOTAGE

1ST FLOOR = 795 SQUARE FEET
2ND FLOOR = 1,083 SQUARE FEET
TOTAL = 1,878 SQUARE FEET

SQUARE FOOTAGE

1ST FLOOR = 795 SQUARE FEET
2ND FLOOR = 1,083 SQUARE FEET
TOTAL = 1,878 SQUARE FEET

SQUARE FOOTAGE

1ST FLOOR = 808 SQUARE FEET
2ND FLOOR = 1,070 SQUARE FEET
TOTAL = 1,878 SQUARE FEET

FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE · INTEGRITY · TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 5T-5
T-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

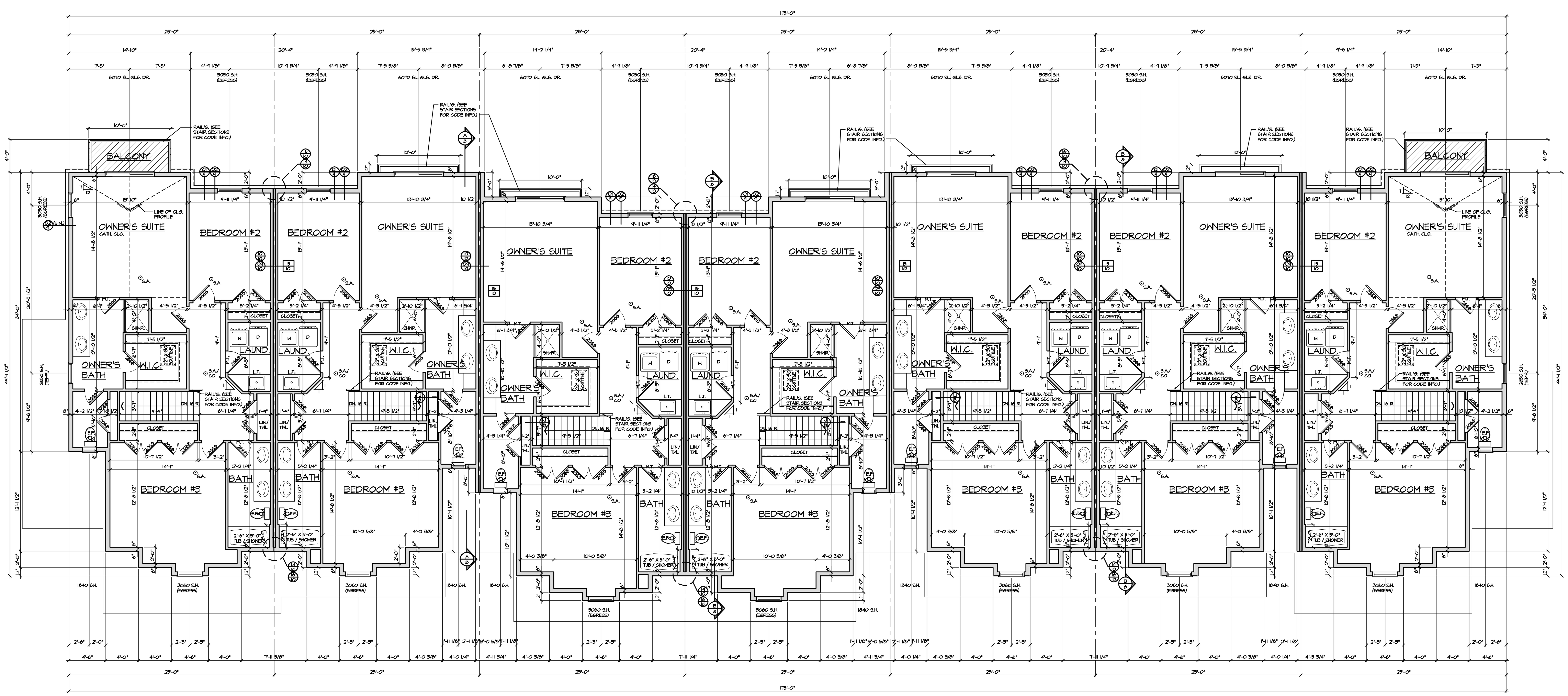
Dwn: B.H.
Chkd:

Job No. 22181

Sheet No. SV3

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICKTRINGALI ARCHITECTS
Tel 248 340 9400
3005 University Suite 100
Auburn Hills MI 48326
www.DTArchitects.com

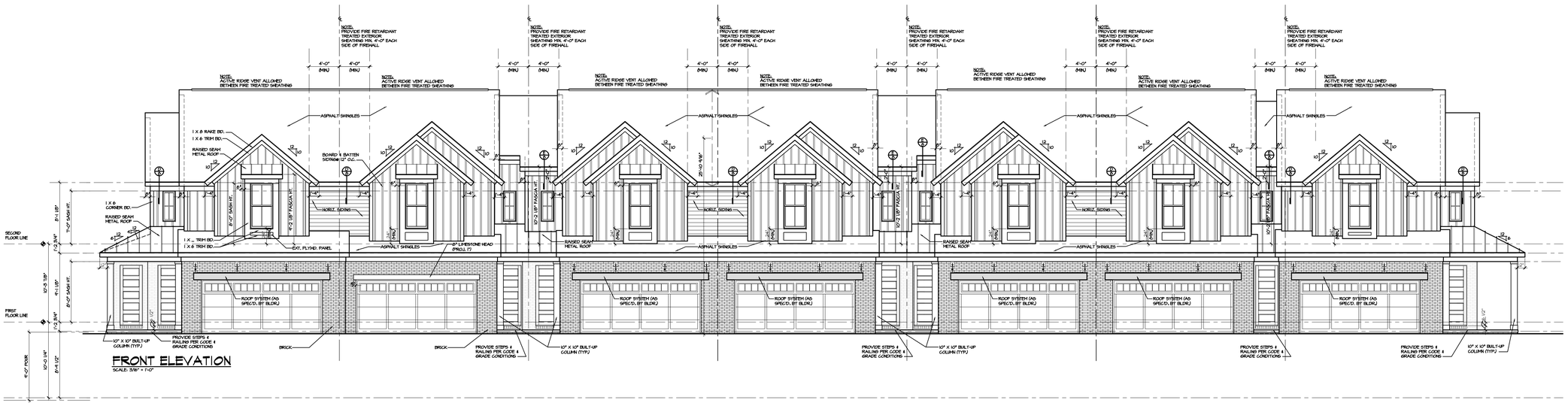
MOCERI
BALDWIN VILLAGE SOUTH
BUILDING ST-5
7-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

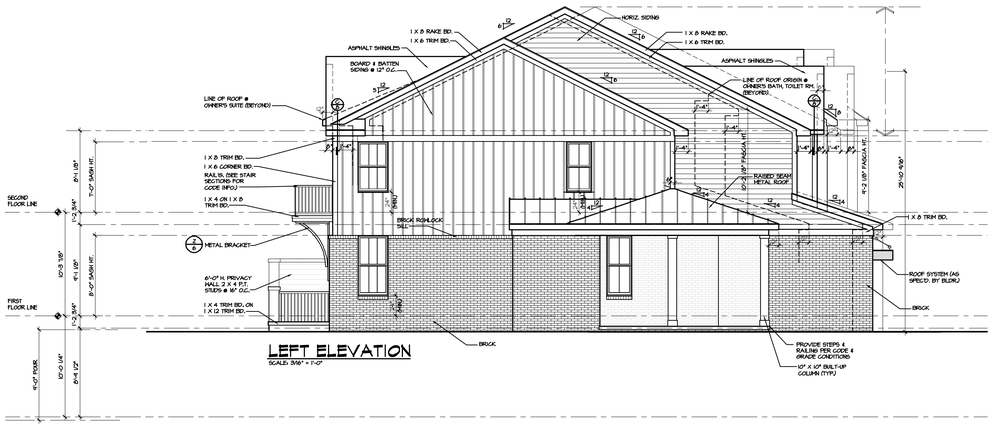
Drwn: B.H.
Chkd:
Job No. 22181
Sheet No. SV4

LIFESTYLE BY DESIGN

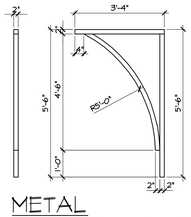
© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FRONT ELEVATION
SCALE: 3/16" = 1'-0"



LEFT ELEVATION
SCALE: 3/16" = 1'-0"



METAL BRACKET DETAIL
SCALE: 1/2" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 5T-5
T-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

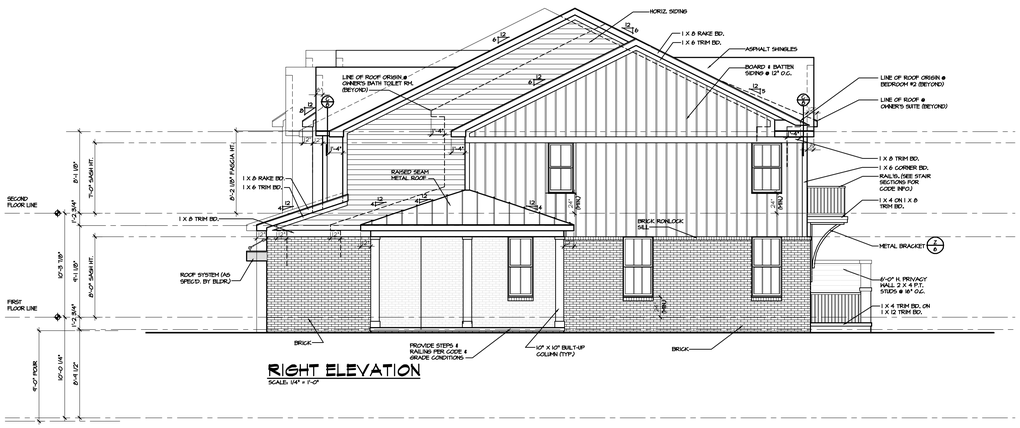
Drwn: BJH.
Chkd:
Job No. 22181
Sheet No. SV5

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

REAR ELEVATION

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

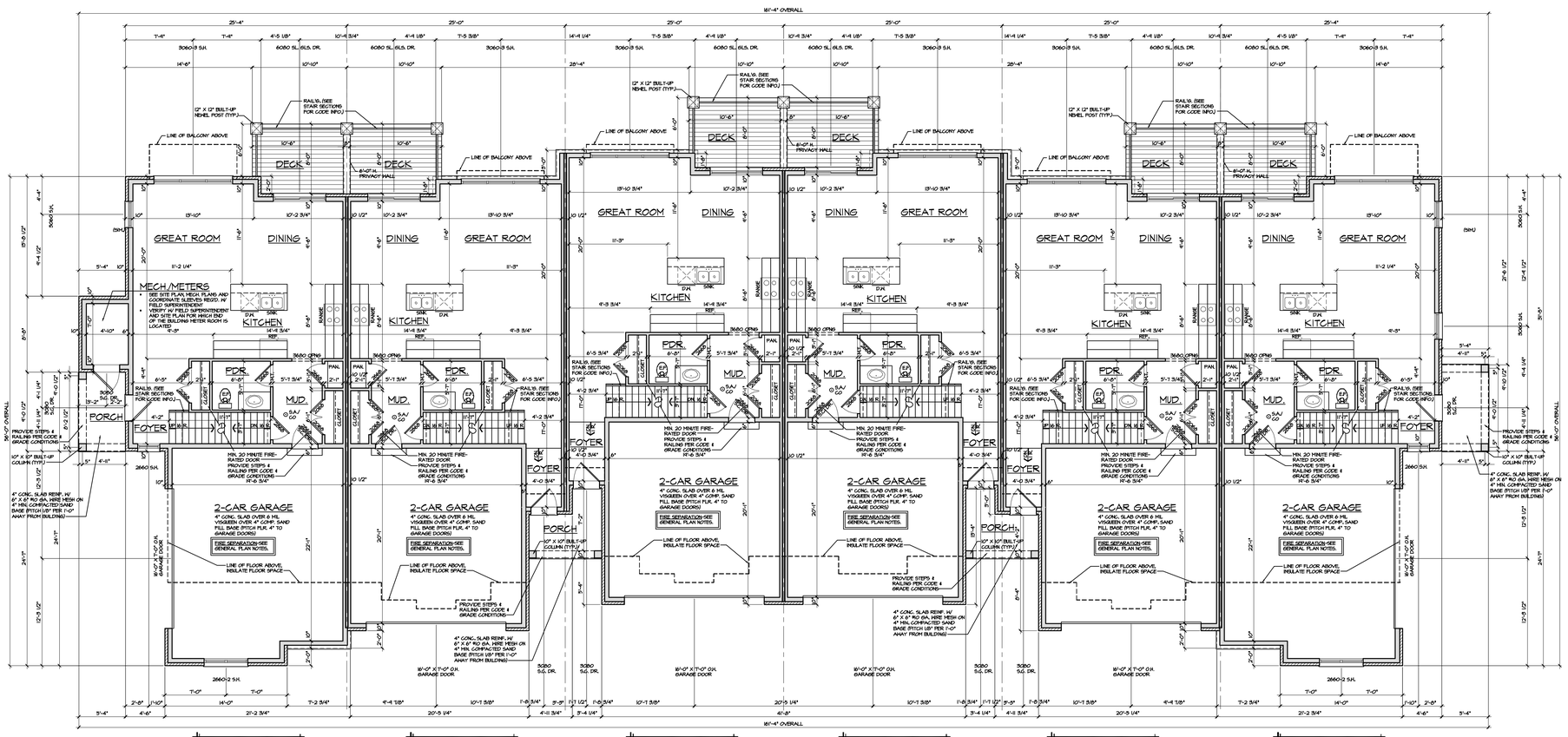
MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 5T-5
T-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22181
Sheet No. SV6

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SQUARE FOOTAGE
1ST FLOOR = 710 SQUARE FEET
2ND FLOOR = 1021 SQUARE FEET
TOTAL = 1731 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 785 SQUARE FEET
2ND FLOOR = 1083 SQUARE FEET
TOTAL = 1868 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 785 SQUARE FEET
2ND FLOOR = 1083 SQUARE FEET
TOTAL = 1868 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 785 SQUARE FEET
2ND FLOOR = 1083 SQUARE FEET
TOTAL = 1868 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 785 SQUARE FEET
2ND FLOOR = 1083 SQUARE FEET
TOTAL = 1868 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 710 SQUARE FEET
2ND FLOOR = 1021 SQUARE FEET
TOTAL = 1731 SQUARE FEET

FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE • INTEGRITY • TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 5T-B
6-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

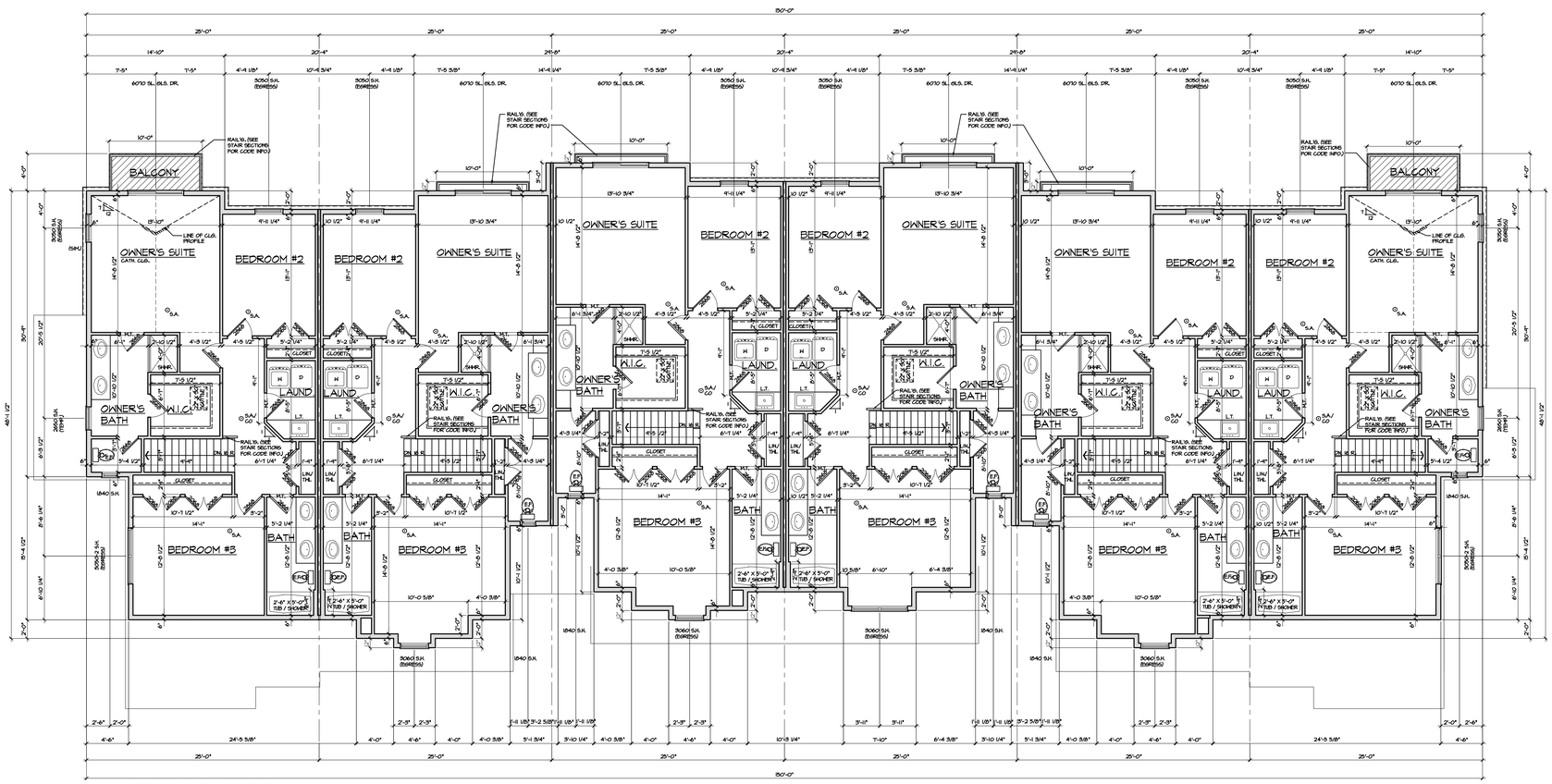
Drwn: B.H.
Chkd:

Job No. 22182

Sheet No. SV7

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE · INTEGRITY · TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248.340.9400
www.DTArchitects.com

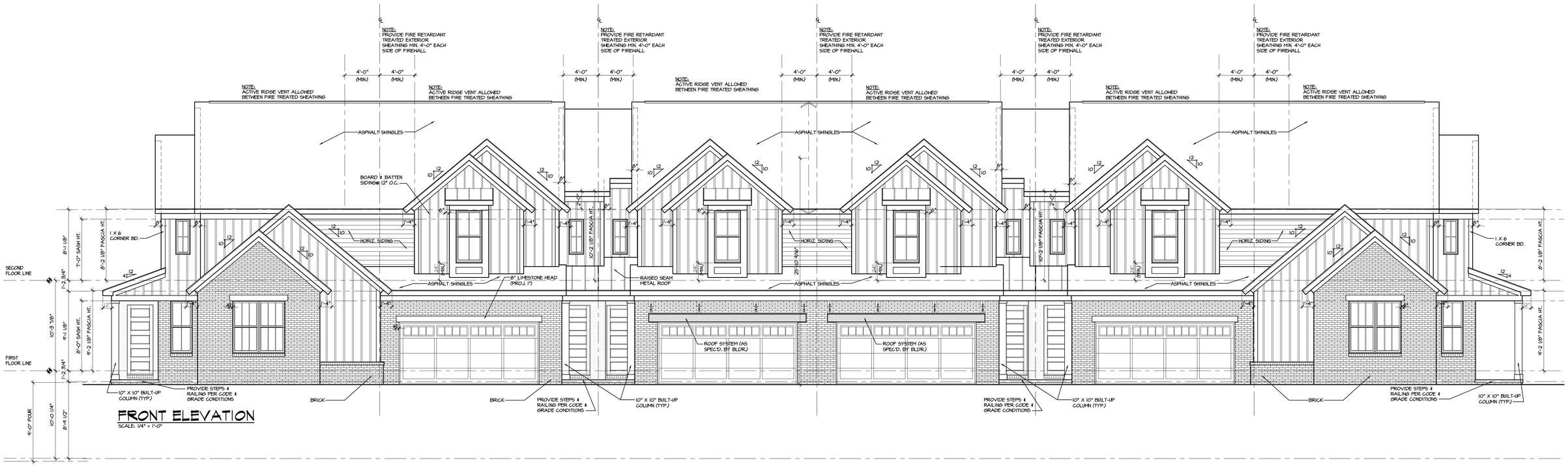
MOCERI
BALDWIN VILLAGE SOUTH
BUILDING ST-D
6-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22182
Sheet No. SV8

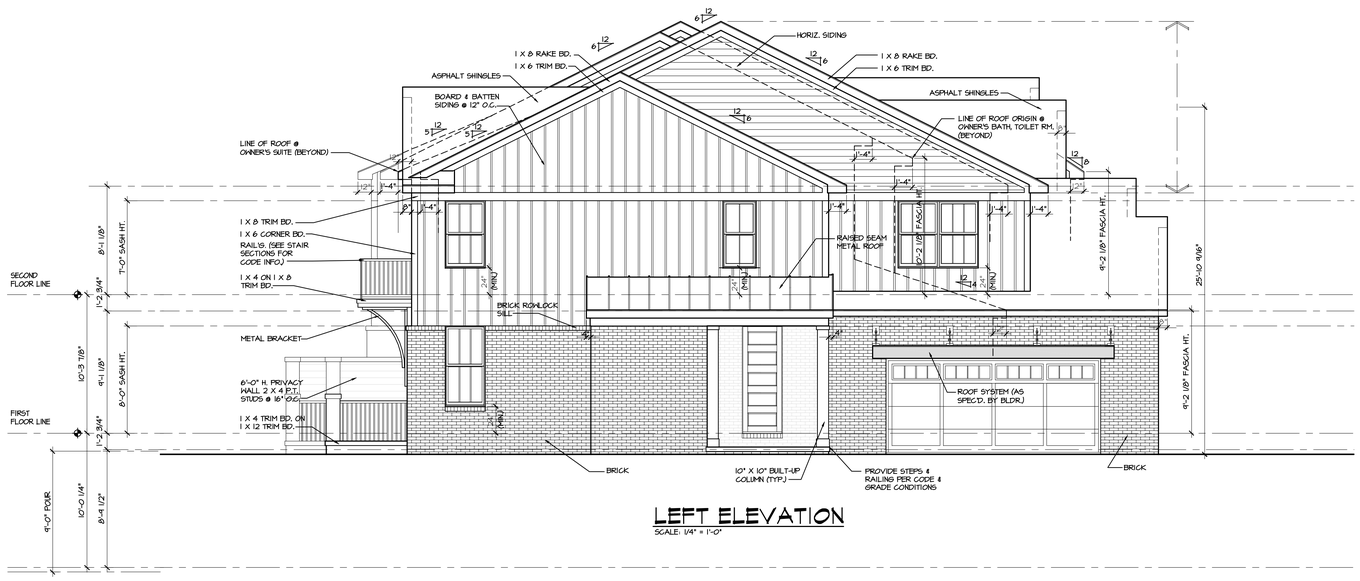
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



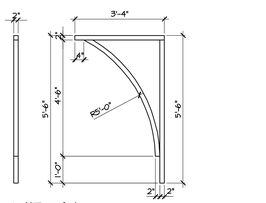
FRONT ELEVATION

SCALE: 1/4" = 1'-0"



LEFT ELEVATION

SCALE: 1/4" = 1'-0"



METAL BRACKET DETAIL

SCALE: 1/2" = 1'-0"

Z
6.1

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 5T-9
6-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

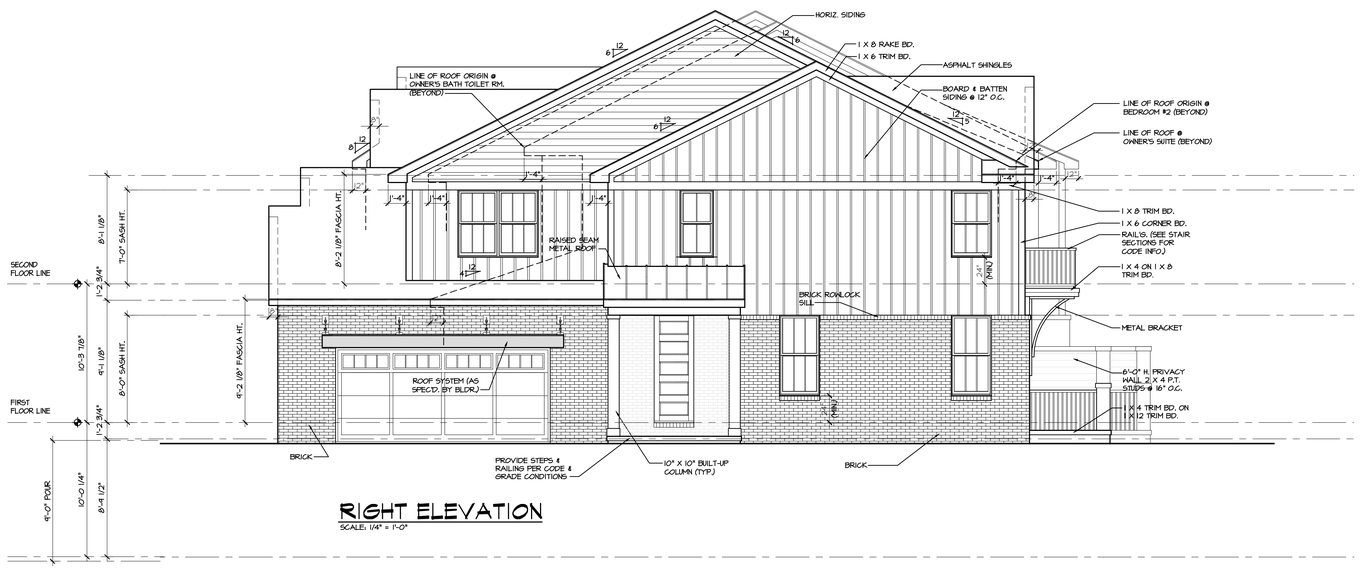
Drwn: B.H.
Chkd:
Job No. 22182
Sheet No. SV9

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

REAR ELEVATION

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

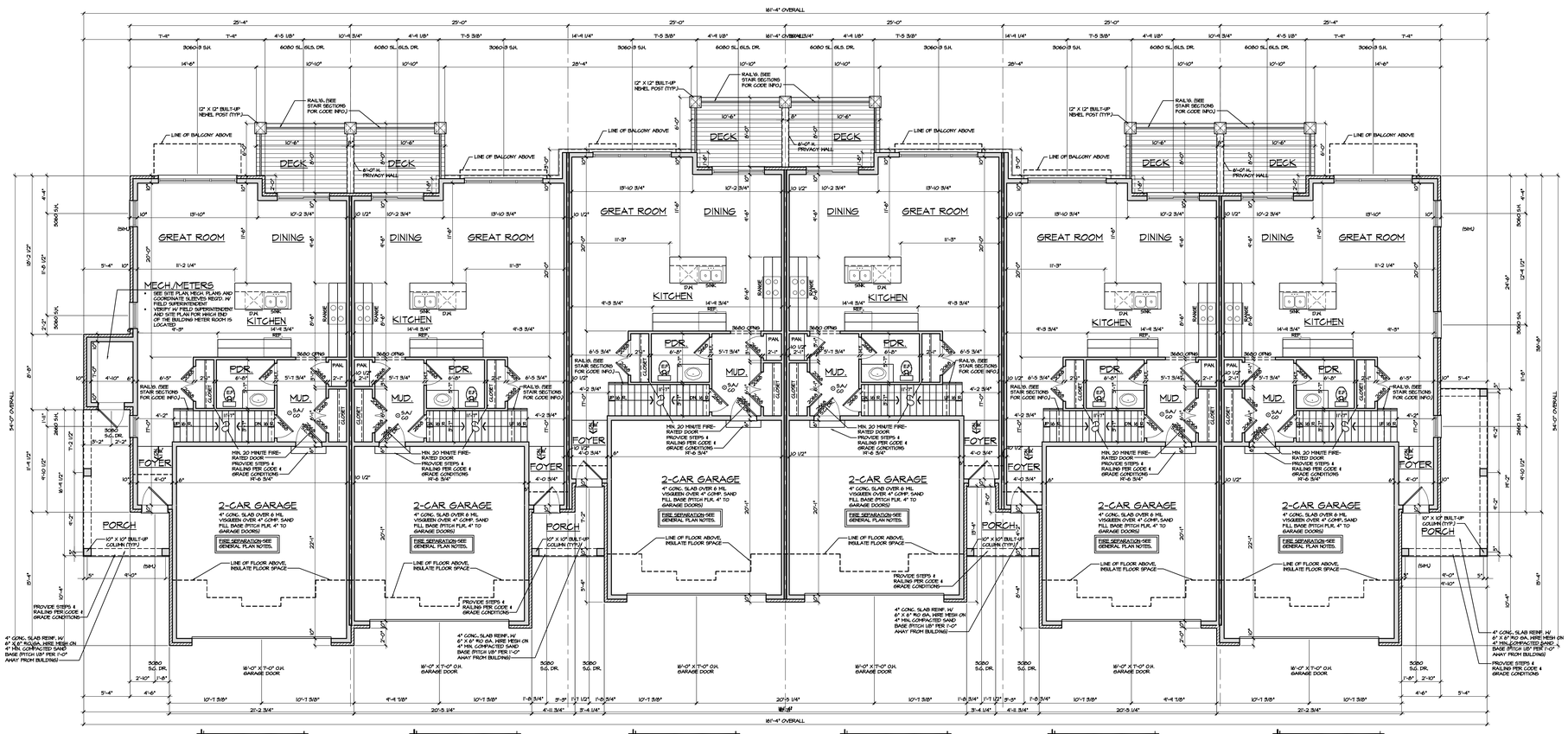
MOCERI
BALDWIN VILLAGE SOUTH
BUILDING ST-9
6-PLEX, 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: BJH.
Chkd:
Job No. 22182
Sheet No. SV10

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

SQUARE FOOTAGE
1ST FLOOR = 888 SQUARE FEET
2ND FLOOR = 1075 SQUARE FEET
TOTAL = 1799 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 785 SQUARE FEET
2ND FLOOR = 1085 SQUARE FEET
TOTAL = 1862 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 785 SQUARE FEET
2ND FLOOR = 1535 SQUARE FEET
TOTAL = 2319 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 785 SQUARE FEET
2ND FLOOR = 1069 SQUARE FEET
TOTAL = 1854 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 785 SQUARE FEET
2ND FLOOR = 1085 SQUARE FEET
TOTAL = 1862 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 888 SQUARE FEET
2ND FLOOR = 888 SQUARE FEET
TOTAL = 1799 SQUARE FEET

MOCERI
STRUCTURE • INTEGRITY • TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 5T-10
6-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

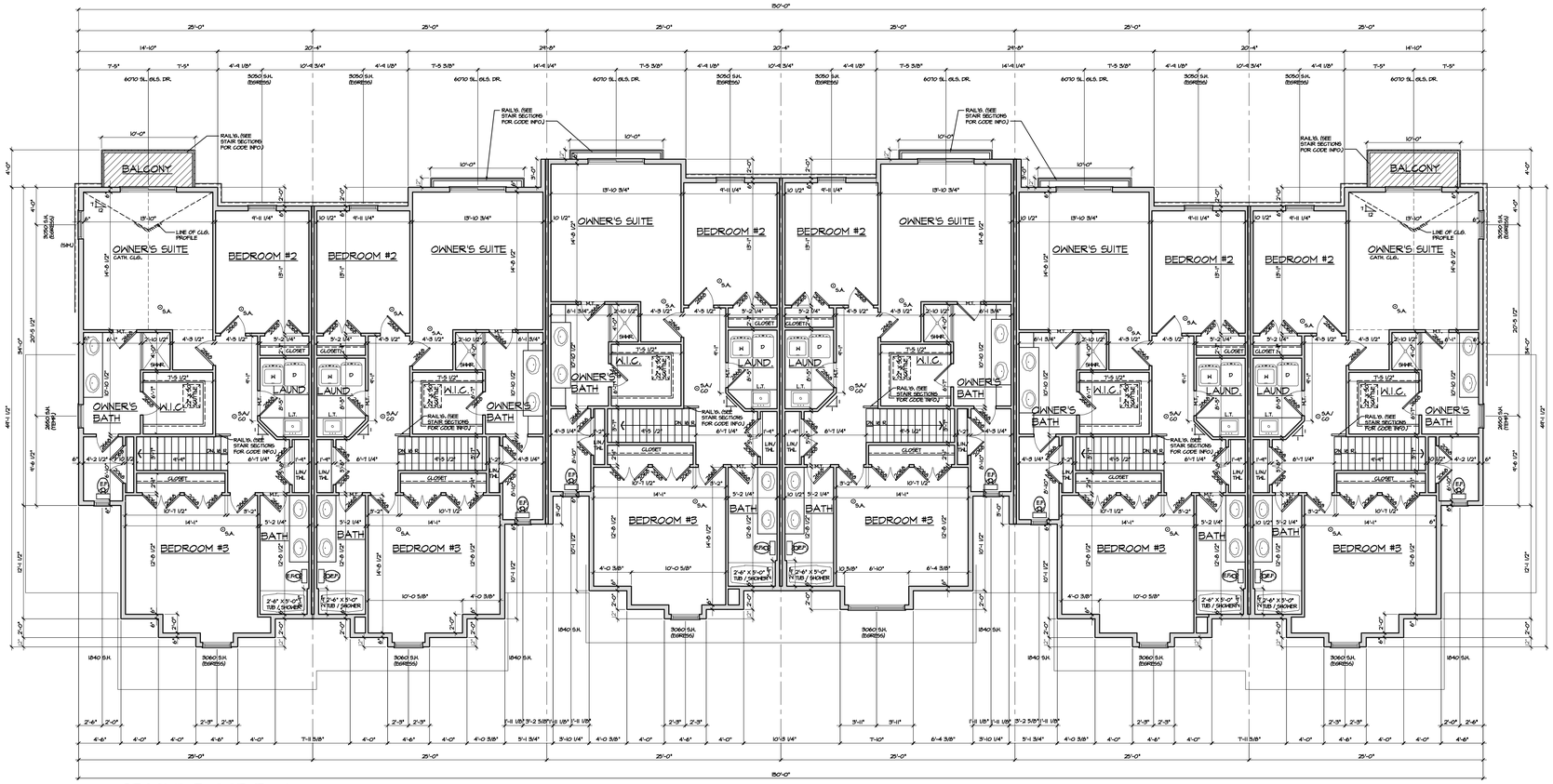
Dwn: B.H.
Chkd:

Job No. 22183

Sheet No. SV11

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248.340.9400
www.DTArchitects.com

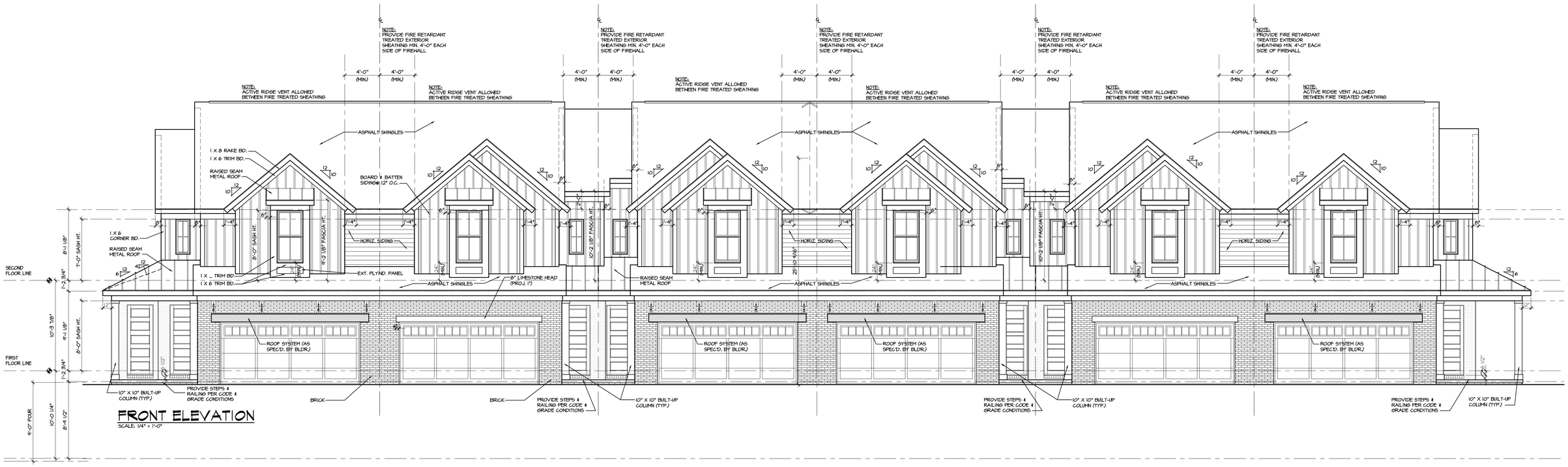
MOCERI
BALDWIN VILLAGE SOUTH
BUILDING ST-10
6-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22183
Sheet No. SV12

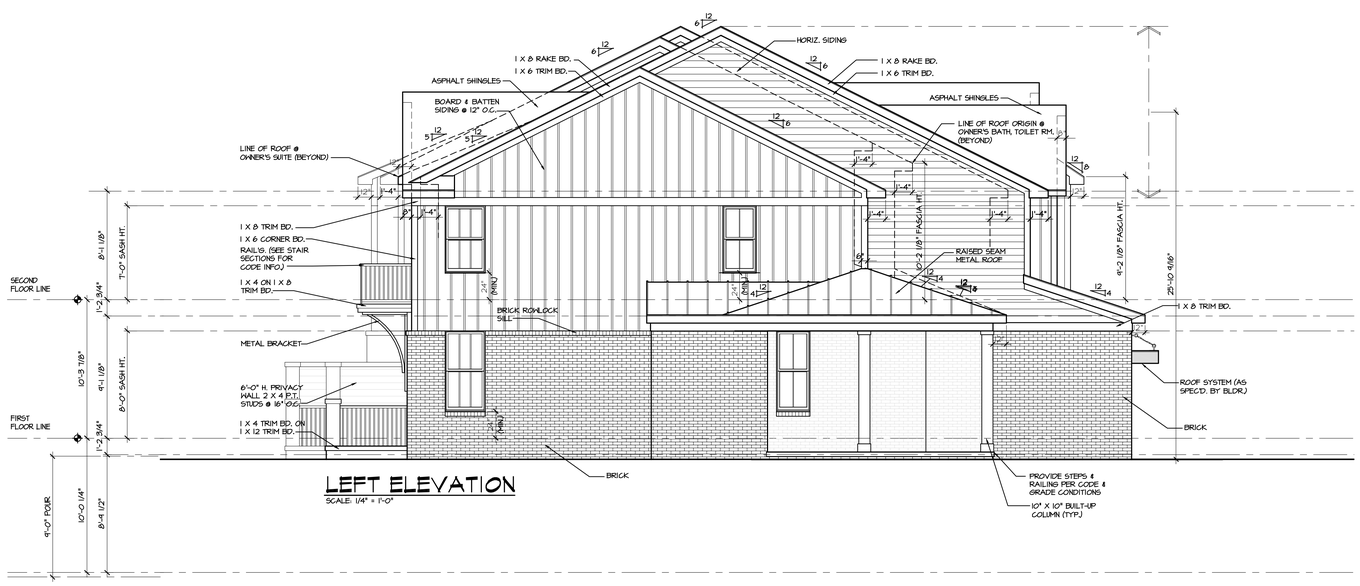
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



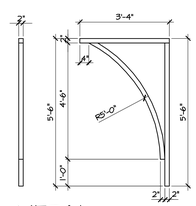
FRONT ELEVATION

SCALE: 1/4" = 1'-0"



LEFT ELEVATION

SCALE: 1/4" = 1'-0"



METAL BRACKET DETAIL

SCALE: 1/2" = 1'-0"

Z
6.7

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 57-10
6-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

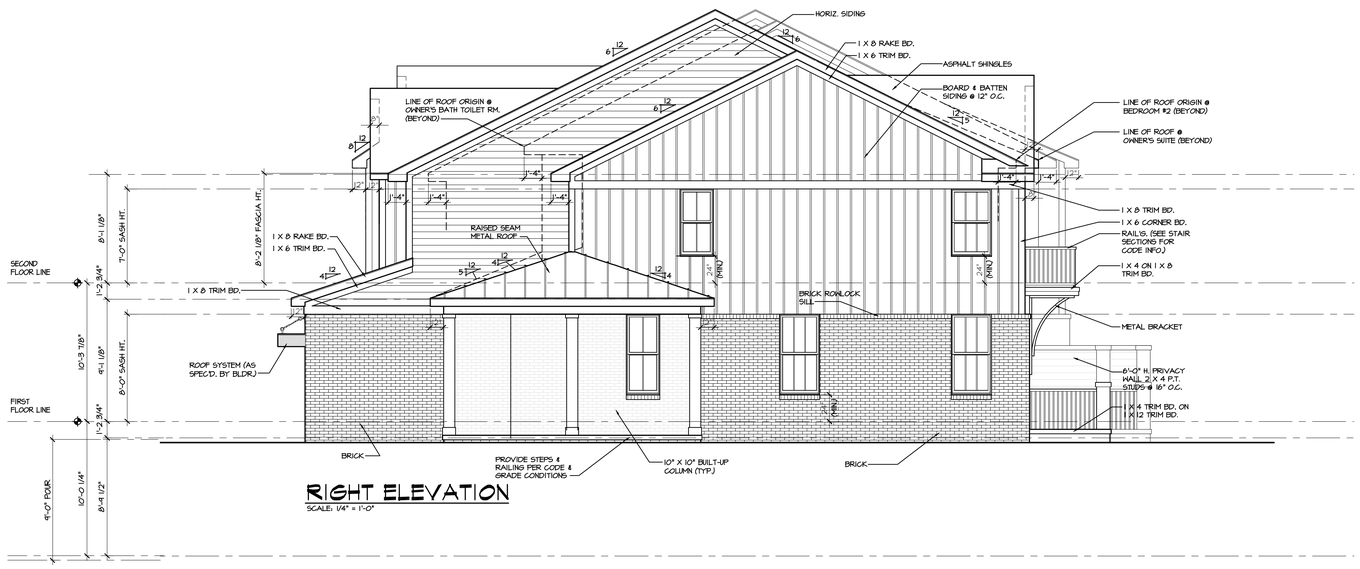
Drwn: B.H.
Chkd:
Job No. 22183
Sheet No. SV13

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

REAR ELEVATION

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

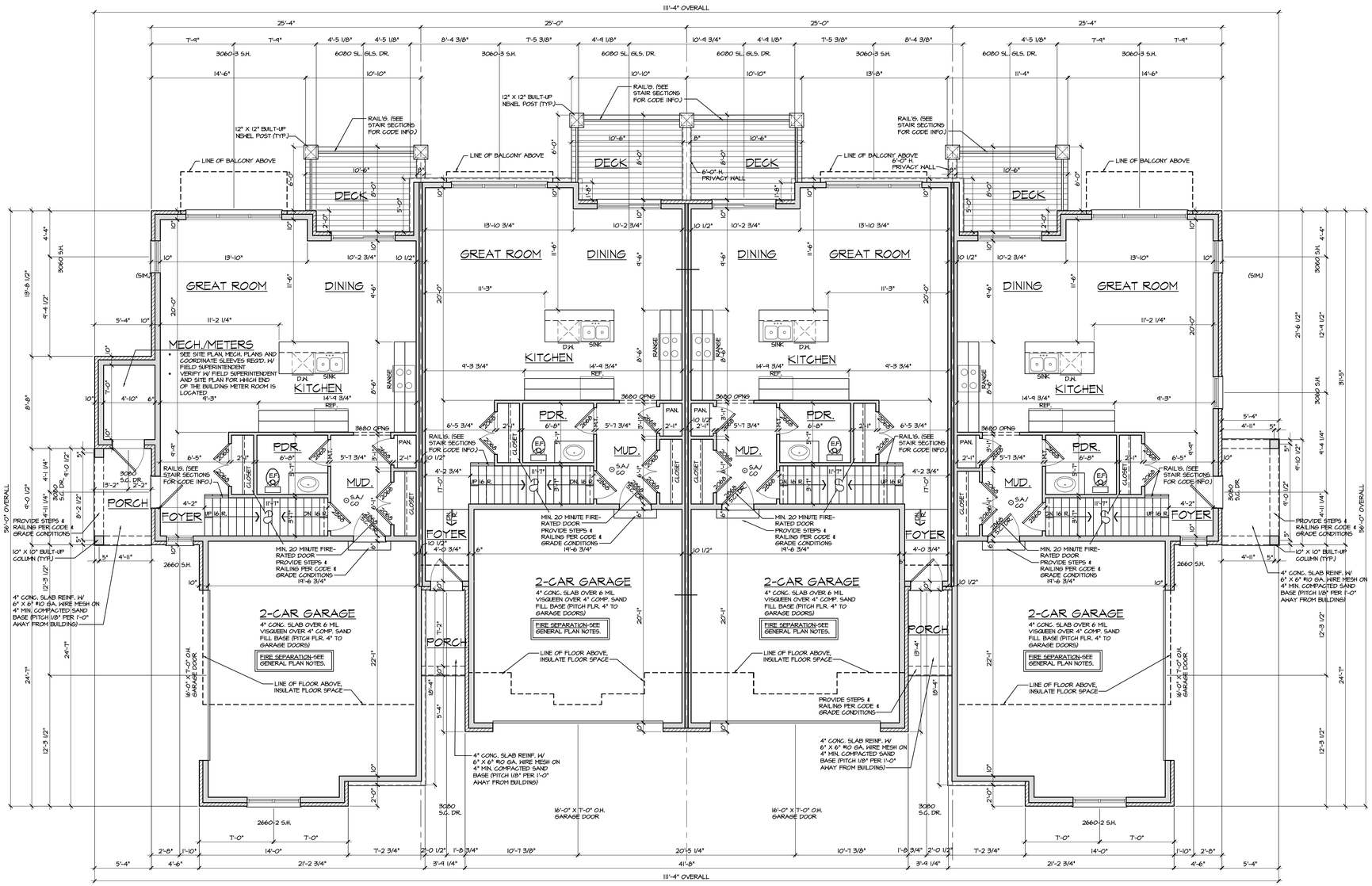
MOCERI
BALDWIN VILLAGE SOUTH
BUILDING ST-10
6-PLEX, 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: BJH.
Chkd:
Job No. 22183
Sheet No. SV14

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SQUARE FOOTAGE
1ST FLOOR = 710 SQUARE FEET
2ND FLOOR = 1024 SQUARE FEET
TOTAL = 1734 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 745 SQUARE FEET
2ND FLOOR = 1083 SQUARE FEET
TOTAL = 1828 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 745 SQUARE FEET
2ND FLOOR = 1083 SQUARE FEET
TOTAL = 1828 SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 710 SQUARE FEET
2ND FLOOR = 1024 SQUARE FEET
TOTAL = 1734 SQUARE FEET

FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248.340.9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING ST-II
4-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

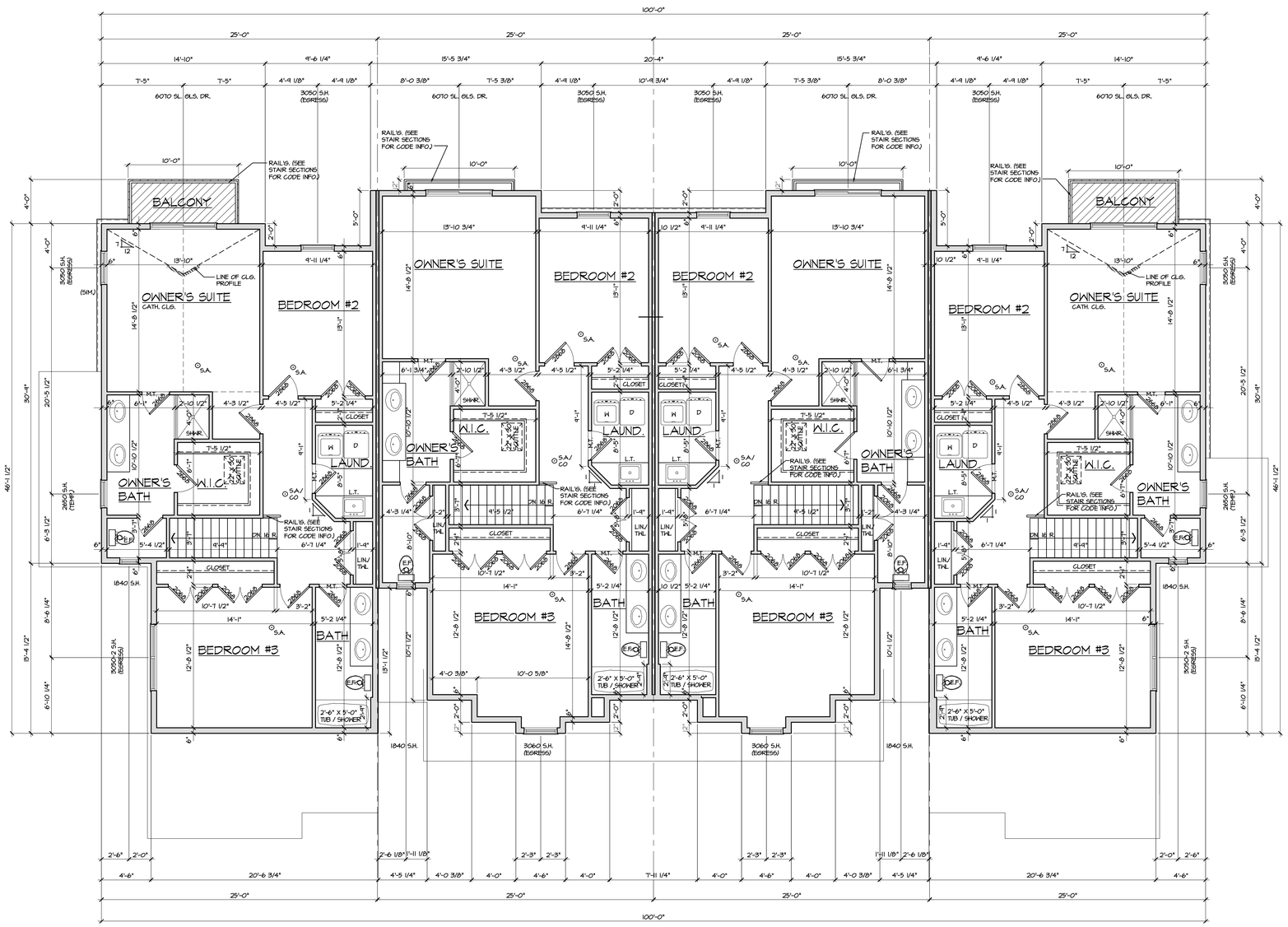
Drwn: B.H.
Chkd:

Job No. 22184

Sheet No. SV15

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTarchitects.com

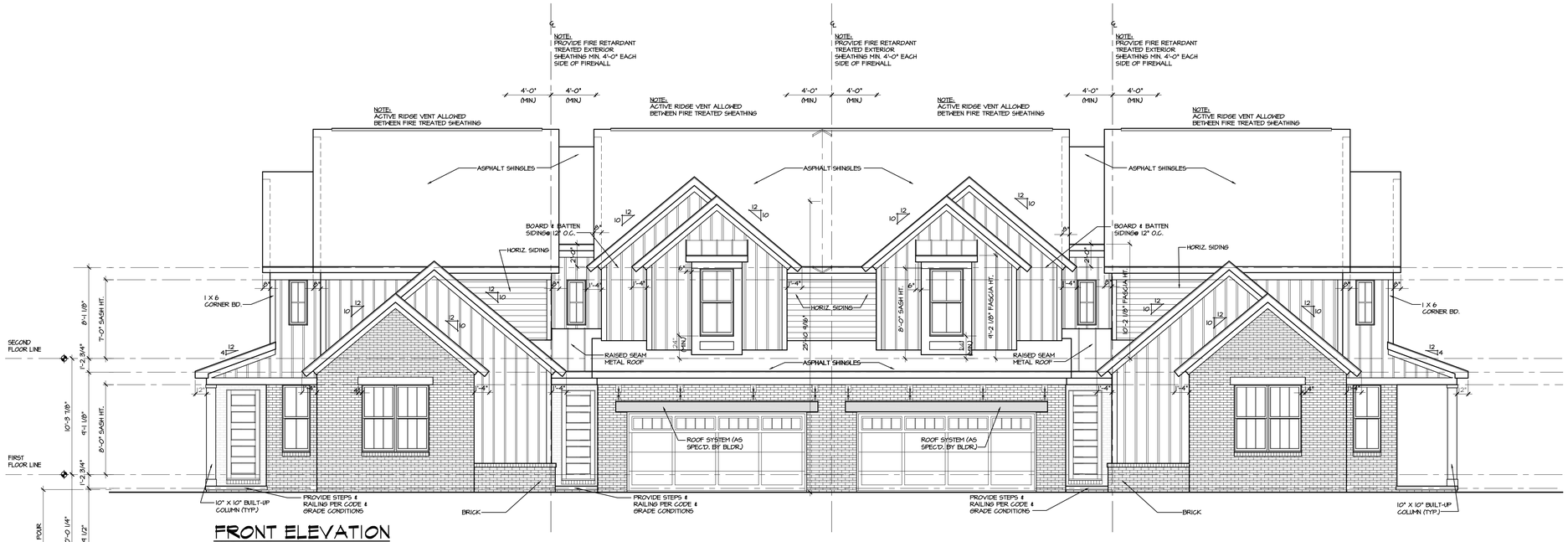
MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 5T-II
4-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22184
Sheet No. SV16

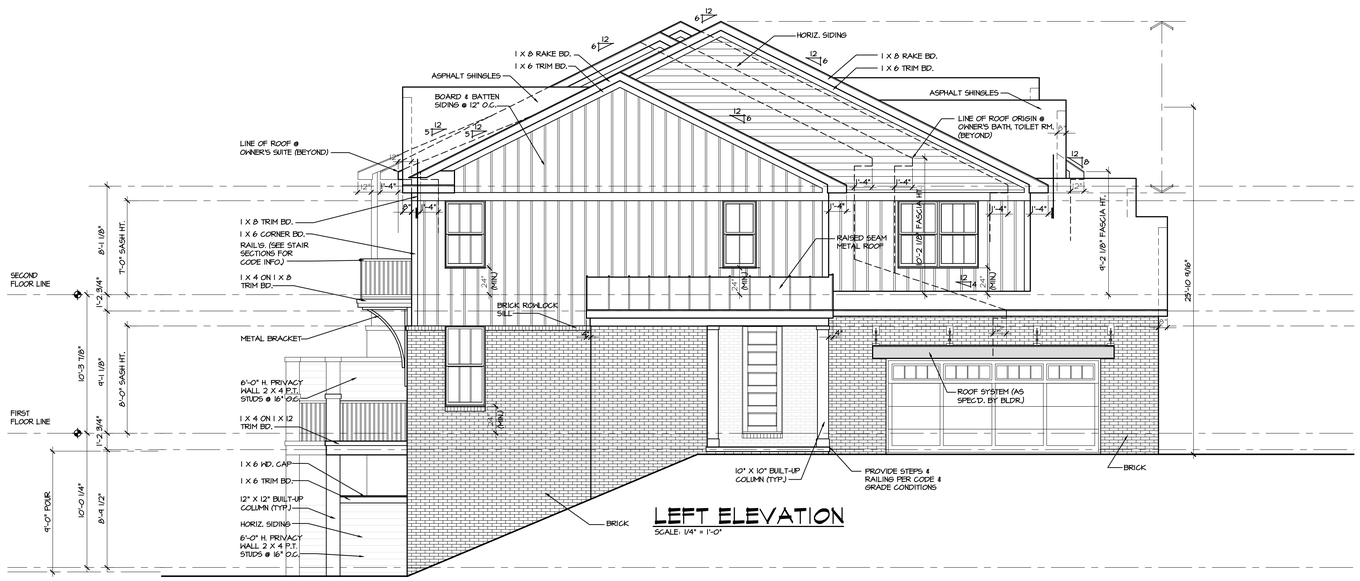
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FRONT ELEVATION

SCALE: 1/4" = 1'-0"



LEFT ELEVATION

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE-INTEGRITY-TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING 57-II
4-PLEX 2-CAR FRONT ENTRY

Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:

Job No. 22184

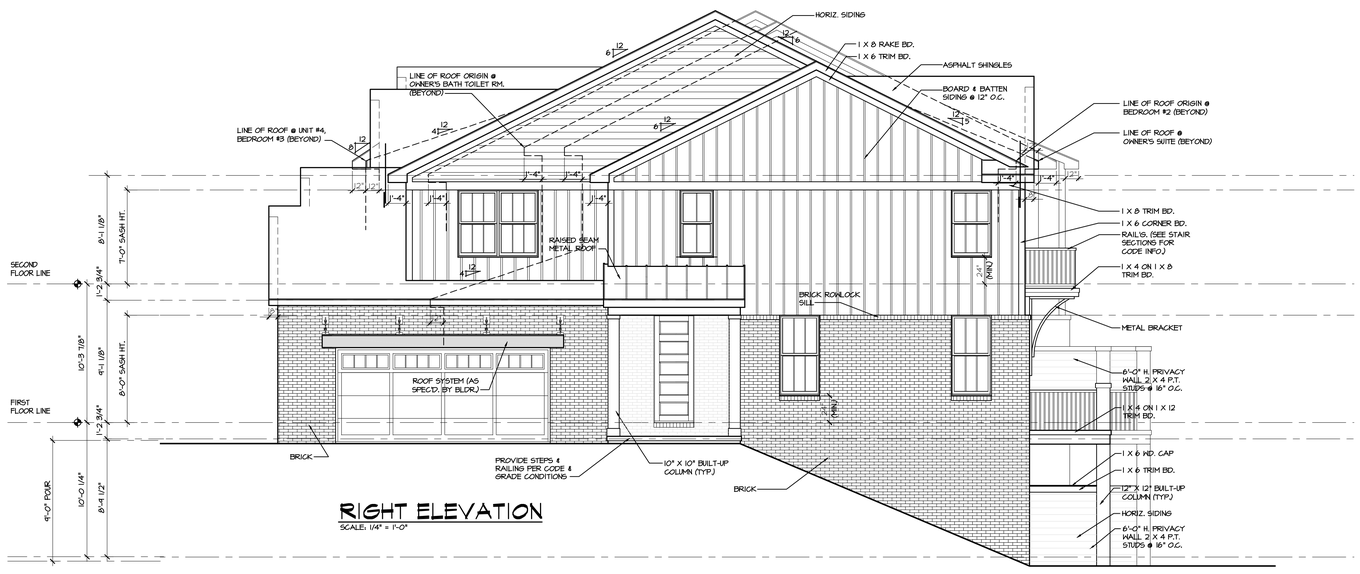
Sheet No. SV17

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

REAR ELEVATION

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTarchitects.com

MOCERI
BALDWIN VILLAGE SOUTH
BUILDING ST-11
4-PLEX 2-CAR FRONT ENTRY

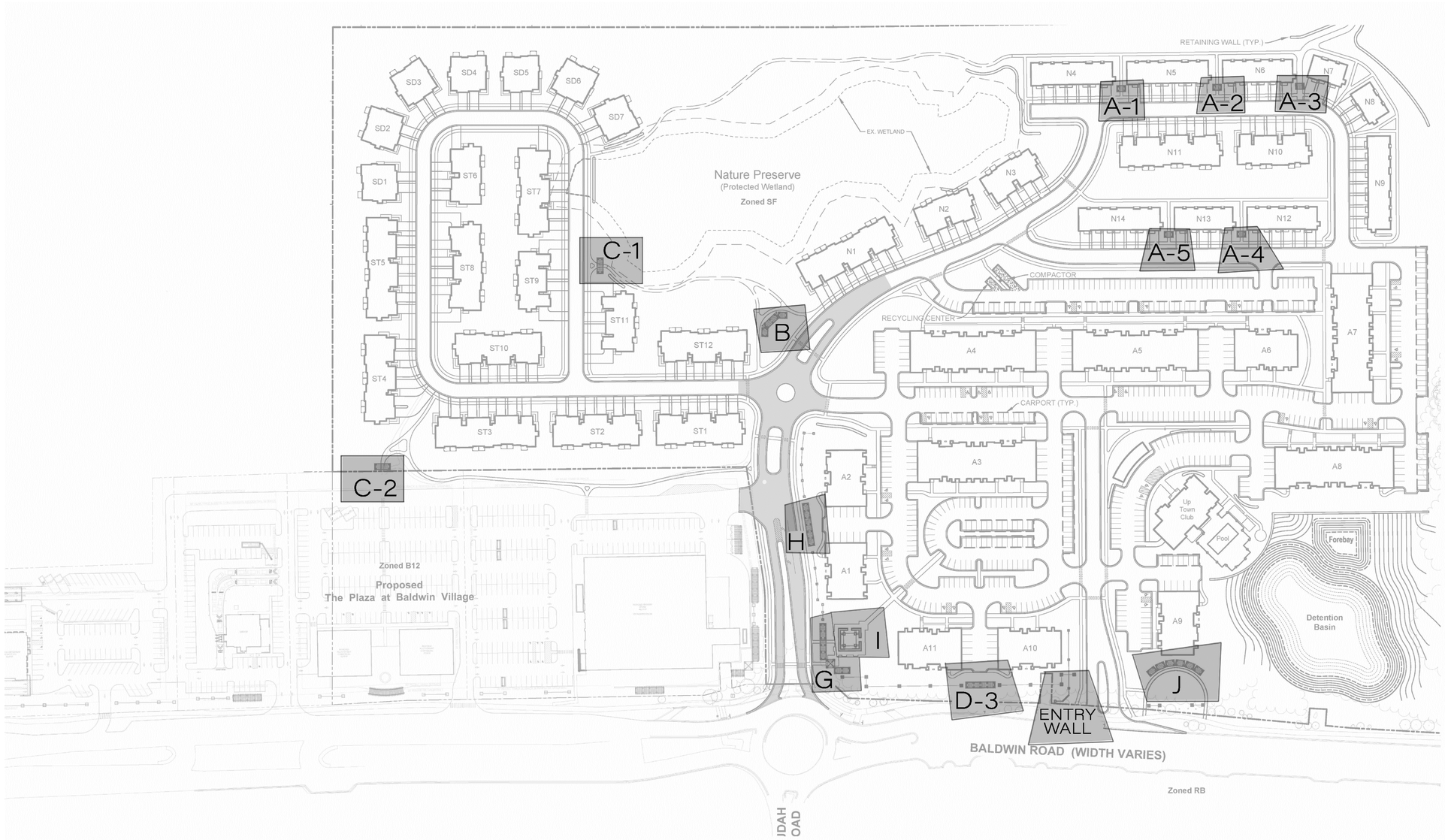
Review Set: 10/24/22
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:
Job No. 22184
Sheet No. SV18

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

Baldwin Village- Residential Community Monuments



MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

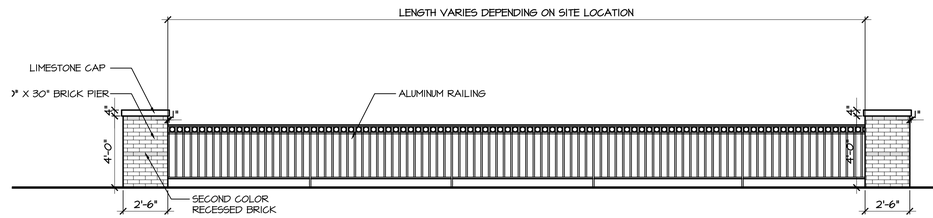
MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. A OF 22

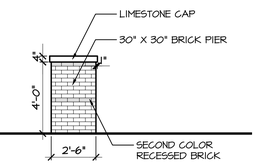
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



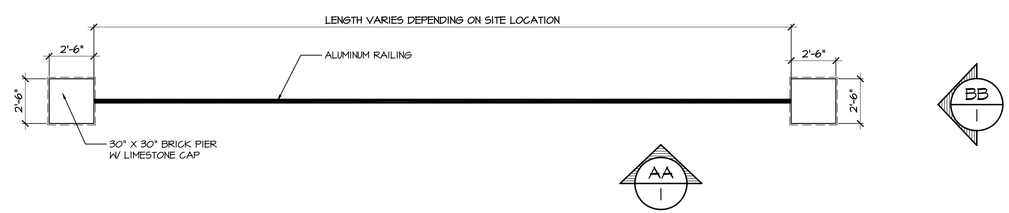
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



PIER-RAILING FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN

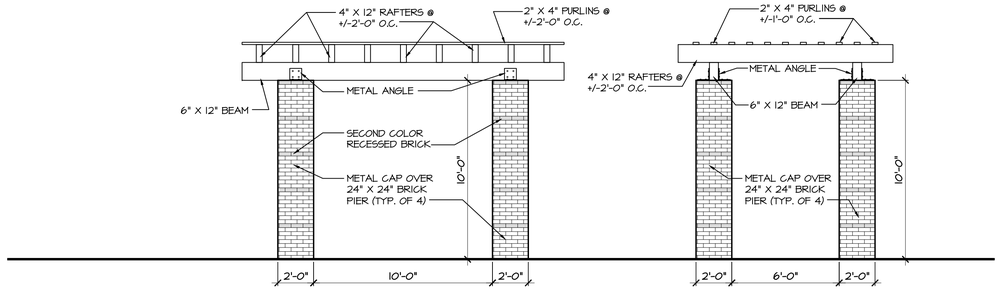
PIER-RAILING

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. 11 OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

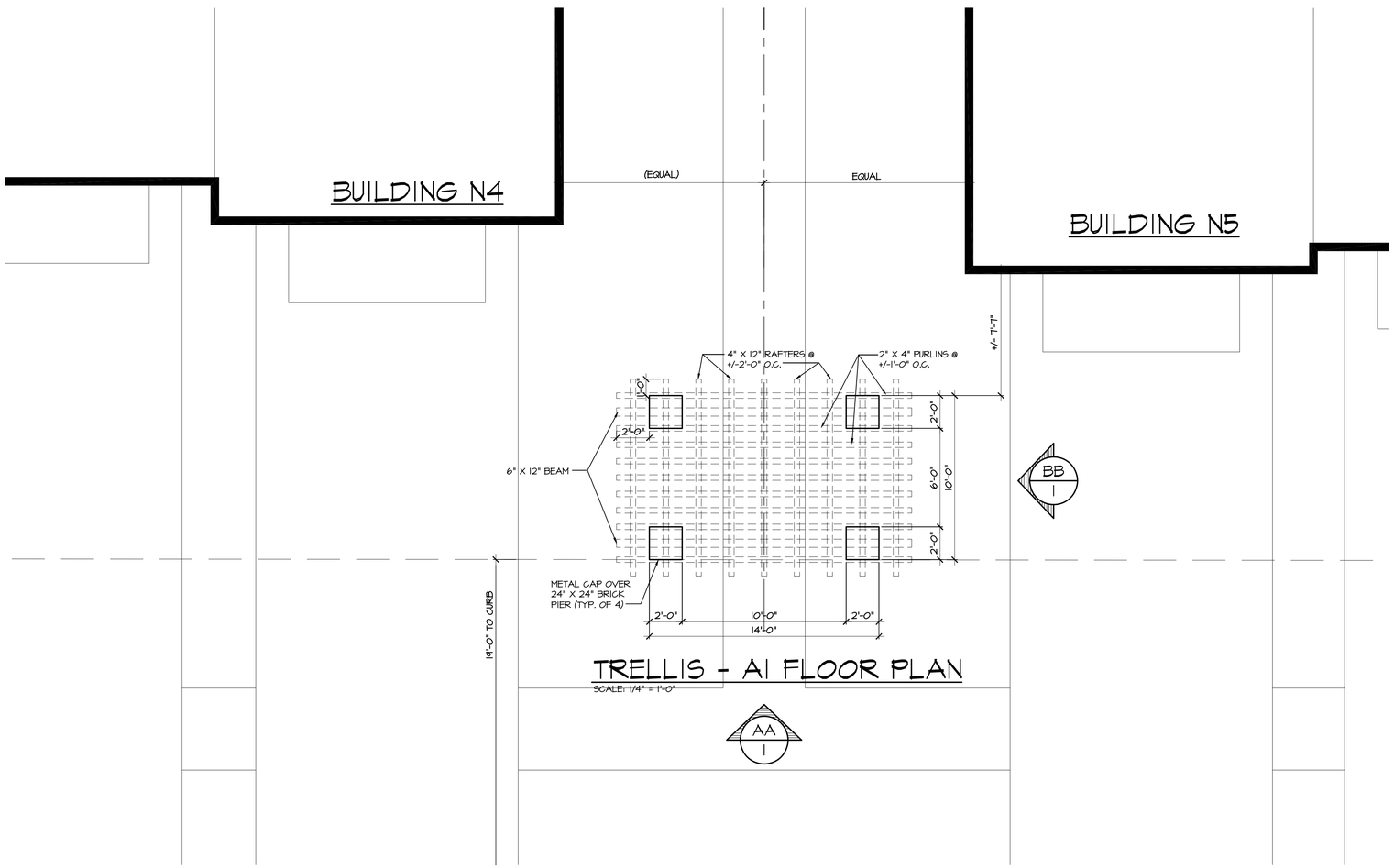


ELEVATION "AA"

SCALE: 1/4" = 1'-0"

ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - A1 FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS A-1

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

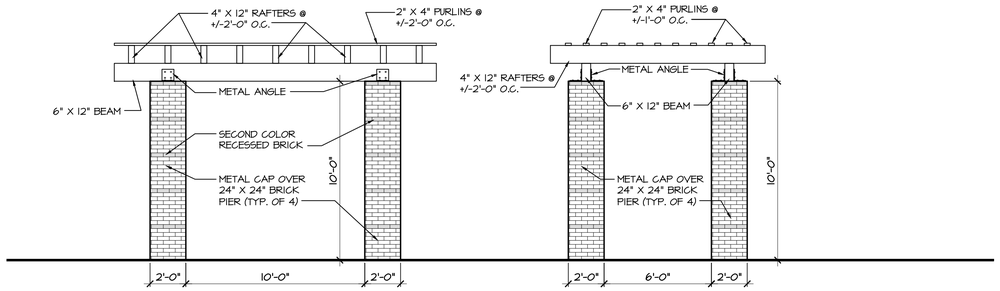
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 2 OF 22

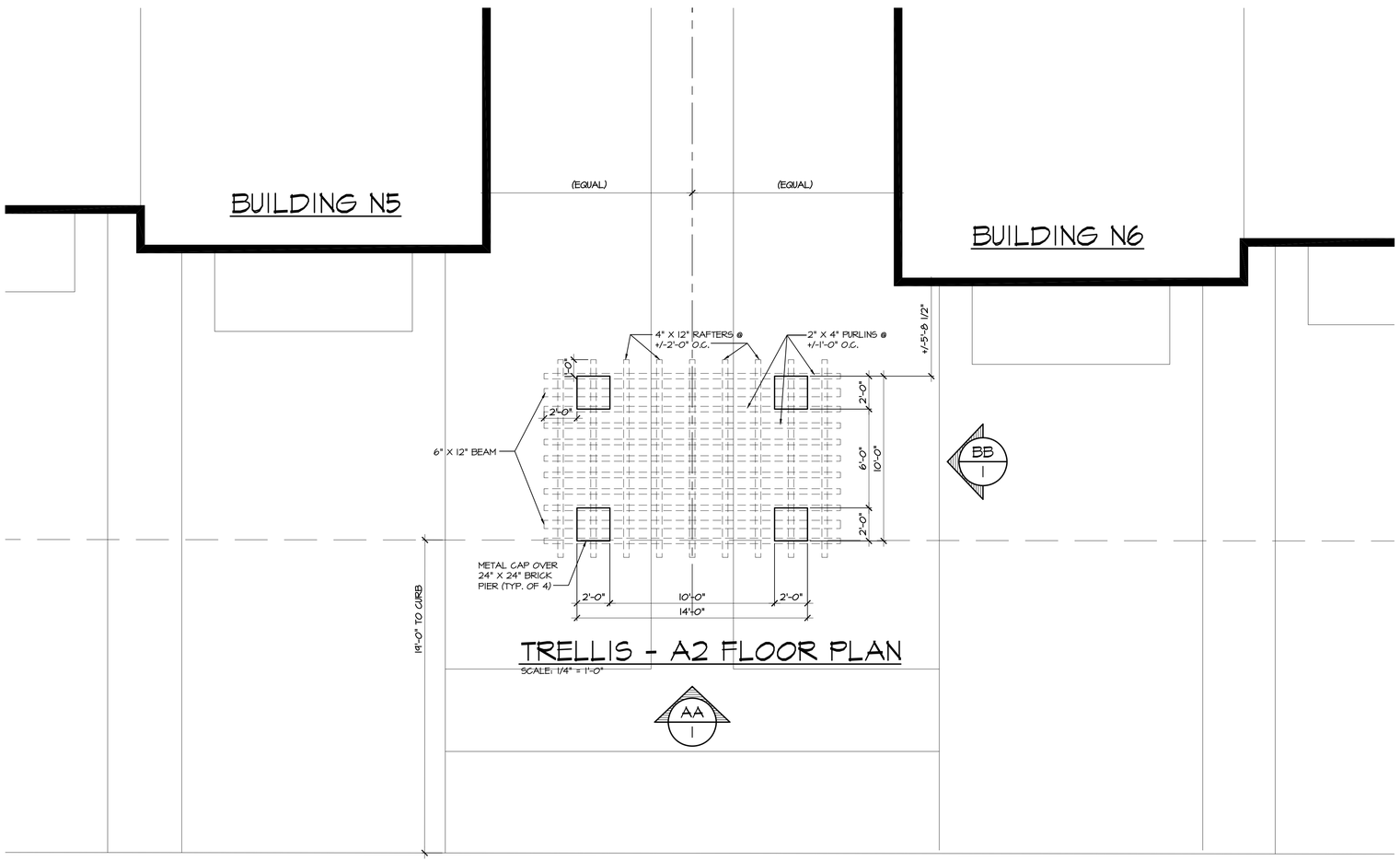
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ELEVATION "AA"
SCALE: 1/4" = 1'-0"

ELEVATION "BB"
SCALE: 1/4" = 1'-0"



TRELLIS - A2 FLOOR PLAN
SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN

TRELLIS A-2

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

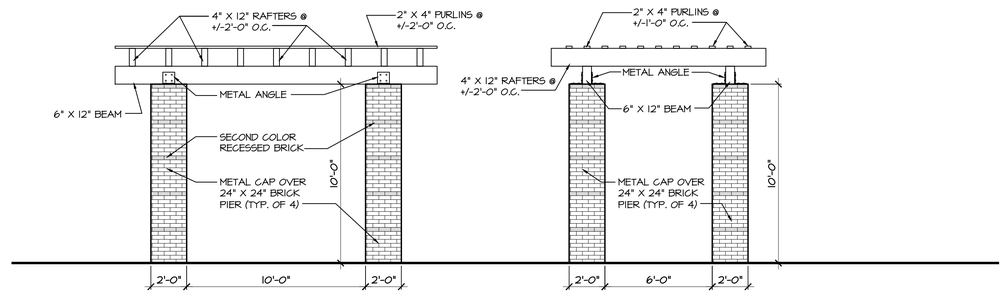
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 3 OF 22

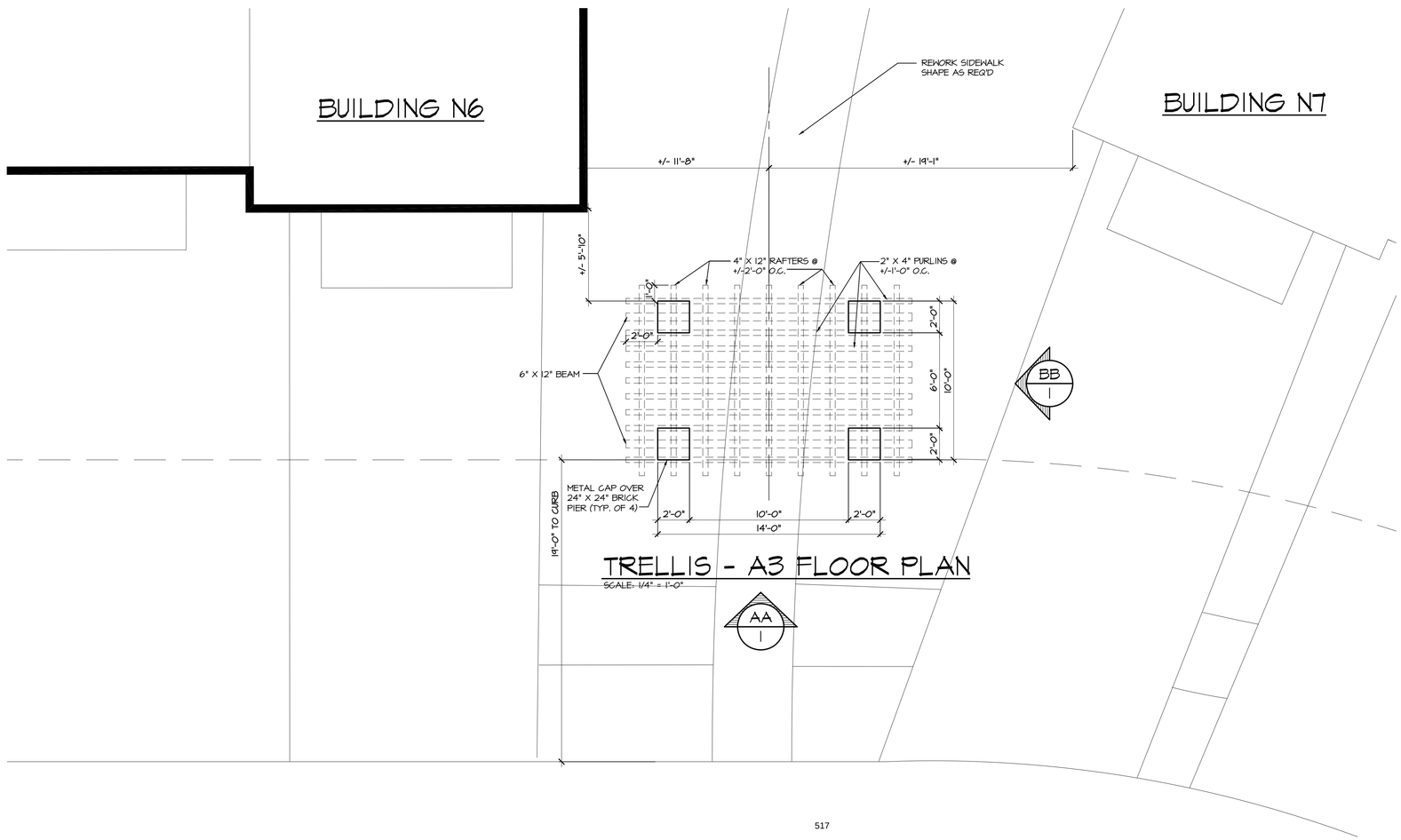
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ELEVATION "AA"
SCALE: 1/4" = 1'-0"

ELEVATION "BB"
SCALE: 1/4" = 1'-0"



TRELLIS - A3 FLOOR PLAN
SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION™

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN

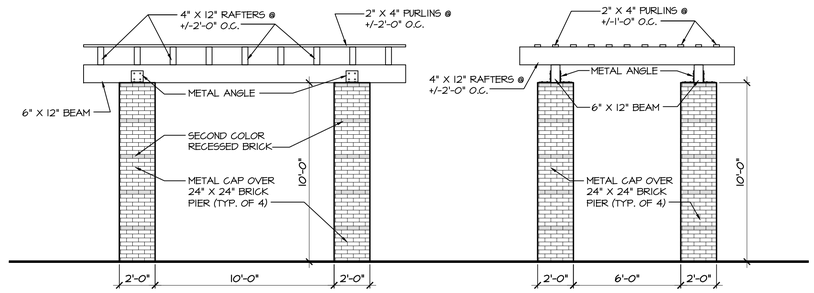
TRELLIS A-3

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. 4 OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

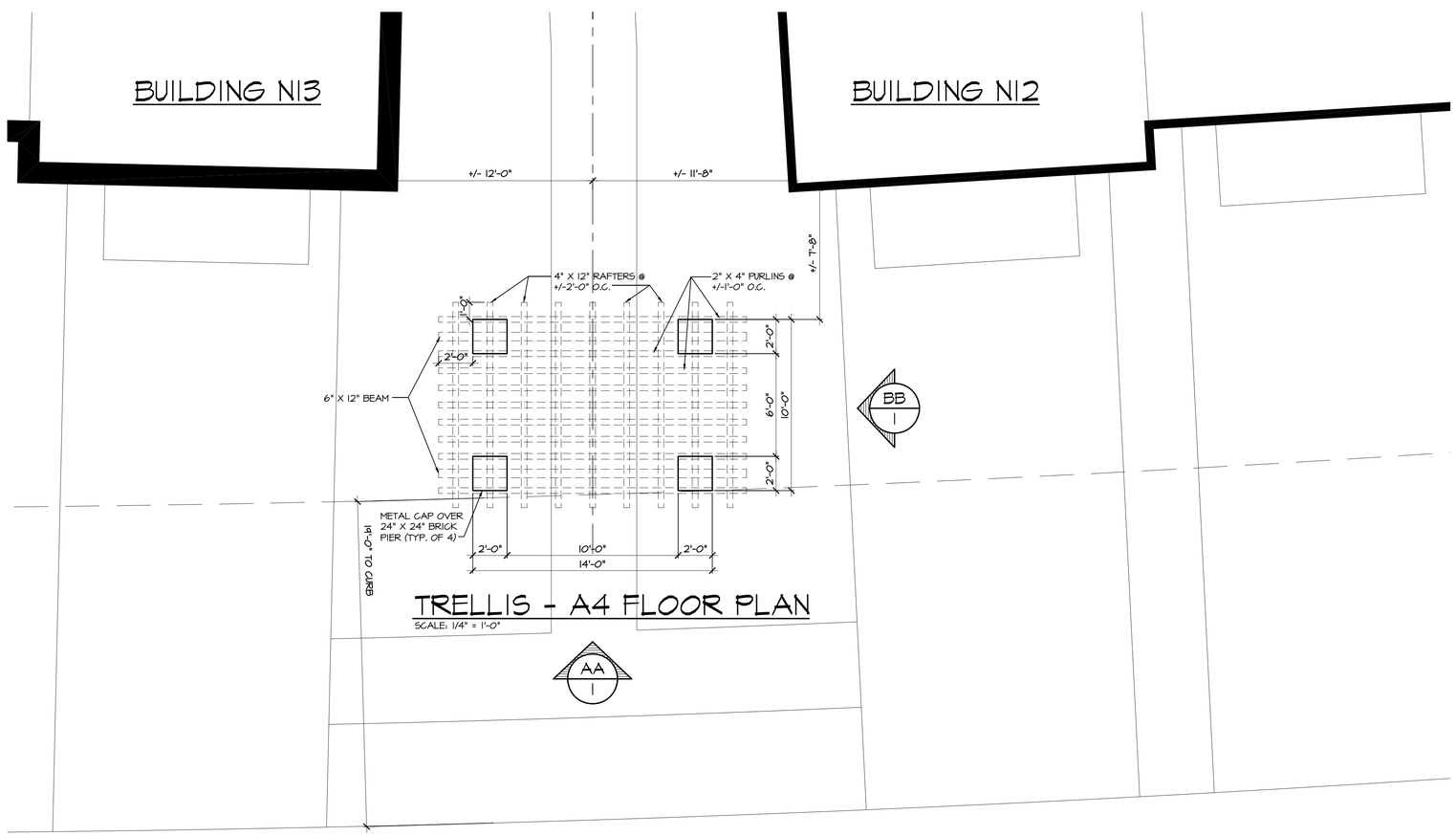


ELEVATION "AA"

SCALE: 1/4" = 1'-0"

ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - A4 FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS A-4

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

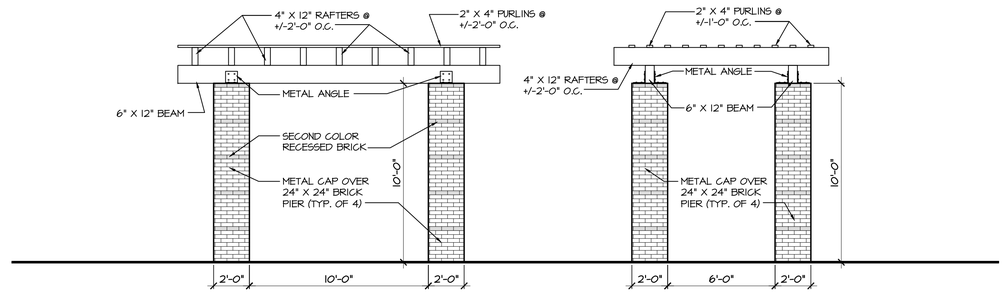
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 5 OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

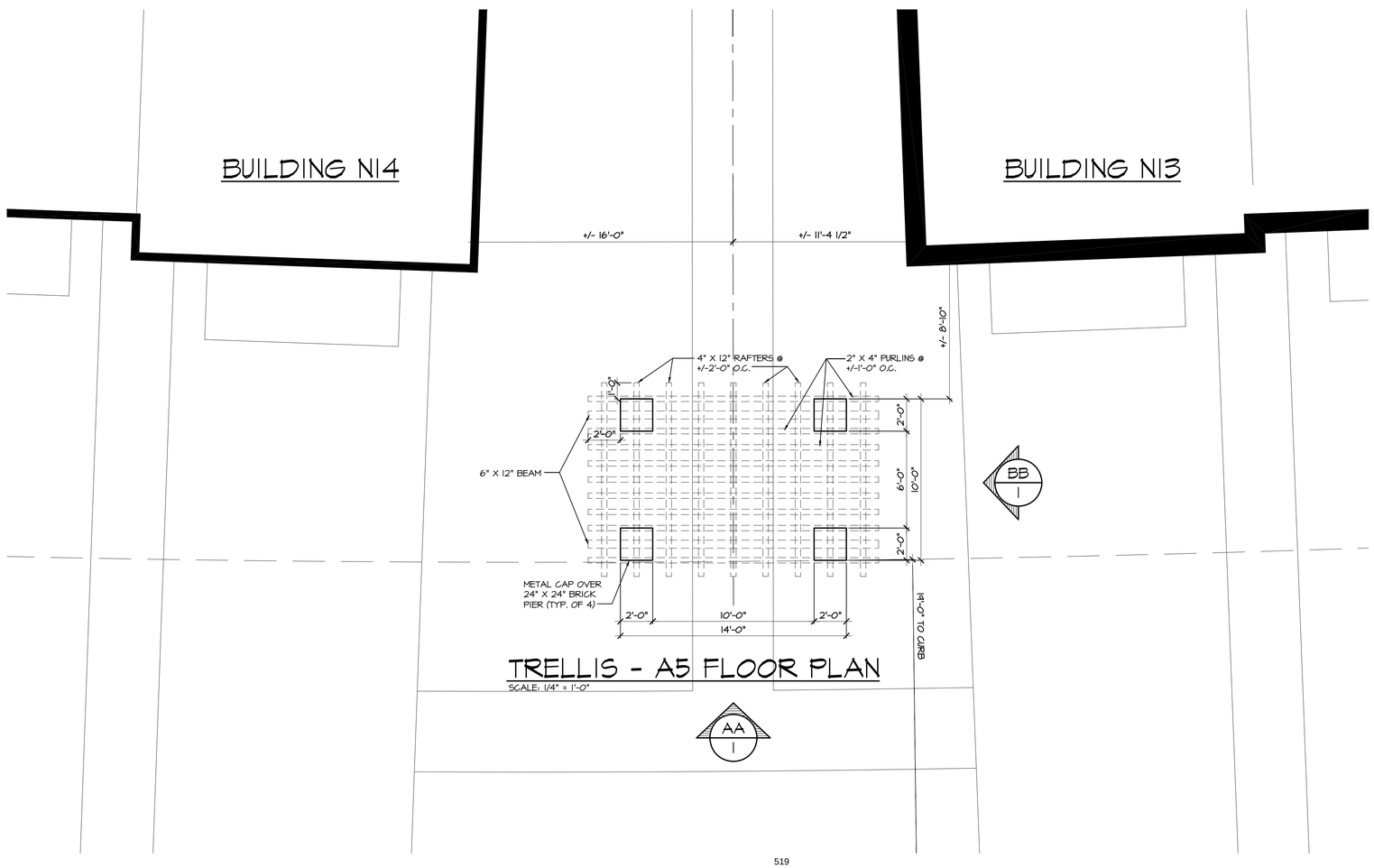


ELEVATION "AA"

SCALE: 1/4" = 1'-0"

ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - A5 FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS A-5

Review Set:

Permit:

Final Set: 12/09/22

Revisions:

Drwn: C.M.

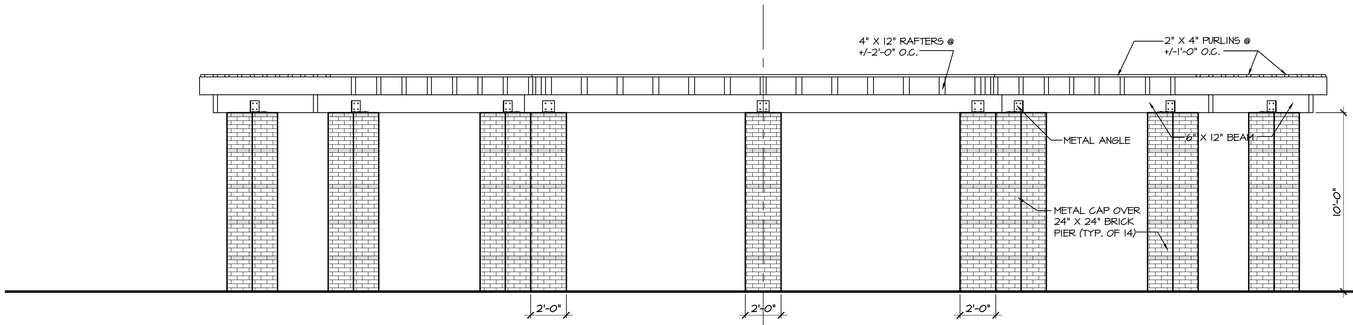
Chkd:

Job No. 22185

Sheet No. 6 OF 22

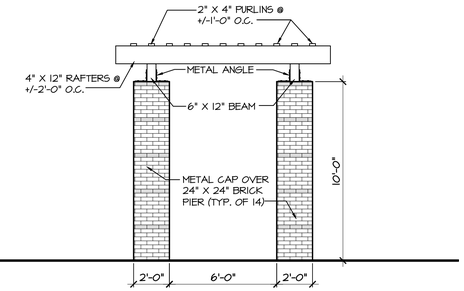
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



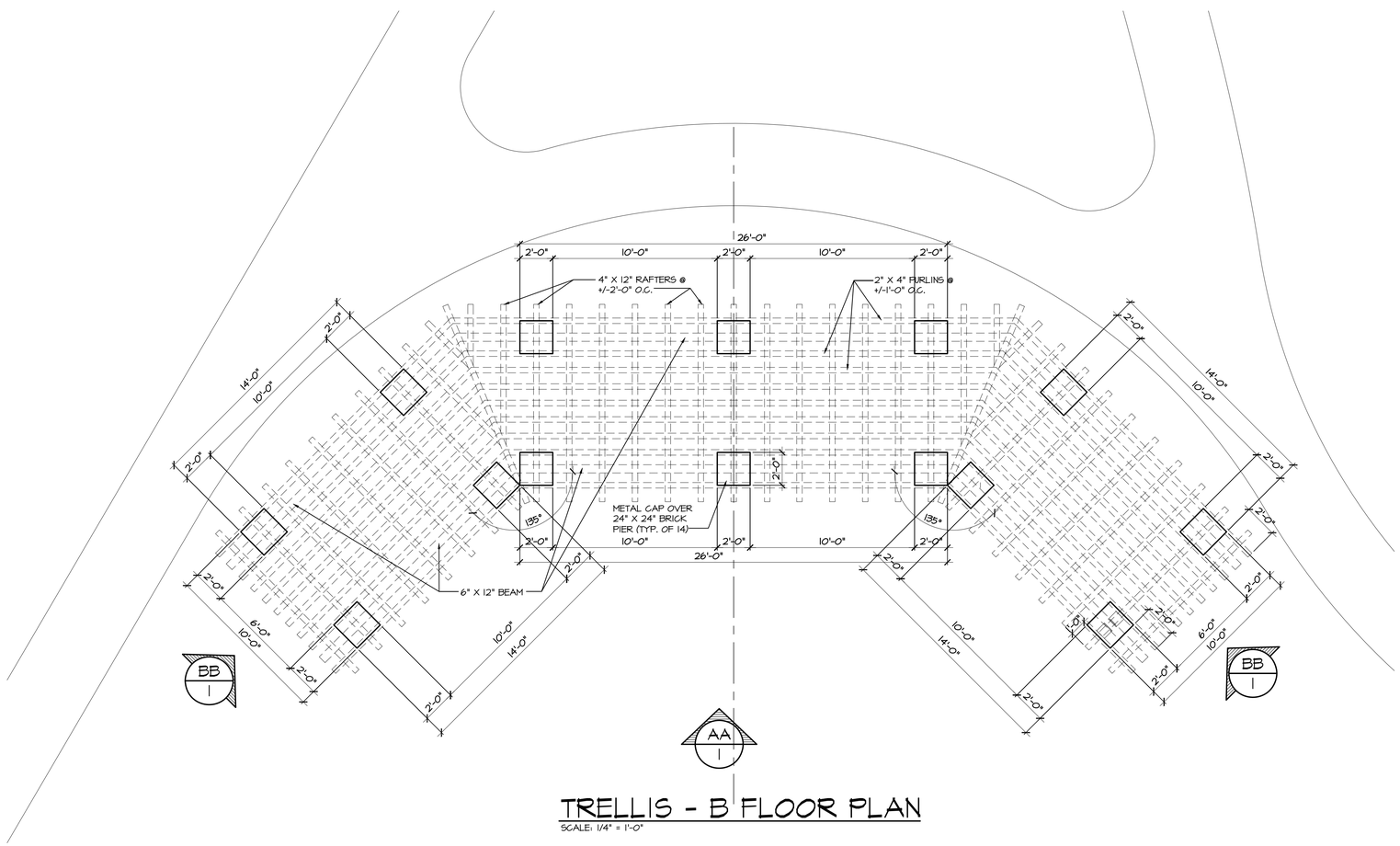
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - B FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TRELLIS B

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

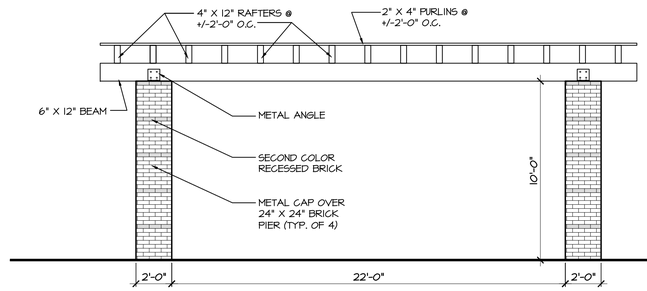
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 7 OF 22

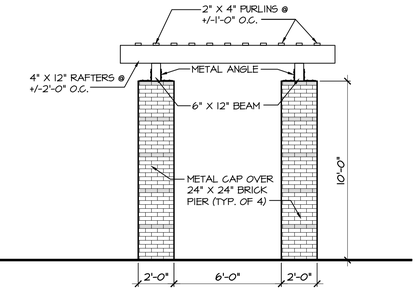
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



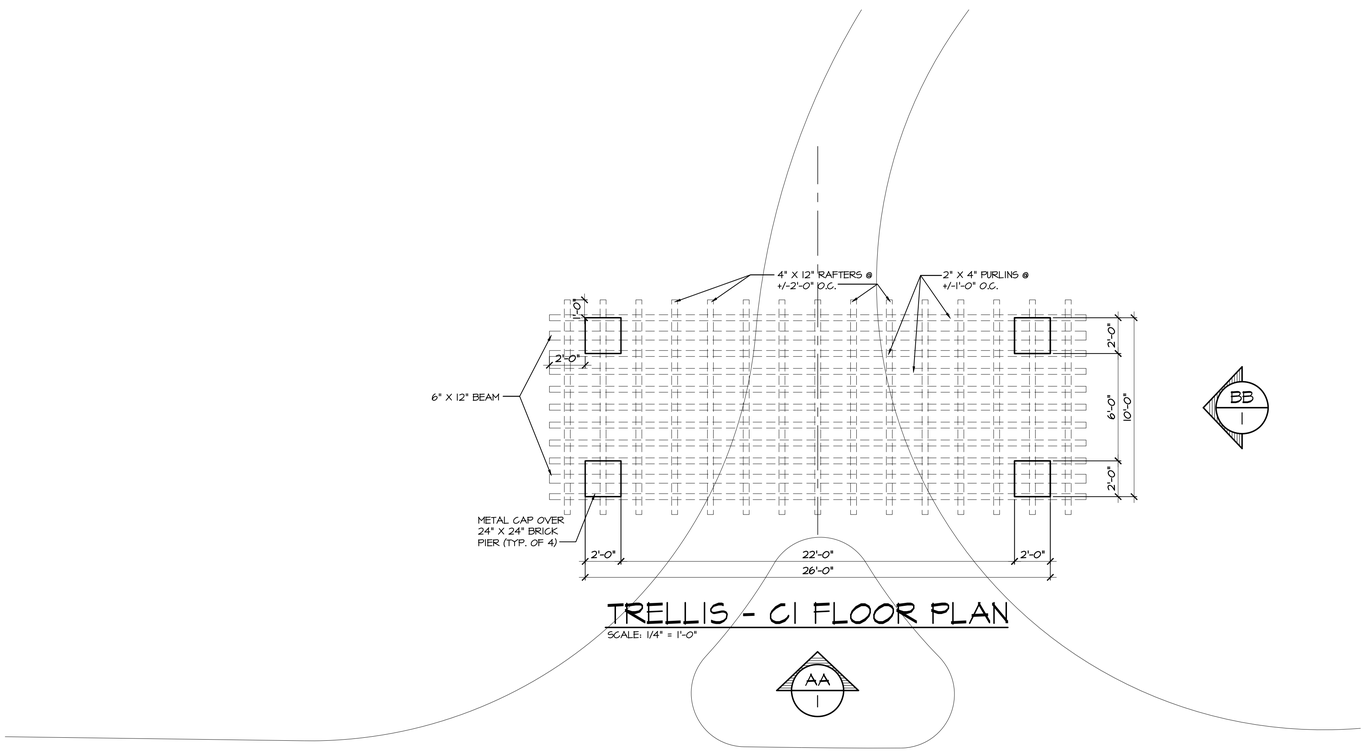
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - C1 FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS C-1

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

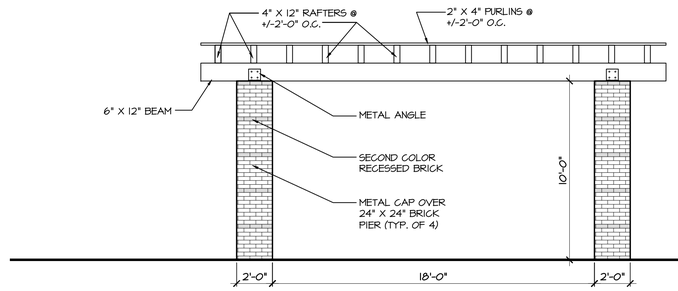
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 8 OF 22

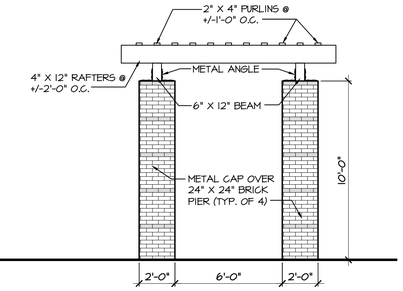
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



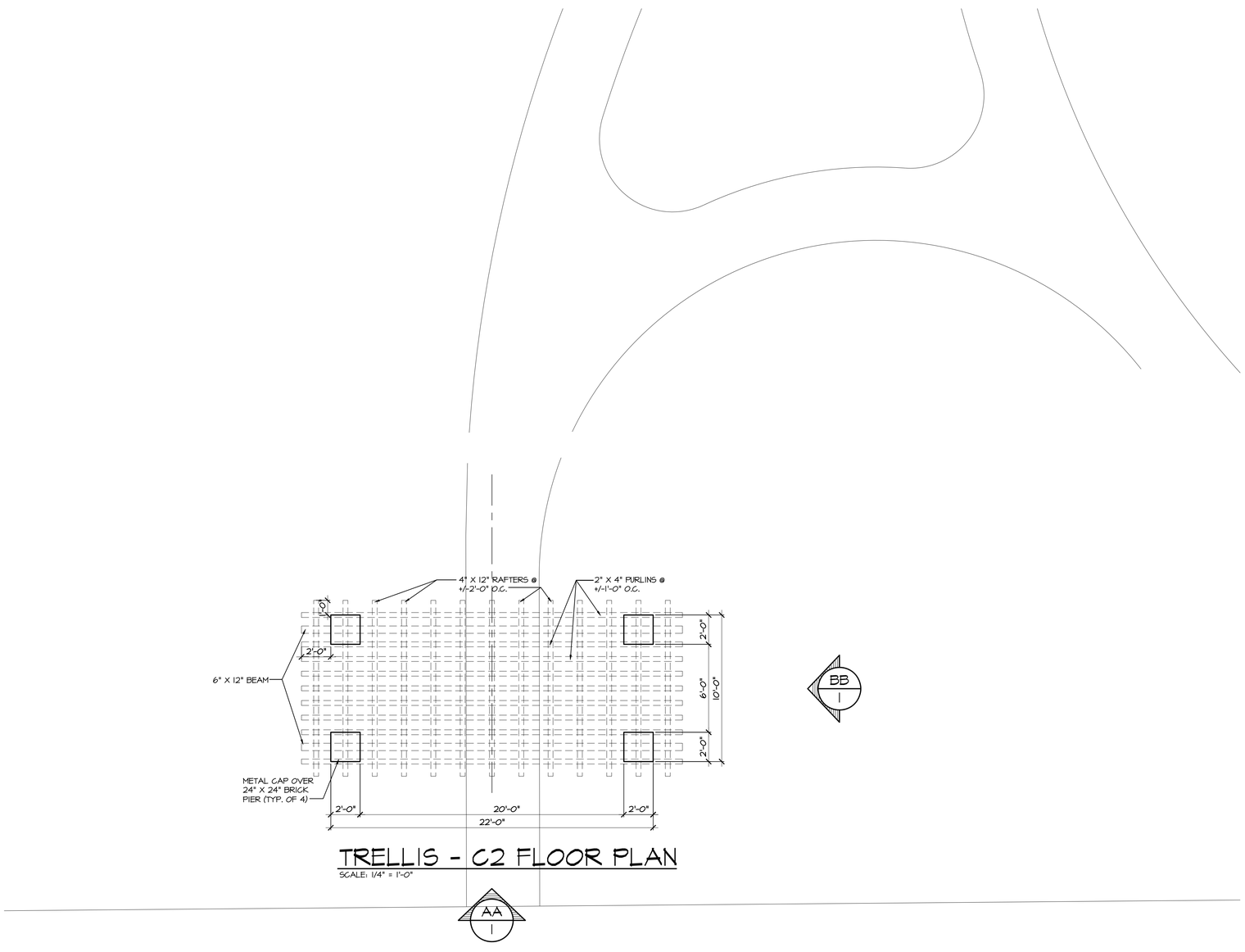
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - C2 FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS C-2

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

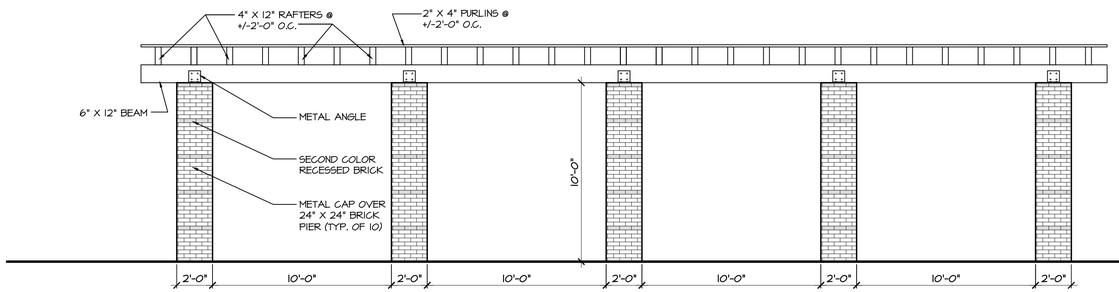
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 9 OF 22

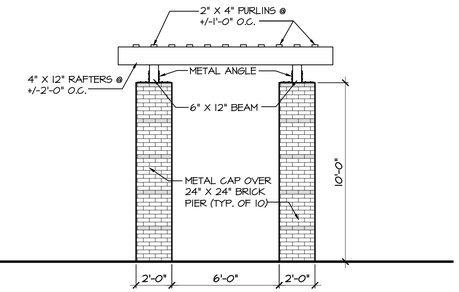
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



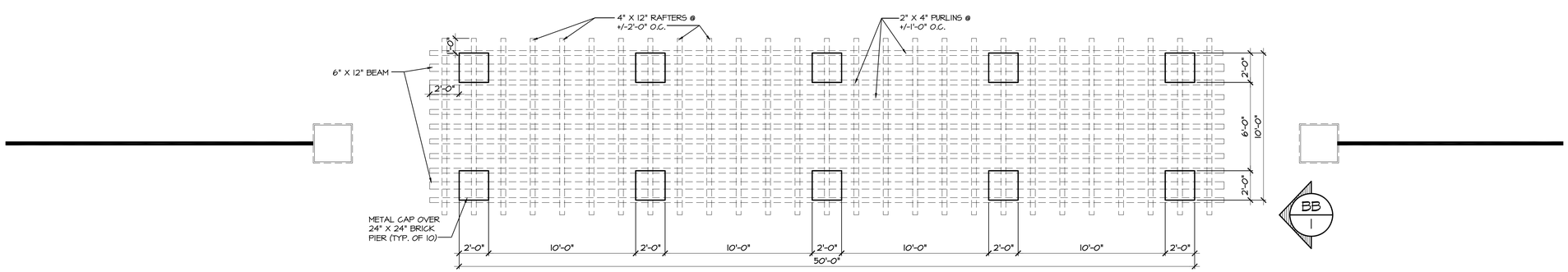
ELEVATION "AA"

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - D3 FLOOR PLAN

SCALE: 1/4" = 1'-0"

AA
1

NOTE:
ALUMINUM OR WOOD TRELLIS
MEMBERS TO BE DETERMINED

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TRELLIS D-3

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

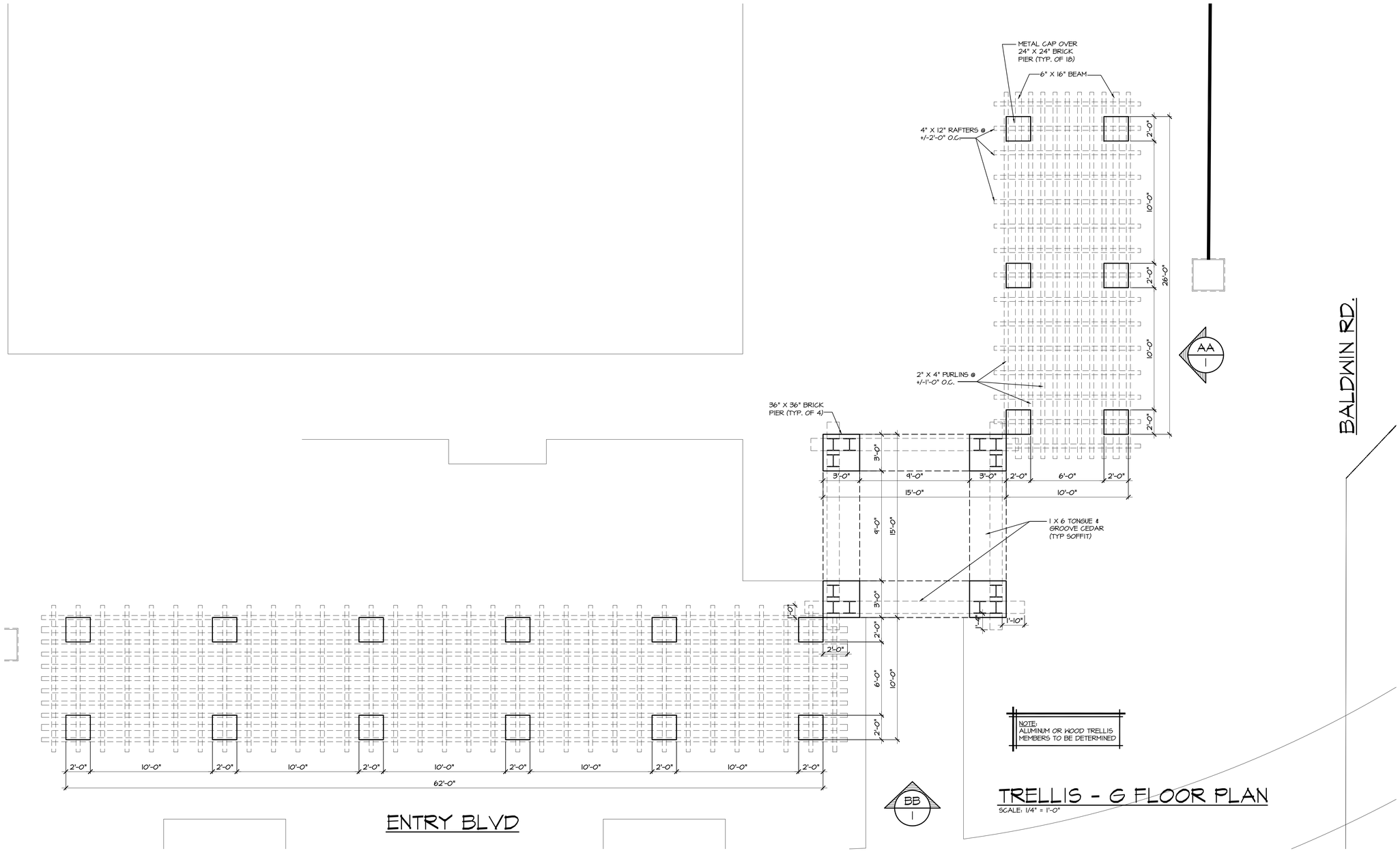
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 12 OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



NOTE:
ALUMINUM OR WOOD TRELLIS MEMBERS TO BE DETERMINED

TRELLIS - G FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN

TRELLIS G

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

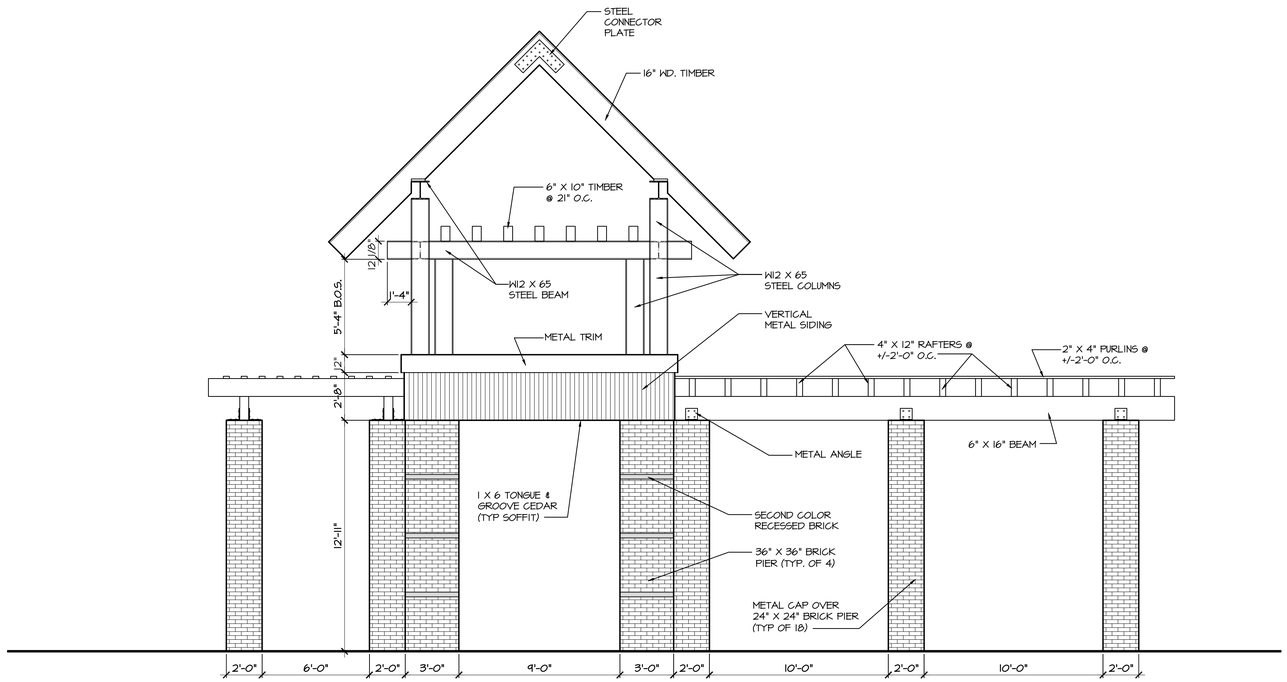
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 15 OF 22

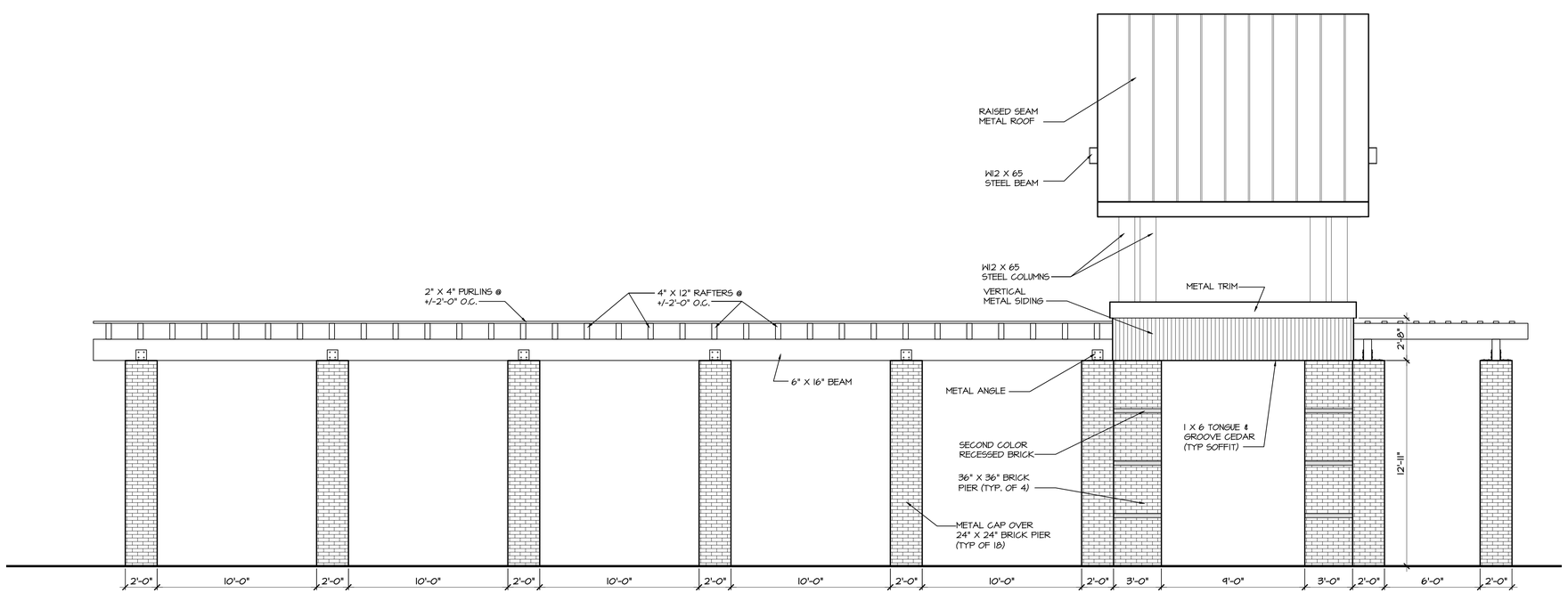
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ELEVATION "AA" - BALDWIN RD

SCALE: 1/4" = 1'-0"



ELEVATION "BB" - ENTRY BLVD

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TRELLIS 6

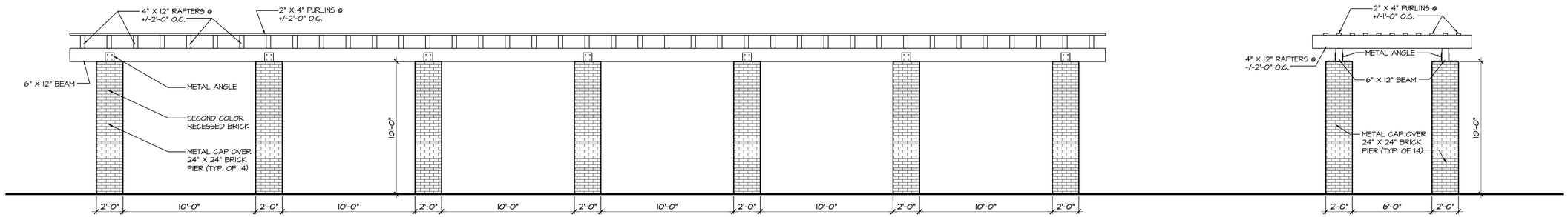
Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185

Sheet No. 15A OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

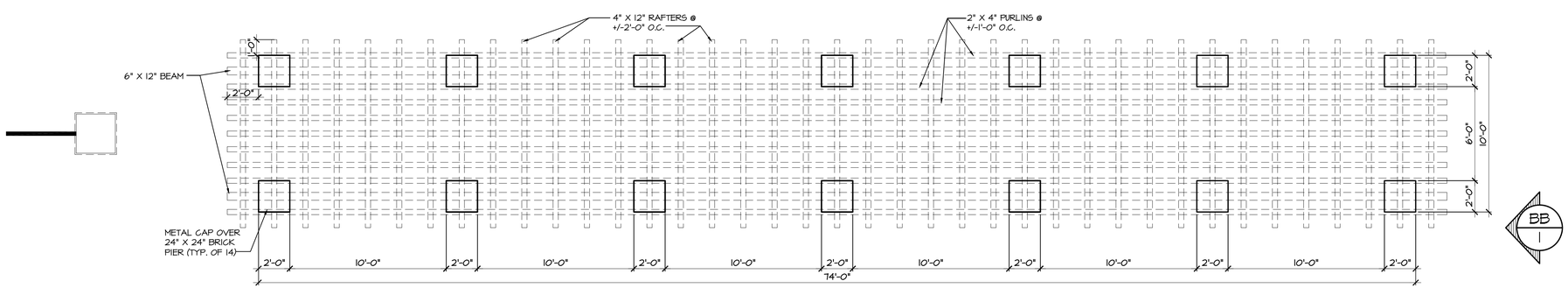


ELEVATION "AA"

SCALE: 1/4" = 1'-0"

ELEVATION "BB"

SCALE: 1/4" = 1'-0"



TRELLIS - H FLOOR PLAN

SCALE: 1/4" = 1'-0"

AA
1

NOTE:
ALUMINUM OR WOOD TRELLIS MEMBERS TO BE DETERMINED

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TRELLIS H

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

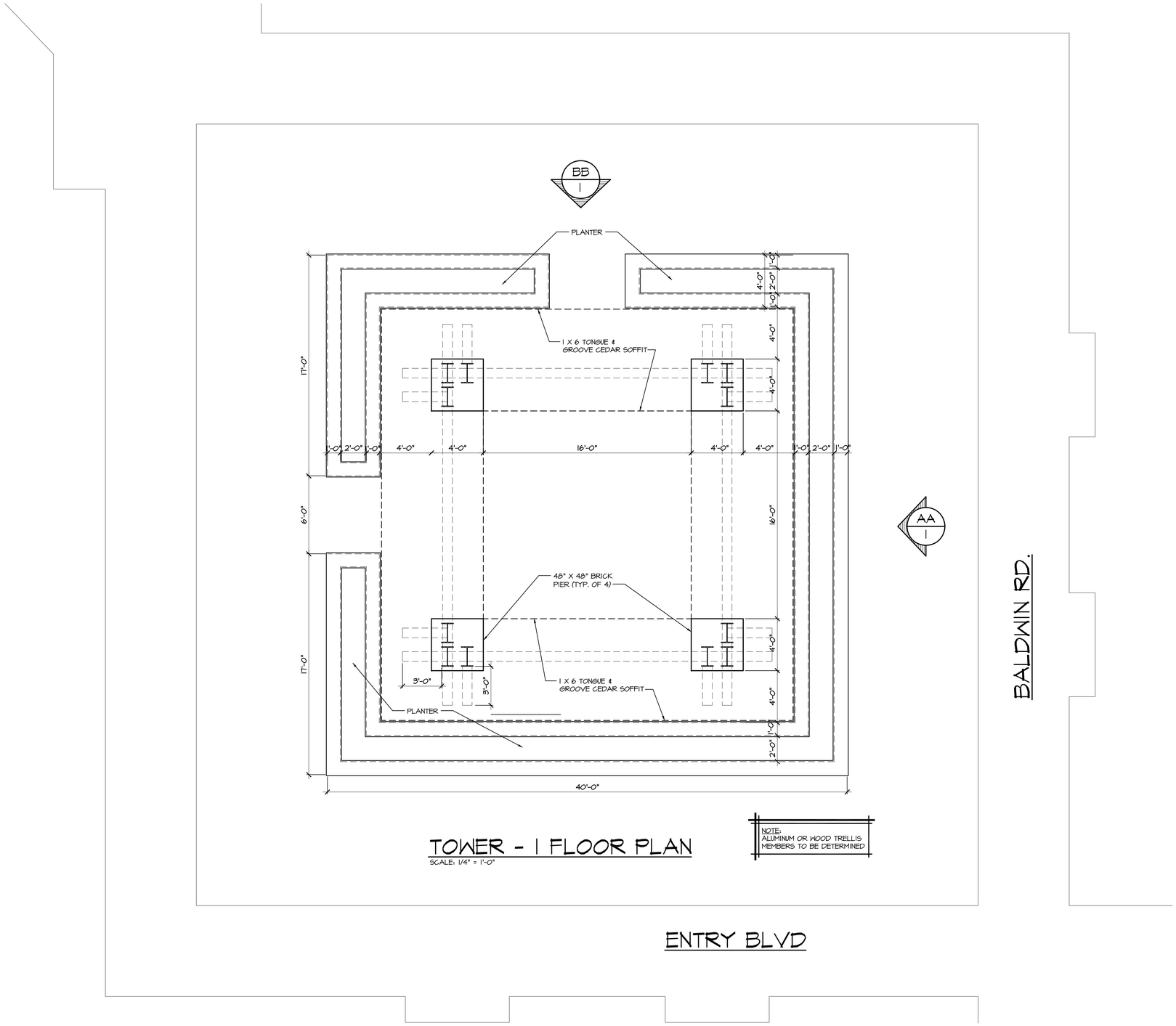
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 16 OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



TOWER - 1 FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE:
ALUMINUM OR WOOD TRELLIS
MEMBERS TO BE DETERMINED

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

TOWER 1

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

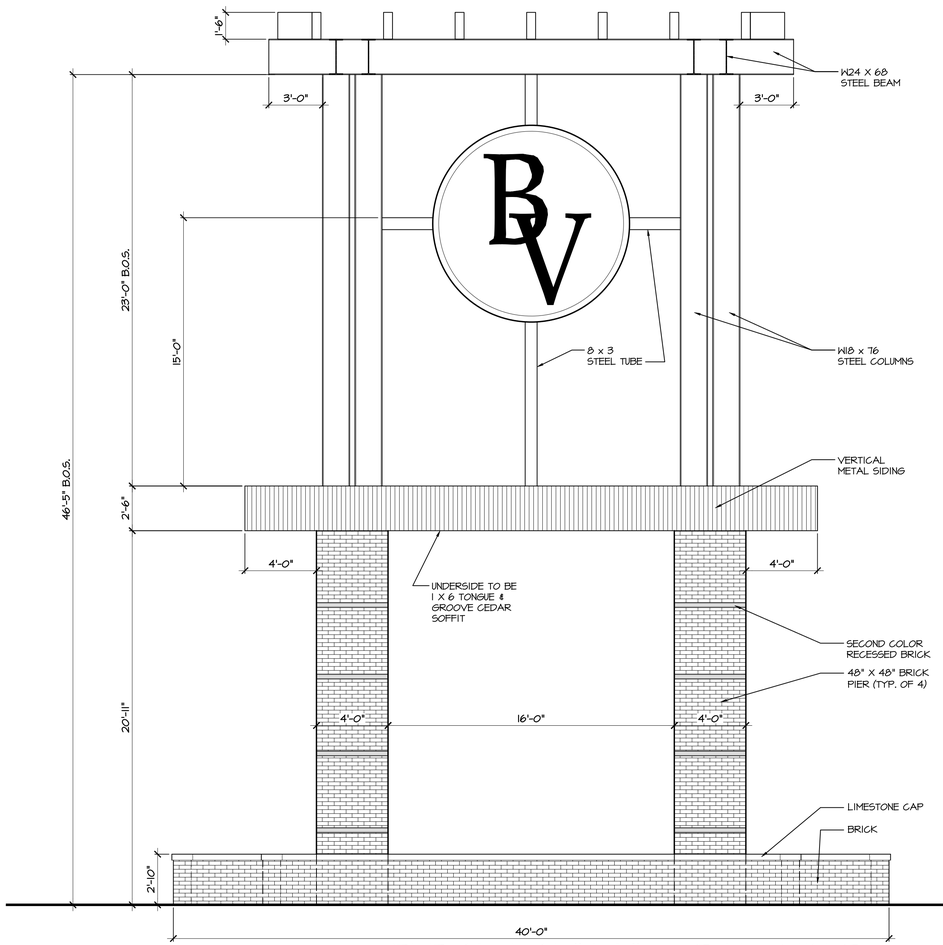
Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 17 OF 22

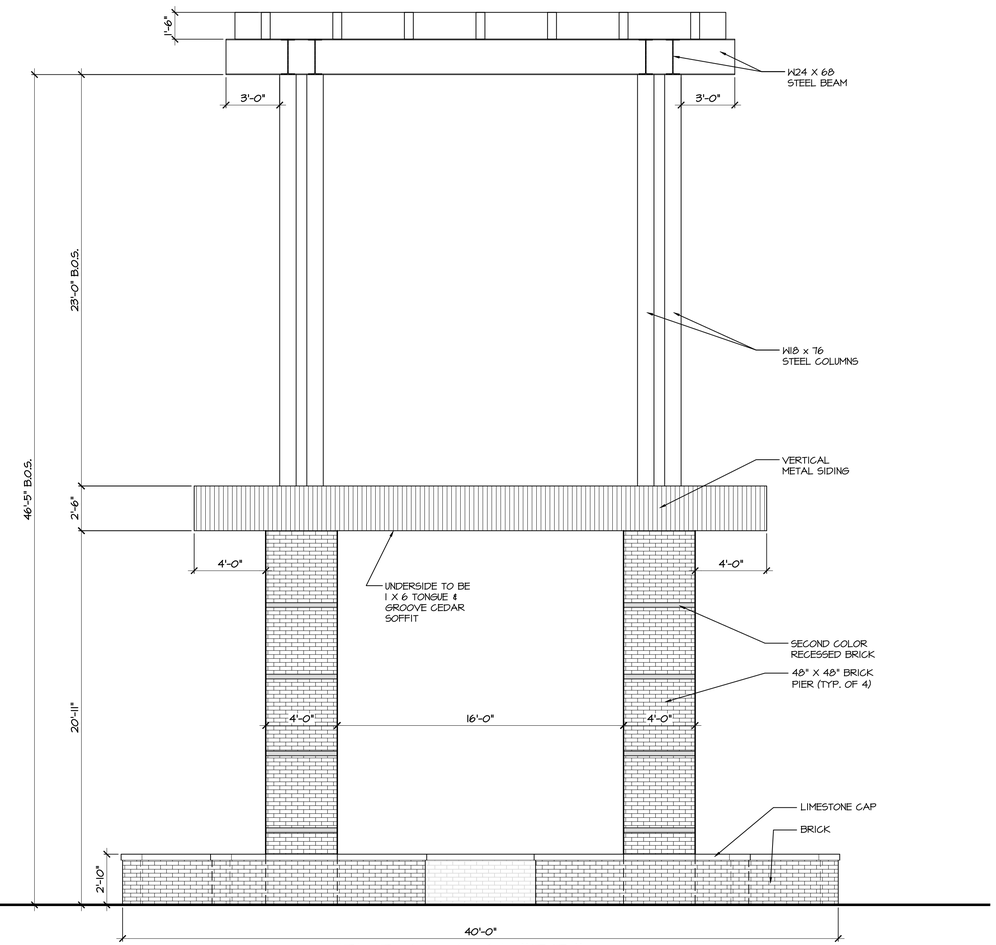
LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ELEVATION "AA" - BALDWIN RD.

SCALE: 1/4" = 1'-0"



ELEVATION "BB"

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

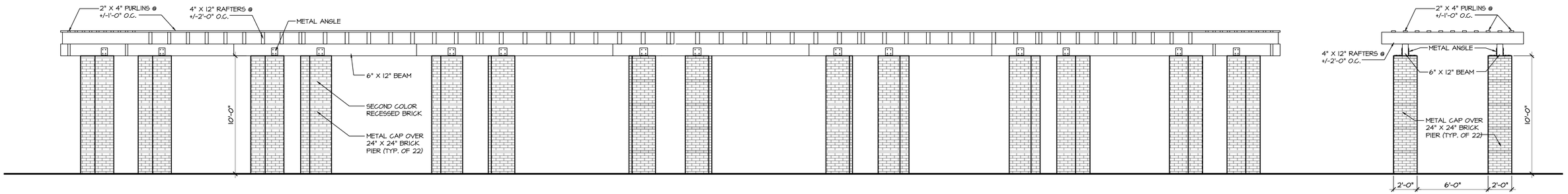
MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TOWER 1

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. 18 OF 22

LIFESTYLE BY DESIGN

© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.

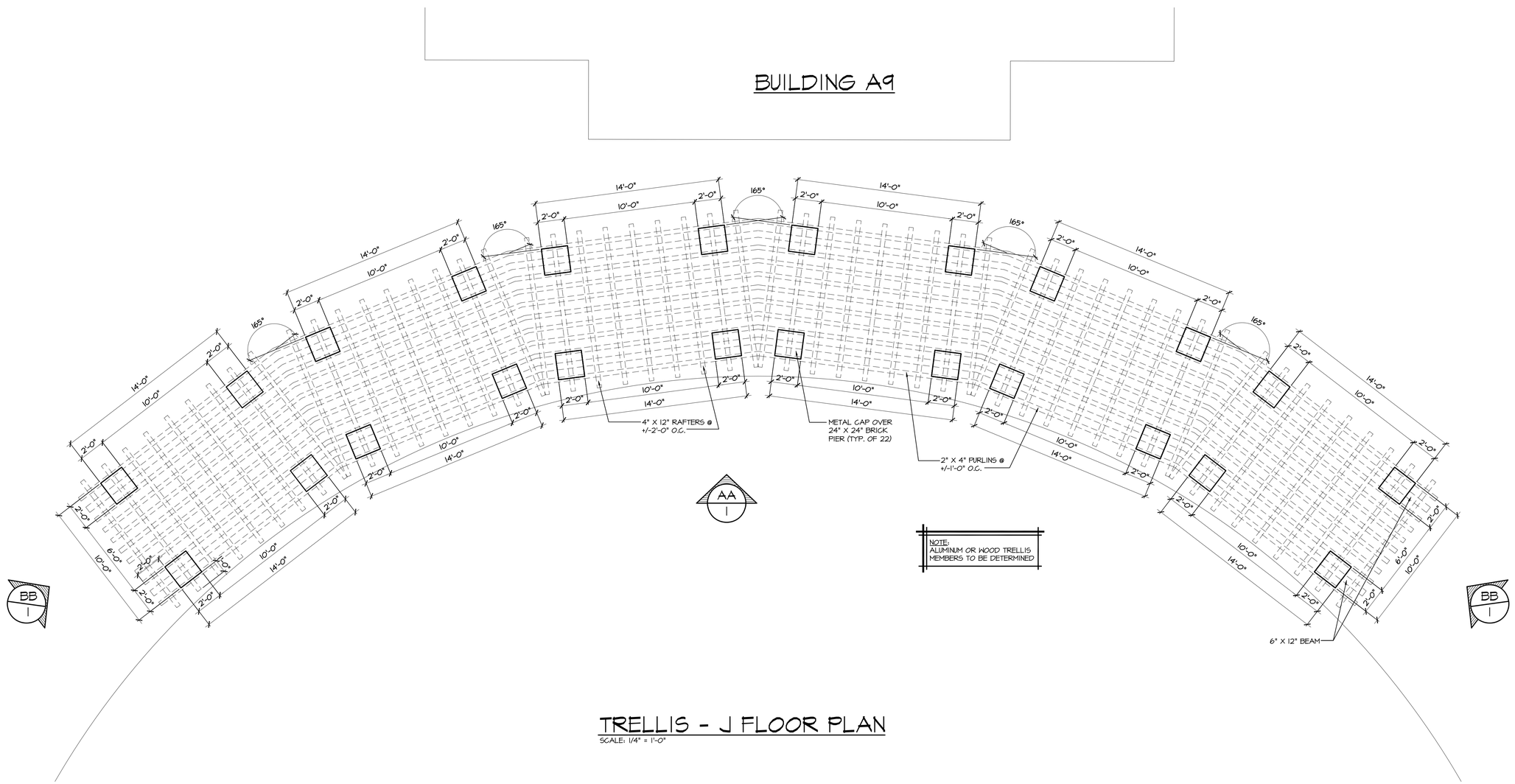


ELEVATION "AA"

SCALE: 1/4" = 1'-0"

ELEVATION "BB"

SCALE: 1/4" = 1'-0"



NOTE:
ALUMINUM OR WOOD TRELLIS MEMBERS TO BE DETERMINED

TRELLIS - J FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

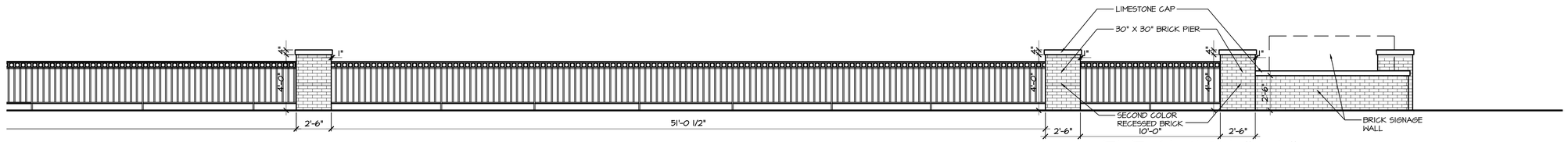
MOCERI - BALDWIN VILLAGE
FINAL PUD PLAN
TRELLIS J

Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:
Job No. 22185
Sheet No. 20 OF 22

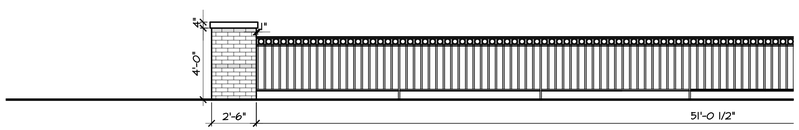
LIFESTYLE BY DESIGN

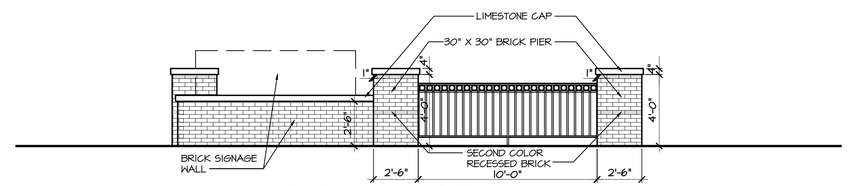
© Copyright 2022 Dominick Tringali Architects, Inc. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ELEVATION "AA"

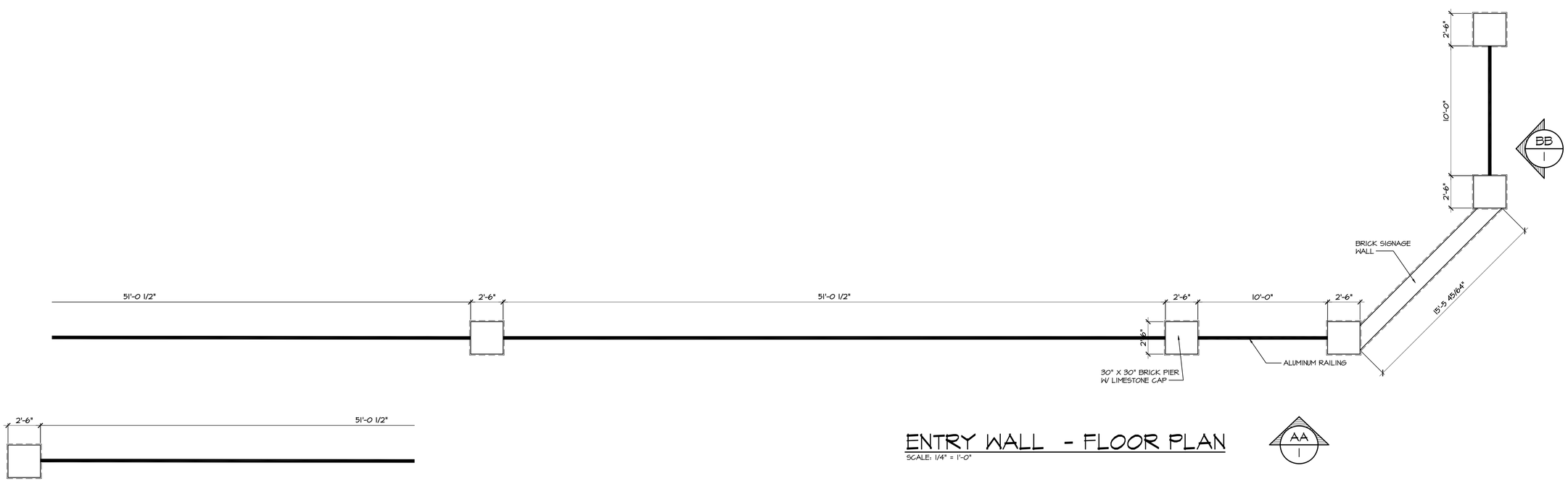
SCALE: 1/4" = 1'-0"





ELEVATION "BB"

SCALE: 1/4" = 1'-0"



ENTRY WALL - FLOOR PLAN

SCALE: 1/4" = 1'-0"

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI - BALDWIN VILLAGE

FINAL PUD PLAN

ENTRY WALL

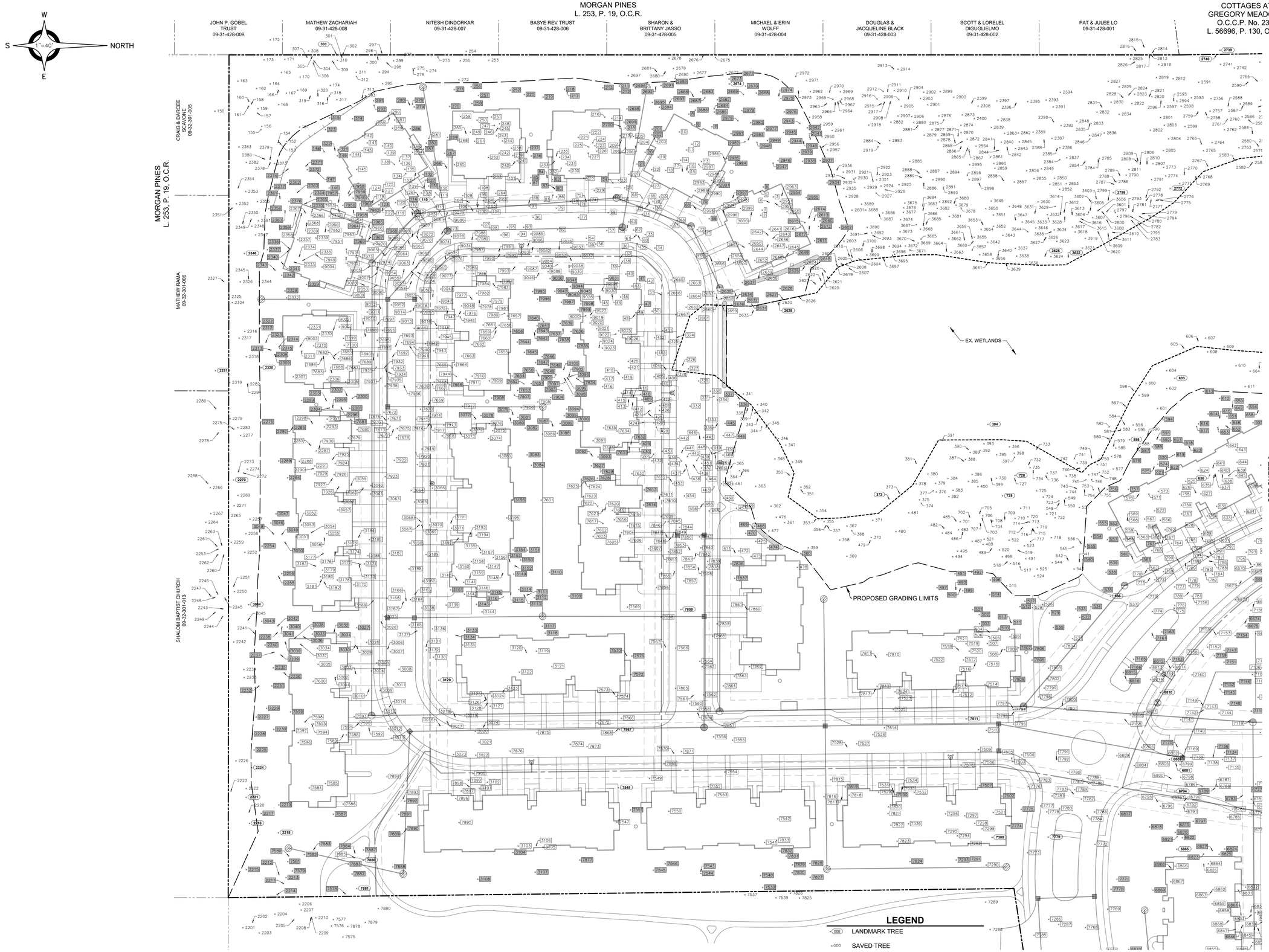
Review Set:
Permit:
Final Set: 12/09/22
Revisions:

Drwn: C.M.
Chkd:

Job No. 22185

Sheet No. 23 OF 22

LIFESTYLE BY DESIGN



ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 531

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY
SOUTHWEST

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY	CONSTRUCTION	RECORD
DRAWN BY: NAC	CHECKED BY: JLA	DATE: DECEMBER 2022

SCALE: 1" = 40'

0 20 40 80

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

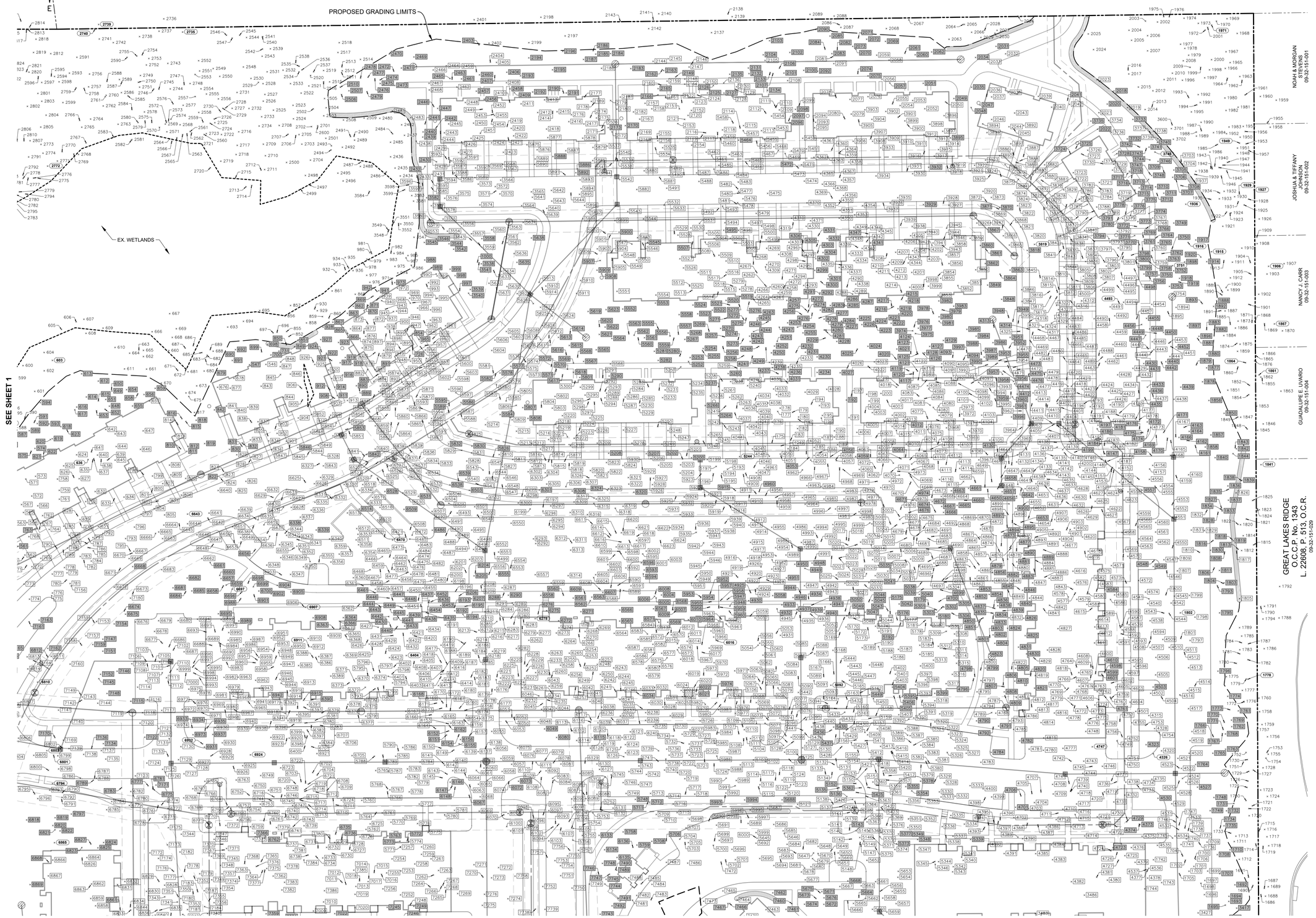
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
01_Tree--12/15/2022 3:46:34 PM

SHEET NO.
1

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.



LEGEND

- (000) LANDMARK TREE
- 000 SAVED TREE
- [000] REMOVED TREE REQUIRING REPLACEMENT
- [000] REMOVED TREE WITHOUT REPLACEMENT

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 532

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY
NORTHWEST

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE: 1" = 40'
0 20 40 80

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
02 Tree--12/15/2022 3:47:54 PM

SHEET NO.
2

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

W
S 1" = 40' NORTH
E

SEE SHEET 2

SEE SHEET 4

LEGEND

- ×(000) LANDMARK TREE
- ×000 SAVED TREE
- ×[000] REMOVED TREE REQUIRING REPLACEMENT
- ×[000] REMOVED TREE WITHOUT REPLACEMENT

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 533

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY
NORTHEAST

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE: 1" = 40'
0 20 40 80

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
03_Tree–12/15/2022 3:48:59 PM

SHEET NO.
3

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

W
S 1" = 40' NORTH
E

LEGEND

000	LANDMARK TREE
000	SAVED TREE
000	REMOVED TREE REQUIRING REPLACEMENT
000	REMOVED TREE WITHOUT REPLACEMENT

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 534

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY
SOUTHEAST

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE: 1" = 40'
0 20 40 80

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
04 Tree--12/5/2022 3:49:39 PM

SHEET NO.
4

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

Tag	Scientific Name	Common Name	DBH Trunk 1	DBH Trunk 2	DBH Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
1	Prunus serotina	Black Cherry	5.9			Fair				X	
2	Prunus serotina	Black Cherry	4.6			Fair				X	
3	Acer rubrum	Red maple	9.2			Fair				X	
4	Acer rubrum	Red maple	5.6			Fair				X	
5	Quercus velutina	Black Oak	12.2			Fair				X	
6	Sassafras albidum	Sassafras	10.9			Fair			X		
7	Prunus serotina	Black Cherry	13.8			Fair			X		
8	Quercus velutina	Black Oak	16.5			Fair			X		
9	Quercus velutina	Black Oak	6.6			Fair			X		
10	Juglans nigra	Black Walnut	7			Fair				X	
11	Quercus velutina	Black Oak	13.1			Fair				X	
12	Quercus velutina	Black Oak	6.7			Fair				X	
13	Prunus serotina	Black Cherry	9.6			Fair				X	
14	Quercus velutina	Black Oak	7.3			Fair				X	
15	Quercus velutina	Black Oak	14.8			Fair				X	
16	Ulmus americana	American Elm	5.4			Fair				X	
17	Quercus velutina	Black Oak	9.2			Fair				X	
18	Prunus serotina	Black Cherry	13.3			Fair				X	
19	Quercus velutina	Black Oak	14.6			Fair				X	
20	Quercus velutina	Black Oak	17.5			Fair			X		
21	Quercus velutina	Black Oak	13.7			Fair			X		
22	Quercus velutina	Black Oak	16.9			Fair				X	
23	Quercus velutina	Black Oak	14.6			Fair				X	
24	Quercus velutina	Black Oak	12.2			Fair			X		
25	Prunus serotina	Black Cherry	5.7			Fair				X	
26	Quercus velutina	Black Oak	10.2			Fair				X	
27	Sassafras albidum	Sassafras	6			Fair				X	
28	Quercus velutina	Black Oak	9.2			Fair				X	
29	Prunus serotina	Black Cherry	5.9			Poor				X	
30	Quercus velutina	Black Oak	19.2			Fair				X	
31	Quercus velutina	Black Oak	8.8			Fair				X	
32	Rhamnus cathartica	Common Buckthorn	4.6			Fair				X	
33	Quercus velutina	Black Oak	12.8			Fair				X	
34	Prunus serotina	Black Cherry	14.9			Fair				X	
35	Quercus velutina	Black Oak	7.4			Fair				X	
36	Quercus velutina	Black Oak	15.1			Fair				X	
37	Quercus velutina	Black Oak	10.4			Fair				X	
38	Acer rubrum	Red maple	5.1			Fair				X	
39	Prunus serotina	Black Cherry	6.1			Fair				X	
40	Prunus serotina	Black Cherry	15.6			Fair				X	
41	Acer rubrum	Red maple	9.8			Fair			X		
42	Quercus velutina	Black Oak	15.1			Fair				X	
43	Quercus velutina	Black Oak	8			Fair				X	
44	Quercus velutina	Black Oak	15.2			Fair				X	
45	Quercus velutina	Black Oak	13.2			Fair				X	
46	Quercus velutina	Black Oak	7.5			Fair				X	
47	Quercus velutina	Black Oak	7.2			Fair			X		
48	Prunus serotina	Black Cherry	5.6			Fair				X	
49	Quercus velutina	Black Oak	13.9			Fair				X	
50	Prunus serotina	Black Cherry	12.1			Fair				X	
51	Prunus serotina	Black Cherry	5.8			Fair				X	
54	Prunus serotina	Black Cherry	6.2			Fair				X	
55	Quercus velutina	Black Oak	9.4			Fair				X	
56	Prunus serotina	Black Cherry	6.6			Fair				X	
57	Acer rubrum	Red maple	8.7			Fair				X	
58	Quercus velutina	Black Oak	6.1			Fair				X	
59	Prunus serotina	Black Cherry	10.4			Fair				X	
60	Prunus serotina	Black Cherry	9.1			Fair				X	
61	Sassafras albidum	Sassafras	7.3			Fair				X	
62	Prunus serotina	Black Cherry	6.3			Fair				X	
63	Quercus velutina	Black Oak	4.5			Fair				X	
64	Quercus velutina	Black Oak	10			Fair				X	
65	Prunus serotina	Black Cherry	13.1			Fair				X	
66	Quercus velutina	Black Oak	9.8			Fair				X	
67	Prunus serotina	Black Cherry	11.7			Fair				X	
68	Quercus velutina	Black Oak	11.4			Fair			X		
69	Quercus velutina	Black Oak	8.3			Fair			X		
70	Quercus velutina	Black Oak	5.2			Fair			X		
71	Quercus velutina	Black Oak	17.2			Fair				X	
72	Quercus velutina	Black Oak	14.9			Fair				X	
73	Quercus velutina	Black Oak	12.6			Fair				X	
74	Prunus serotina	Black Cherry	7.4			Fair				X	
75	Prunus serotina	Black Cherry	5			Fair				X	
76	Quercus velutina	Black Oak	8			Fair				X	
77	Prunus serotina	Black Cherry	5.3			Fair				X	
78	Ulmus americana	American Elm	9.8			Fair				X	
79	Quercus velutina	Black Oak	9.1			Fair				X	
80	Prunus serotina	Black Cherry	7.2			Fair			X		
81	Ulmus americana	American Elm	4.8			Fair				X	
82	Prunus serotina	Black Cherry	8.3			Fair			X		
83	Prunus serotina	Black Cherry	9.1			Fair			X		
84	Quercus velutina	Black Oak	8			Fair			X		
85	Prunus serotina	Black Cherry	10			Fair			X		
86	Quercus velutina	Black Oak	12	8.3		Fair				X	
87	Acer rubrum	Red maple	5.7			Fair			X		
88	Quercus velutina	Black Oak	10.9			Fair				X	
90	Ulmus americana	American Elm	4.3			Fair				X	
91	Prunus serotina	Black Cherry	12.1			Fair				X	
92	Prunus serotina	Black Cherry	7.9			Fair				X	
93	Prunus serotina	Black Cherry	5.8			Fair				X	
94	Prunus serotina	Black Cherry	11.9			Fair				X	
95	Quercus velutina	Black Oak	8			Fair				X	
96	Quercus velutina	Black Oak	10.5			Fair				X	
97	Quercus velutina	Black Oak	8.3			Fair				X	
98	Quercus velutina	Black Oak	13.2			Fair				X	
99	Prunus serotina	Black Cherry	14.8			Fair				X	
100	Quercus velutina	Black Oak	7.2			Fair				X	
101	Quercus velutina	Black Oak	14.2			Fair				X	
102	Quercus velutina	Black Oak	11.1			Fair				X	
103	Quercus velutina	Black Oak	6.7			Fair				X	
104	Quercus velutina	Black Oak	13.8			Fair				X	
105	Quercus velutina	Black Oak	14.8			Fair				X	
106	Quercus velutina	Black Oak	7.5			Fair				X	
107	Quercus velutina	Black Oak	16.3			Fair				X	
108	Quercus velutina	Black Oak	9.4			Fair				X	
109	Quercus velutina	Black Oak	6			Fair				X	
110	Prunus serotina	Black Cherry	30.3			Fair	X				
111	Prunus serotina	Black Cherry	12.2			Fair				X	
112	Quercus velutina	Black Oak	17.8			Fair				X	
113	Quercus velutina	Black Oak	5.5			Fair				X	
114	Prunus serotina	Black Cherry	9.1			Fair				X	
115	Quercus velutina	Black Oak	9.4			Fair				X	
116	Quercus velutina	Black Oak	11.6			Fair			X		
117	Quercus velutina	Black Oak	16.3	14.9		Fair				X	
118	Prunus serotina	Black Cherry	4.9			Fair				X	
119	Quercus velutina	Black Oak	4.9			Fair				X	
120	Quercus velutina	Black Oak	9.8			Fair				X	
121	Quercus velutina	Black Oak	11.2			Fair				X	
122	Ulmus americana	American Elm	4.9			Fair				X	
123	Quercus velutina	Black Oak	9.8			Fair			X		
124	Quercus velutina	Black Oak	14.8			Fair				X	
125	Quercus velutina	Black Oak	10.2			Fair				X	
126	Prunus serotina	Black Cherry	7.8			Fair				X	
127	Quercus velutina	Black Oak	7.1			Fair			X		
128	Quercus velutina	Black Oak	5.1			Fair				X	
129	Prunus serotina	Black Cherry	9.9			Fair				X	
130	Prunus serotina	Black Cherry	11.7			Fair				X	
131	Quercus velutina	Black Oak	5.7			Fair			X		
132	Quercus velutina	Black Oak	5.6			Fair			X		
133	Quercus velutina	Black Oak	19.7			Fair				X	
134	Quercus velutina	Black Oak	4.2			Fair				X	
135	Quercus velutina	Black Oak	5.1			Fair				X	
136	Prunus serotina	Black Cherry	5.6			Fair				X	
137	Prunus serotina	Black Cherry	4.7			Fair				X	
138	Prunus serotina	Black Cherry	9.2			Fair				X	
139	Prunus serotina	Black Cherry	5.9			Fair				X	
140	Prunus serotina	Black Cherry	10.6			Fair				X	
141	Prunus serotina	Black Cherry	11.5			Fair				X	
142	Prunus serotina	Black Cherry	7.9			Fair				X	
143	Quercus velutina	Black Oak	5.2			Fair				X	
144	Prunus serotina	Black Cherry	13.6			Fair				X	
145	Prunus serotina	Black Cherry	8.7			Fair				X	
146	Prunus serotina	Black Cherry	8.3			Fair			X		
147	Rhamnus cathartica	Common Buckthorn	5.2			Fair			X		
148	Rhamnus cathartica	Common Buckthorn	4.5			Fair			X		
149	Quercus velutina	Black Oak	9.7			Fair			X		
150	Morus alba	White Mulberry	14.3			Fair					X
151	Acer negundo	Boxelder	8			Fair		X			
152	Acer rubrum	Red maple	8.3			Fair		X			
153	Quercus velutina	Black Oak	11.9			Fair		X			
154	Prunus serotina	Black Cherry	16.5			Fair		X			
155	Rhamnus cathartica	Common Buckthorn	6.4			Fair		X			
156	Acer rubrum	Red maple	5			Fair		X			
157	Rhamnus cathartica	Common Buckthorn	5.6			Fair		X			
158	Ulmus americana	American Elm	24.1			Fair		X			
159	Prunus serotina	Black Cherry	5.4			Fair		X			
160	Rhamnus cathartica	Common Buckthorn	6.1			Fair		X			
161	Rhamnus cathartica	Common Buckthorn	5.2			Fair		X			
162	Rhamnus cathartica	Common Buckthorn	5.4	4.8		Fair		X			
163	Ulmus americana	American Elm	24.6			Fair		X			
164	Rhamnus cathartica	Common Buckthorn	6.1	5.3		Very Poor		X			
165	Rhamnus cathartica	Common Buckthorn	5.5			Fair		X			
166	Rhamnus cathartica	Common Buckthorn	6.5			Fair		X			
167	Rhamnus cathartica	Common Buckthorn	5.3			Fair		X			
168	Rhamnus cathartica	Common Buckthorn	8			Fair		X			
169	Quercus velutina	Black Oak	11.7			Fair		X			
170	Rhamnus cathartica	Common Buckthorn	6.7			Fair		X			
171	Prunus serotina	Black Cherry	15.1	13.3	6.8	Fair		X			
172	Prunus serotina	Black Cherry	14.1	10.4	11.1	Fair					X
173	Morus alba	White Mulberry	11.6			Fair		X			
174	Quercus velutina	Black Oak	6			Fair		X			
175	Quercus velutina	Black Oak	7.2			Fair				X	
176	Acer rubrum	Red Maple	12			Fair				X	
177	Acer rubrum	Red Maple	7.4			Fair				X	
178	Acer rubrum	Red Maple	11			Fair				X	
179	Prunus serotina	Black Cherry	7.8			Fair				X	
180	Acer rubrum	Red Maple	8			Poor				X	
181	Prunus avium	Sweet Cherry	9			Fair				X	
182	Sassafras albidum	Sassafras	7.3			Poor				X	
183	Sassafras albidum	Sassafras	5.4			Fair				X	
184	Acer rubrum	Red Maple	5			Fair				X	
185	Prunus serotina	Black Cherry	12.8			Fair				X	
186	Prunus serotina	Black Cherry	5.8			Fair				X	
187	Fraxinus americana	White Ash	5.2			Fair				X	
188	Acer rubrum	Red Maple	5.5			Fair				X	
189	Acer rubrum	Red Maple	7.7	7.2		Fair				X	
190	Acer rubrum	Red Maple	5			Fair				X	
191	Acer rubrum	Red Maple	13.7			Fair				X	
192	Acer rubrum	Red Maple	8.9			Fair			X		
193	Prunus avium	Sweet Cherry	11			Fair				X	
194	Acer rubrum	Red Maple	5.9			Fair				X	
195	Prunus avium	Sweet Cherry	10.3			Fair				X	
196	Acer rubrum	Red Maple	10			Fair				X	
197	Acer rubrum	Red Maple	5.4			Fair				X	
198	Sassafras albidum	Sassafras	6.2			Fair				X	
199	Acer rubrum	Red Maple	6			Fair				X	
200	Quercus velutina	Black Oak	7.2	5.9		Fair				X	
201	Quercus velutina	Black Oak	8			Fair			X		
202	Quercus velutina	Black Oak	4.2			Fair			X		
203	Quercus velutina	Black Oak	5			Fair				X	
204	Quercus velutina	Black Oak	12.5			Fair				X	
205	Quercus velutina	Black Oak	5.8			Fair				X	
206	Quercus velutina	Black Oak	5.7			Fair				X	
207	Prunus serotina	Black Cherry	7.6			Fair				X	
208	Quercus velutina	Black Oak	4.8			Fair				X	
209	Quercus velutina	Black Oak	15.5			Fair				X	
210	Ulmus americana	American Elm	8.9			Fair				X	
211	Quercus velutina	Black Oak	14.4			Fair			X		
212	Quercus velutina	Black Oak	7.9			Fair			X		
213	Quercus rubra	Red Oak	16.1			Fair			X		
214	Quercus alba	White Oak	6			Fair				X	
215	Prunus serotina	Black Cherry	7.5			Fair			X		
216	Prunus serotina	Black Cherry	8.7			Fair				X	
217	Quercus velutina	Black Oak	17.5			Fair			X		
218	Acer rubrum	Red maple	10.5			Good			X		
219	Ulmus americana	American Elm	8.3			Fair			X		
220	Quercus velutina	Black Oak	14.1			Fair			X		
221	Quercus velutina	Black Oak	15			Fair				X	
222	Prunus serotina	Black Cherry	11.9			Fair				X	
223	Ulmus americana	American Elm	8.1			Fair				X	
224	Ulmus americana	American Elm	7.9			Fair				X	
225	Prunus serotina	Black Cherry	5.6			Fair				X	
226	Quercus velutina	Black Oak	5			Fair				X	
227	Prunus serotina	Black Cherry	6			Fair				X	
228	Prunus serotina	Black Cherry	4.6			Fair				X	
229	Prunus serotina	Black Cherry	8.8			Poor				X	
230	Quercus rubra	Red Oak	4.4			Fair				X	
231	Quercus velutina	Black Oak	16.5			Fair				X	
232	Quercus velutina	Black Oak	14.7			Fair				X	
233	Prunus serotina	Black Cherry	6.2	8.6		Fair				X	
234	Quercus velutina	Black Oak	7.4			Fair				X	
235	Acer rubrum	Red maple	4.5			Fair				X	
236	Prunus serotina	Black Cherry	5.8			Fair			X		
237	Quercus velutina	Black Oak	14.3			Fair			X		
238	Ulmus americana	American Elm	6.6			Fair				X	
239	Quercus velutina	Black Oak	8.1			Fair				X	
240	Quercus velutina	Black Oak	4.1			Fair				X	
241	Quercus velutina	Black Oak	11.8			Fair				X	
242	Acer rubrum	Red maple	8.9			Fair				X	
243	Quercus velutina	Black Oak	11.6			Fair				X	
244	Quercus bicolor	Swamp White Oak	11.9			Fair				X	
245	Prunus serotina	Black Cherry	12.1	6.6		Fair				X	
246	Quercus velutina	Black Oak	4.7			Fair				X	
247	Ulmus americana	American Elm	10.4			Fair				X	
248	Quercus velutina	Black Oak	7			Fair				X	
249	Quercus velutina	Black Oak	10.9			Fair				X	
250	Prunus serotina	Black Cherry	8.5			Fair				X	
251	Acer rubrum	Red maple	8.9			Fair				X	
252	Quercus rubra	Red Oak	16.6			Fair			X		
253	Rhamnus cathartica	Common Buckthorn	4.5			Fair		X			
254	Prunus serotina	Black Cherry	6.5			Fair					X
255	Ulmus americana	American Elm	14.7			Fair		X			
256	Quercus velutina	Black Oak	8.8			Fair			X		
257	Rhamnus cathartica	Common Buckthorn	4.7			Fair			X		
258	Quercus velutina	Black Oak	5.9			Fair			X		
259	Acer negundo	Boxelder	5.4			Fair				X	
260	Ulmus americana	American Elm	5.2			Fair				X	
261	Quercus velutina	Black Oak	4.1			Fair				X	
262	Prunus serotina	Black Cherry	6.3			Fair				X	
263	Quercus velutina	Black Oak	15.9			Fair				X	
264	Prunus serotina	Black Cherry	4.8			Fair				X	
265	Prunus serotina	Black Cherry	8.1			Fair				X	
266	Quercus velutina	Black Oak	8.4			Fair			X		
267	Quercus velutina	Black Oak	18.8			Fair			X		
268	Prunus serotina	Black Cherry	11.1			Fair				X	
269	Prunus serotina	Black Cherry	4.4			Fair			X		
270	Acer rubrum	Red maple	12.5			Fair			X		
271	Quercus velutina	Black Oak	10.1			Fair			X		
272	Quercus velutina	Black Oak	14.4			Fair		X			
273	Prunus serotina	Black Cherry	10.6	10.5		Fair		X			
274	Quercus velutina	Black Oak	12.7			Fair		X			
275	Rhamnus cathartica	Common Buckthorn	4.6			Fair		X			
276	Rhamnus cathartica	Common Buckthorn	4			Fair		X			
277	Prunus serotina	Black Cherry	15	13.5	12	Fair					X
278	Rhamnus cathartica	Common Buckthorn	5			Fair			X		
279	Rhamnus cathartica	Common Buckthorn	5.5			Fair			X		
280	Rhamnus cathartica	Common Buckthorn	5			Fair			X		
281	Quercus velutina	Black Oak	5.2			Fair				X	
282	Prunus serotina	Black Cherry	8.6			Fair			X		
283	Quercus velutina	Black Oak	13.6			Fair			X		
284	Acer negundo	Boxelder	5			Fair				X	
285	Prunus serotina	Black Cherry	8			Fair				X	
286	Prunus serotina	Black Cherry	12.4			Fair			X		
287	Quercus velutina	Black Oak	14.1			Fair				X	
288	Prunus serotina	Black Cherry	10.2			Fair				X	
289	Rhamnus cathartica	Common Buckthorn	5.2			Fair				X	
290	Quercus velutina	Black Oak	19.9			Fair				X	
291	Quercus velutina	Black Oak	8.2			Fair			X		
292	Rhamnus cathartica	Common Buckthorn	8.2			Fair			X		
293	Quercus velutina	Black Oak	18.7			Fair		X			
294	Quercus velutina	Black Oak	8.6			Fair		X			
295	Rhamnus cathartica	Common Buckthorn	4.2			Fair		X			
296	Prunus serotina	Black Cherry	10.7			Fair		X			
297	Quercus rubra	Red Oak	7.9			Fair					X
298	Ulmus americana	American Elm	8.3			Fair		X			
299	Rhamnus cathartica	Common Buckthorn	4.9			Fair		X			
300	Ulmus americana	American Elm	18.2			Fair		X			
301	Rhamnus cathartica	Common Buckthorn	6	6.3		Fair		X			
302	Prunus serotina	Black Cherry	20.2	12.3	10.5	Fair		X			
303	Prunus serotina	Black Cherry	29.7	12	10.8	Fair	X				
304	Prunus serotina	Black Cherry	13.2			Fair		X			
305	Prunus serotina	Black Cherry	5.1			Fair		X			
306	Prunus serotina	Black Cherry	11.9			Poor		X			
307	Prunus serotina	Black Cherry	14.2			Poor		X			
308	Prunus serotina	Black Cherry	5.1			Fair					X
309	Rhamnus cathartica	Common Buckthorn	5.5			Fair		X			
310	Rhamnus cathartica	Common Buckthorn	5.9			Fair		X			
311	Rhamnus cathartica	Common Buckthorn	4.4			Fair		X			
312	Quercus rubra	Red Oak	7.7			Fair		X			
313	Rhamnus cathartica	Common Buckthorn	4.9			Fair		X			
314	Quercus rubra	Red Oak	16.8			Fair			X		
315	Prunus serotina	Black Cherry	9.8			Fair			X		
316	Prunus serotina	Black Cherry	11			Fair		X			
317	Rhamnus cathartica	Common Buckthorn	5.7			Fair		X			
318	Ulmus americana	American Elm	16			Fair		X			
319	Ulmus americana	American Elm	15.5	10.9		Fair		X			
320	Quercus velutina	Black Oak	5.9			Fair		X			
321	Ulmus americana	American Elm	13.2			Fair			X		
322	Prunus serotina	Black Cherry	8.5			Fair			X		
323	Rhamnus cathartica	Common Buckthorn	8.8			Good			X		
324	Rhamnus cathartica	Common Buckthorn	5			Fair				X	
325	Acer negundo	Boxelder	9.5			Fair				X	
326	Prunus serotina	Black Cherry	6.5			Fair				X	
327	Prunus serotina	Black Cherry	10.8	8.2		Fair				X	
328	Acer rubrum	Red maple	11.2			Fair				X	
329	Prunus serotina	Black Cherry	14.8			Fair				X	
330	Prunus serotina	Black Cherry	10.5			Fair				X	
331	Acer rubrum	Red maple	8.2			Fair				X	
332	Quercus velutina	Black Oak	9.4			Fair				X	
333	Sassafras albidum	Sassafras	5.2			Fair				X	
334	Prunus serotina	Black Cherry	4.2			Fair				X	
335	Sassafras albidum	Sassafras	4			Fair				X	
336	Prunus serotina	Black Cherry	7.2			Fair			X		
337	Prunus serotina	Black Cherry	10	8.4		Fair			X		
338	Rhamnus cathartica	Common Buckthorn	6			Fair		X			
339	Ulmus americana	American Elm	8.4			Fair		X			
340	Prunus serotina	Black Cherry	11			Fair		X			
341	Prunus serotina	Black Cherry	10.2			Fair		X			
342	Prunus serotina	Black Cherry	6.4			Fair		X			
343	Acer rubrum	Red maple	9.5			Fair		X			
344	Acer rubrum	Red maple	6.5			Fair		X			
345	Tilia americana	Basswood	4.1			Fair		X			
346	Rhamnus cathartica	Common Buckthorn	4.2			Fair		X			
347	Prunus serotina	Black Cherry	14.5	12.5		Poor		X			
348	Rhamnus cathartica	Common Buckthorn	5.1			Fair		X			
349	Rhamnus cathartica	Common Buckthorn	4.6			Fair		X			
350	Quercus velutina	Black Oak	23.1			Fair		X			
351	Malus sylvestrus	Crab Apple	4.2			Fair		X			
352	Acer rubrum	Red maple	4.6			Fair		X			
353	Prunus serotina	Black Cherry	18.7			Fair		X			
354	Prunus serotina	Black Cherry	9.5			Fair		X			
355	Prunus serotina	Black Cherry	5.1			Fair		X			
356	Prunus serotina	Black Cherry	6.4			Fair		X			
357	Rhamnus cathartica	Common Buckthorn	5.2			Fair		X			
358	Prunus serotina	Black Cherry	14.2	12.5	8.3	Fair		X			
359	Quercus velutina	Black Oak	5.8			Fair		X			
360	Quercus velutina	Black Oak	8.6			Fair			X		
361	Quercus velutina	Black Oak	10.8			Fair		X			
362	Quercus velutina	Black Oak	5.3			Fair		X			
363	Rhamnus cathartica	Common Buckthorn	10.4			Very Poor		X			
364	Prunus serotina	Black Cherry	5.2			Fair		X			
365	Quercus velutina	Black Oak	16.9			Fair		X			
366	Quercus velutina	Black Oak	5.1			Fair		X			
367	Prunus serotina	Black Cherry	4.4			Fair		X			
368	Rhamnus cathartica	Common Buckthorn	7.1			Fair		X			
369	Rhamnus cathartica	Common Buckthorn	7.3			Fair		X			
370	Prunus serotina	Black Cherry	12.8			Fair		X			
371	Ulmus americana	American Elm	6.3			Fair		X			
372	Acer rubrum	Red maple	25.3	20.1		Fair	X				
373	Prunus serotina	Black Cherry	5.8			Fair		X			
374	Quercus velutina	Black Oak	16.1			Fair		X			
375	Acer rubrum	Red maple	16.5			Fair		X			
376	Quercus velutina	Black Oak	15.2			Fair		X			
377	Quercus velutina	Black Oak	10			Fair		X			
378	Ulmus americana	American Elm	7.3			Fair		X			
379	Populus deltoides	Eastern Cottonwood	28.2			Fair		X			
380	Prunus serotina	Black Cherry	20.3			Very Poor		X			
381	Acer rubrum	Red maple	18			Fair		X			
382	Rhamnus cathartica	Common Buckthorn	4.5			Fair		X			
383	Prunus serotina	Black Cherry	5			Fair		X			
384	Carya ovata	Shargbark Hickory	5.4			Fair		X			
385	Ulmus americana	American Elm	8.8			Fair		X			
386	Carya ovata	Shargbark Hickory	7.8			Fair		X			
387	Prunus serotina	Black Cherry	6.8			Very Poor		X			
388	Rhamnus cathartica	Common Buckthorn	5.5			Fair		X			
389	Prunus serotina	Black Cherry	7.1			Fair		X			
390	Prunus serotina	Black Cherry	7.2			Fair		X			
391	Acer rubrum	Red maple	16.5			Fair		X			
392	Prunus serotina	Black Cherry	8.1			Fair		X			
393	Prunus serotina	Black Cherry	13.1			Fair		X			
394	Acer rubrum	Red maple	27			Fair	X				
395	Rhamnus cathartica	Common Buckthorn	4.5			Fair		X			
396	Rhamnus cathartica	Common Buckthorn	4.2			Fair		X			
397	Rhamnus cathartica	Common Buckthorn	4.1			Fair		X			
398	Prunus serotina	Black Cherry	6.8			Fair		X			
399	Ulmus americana	American Elm	7.5			Fair		X			
400	Rhamnus cathartica	Common Buckthorn	4.2			Fair		X			
401	Rhamnus cathartica	Common Buckthorn	5.3	11.8		Fair				X	
402	Quercus velutina	Black Oak	5.7			Fair				X	
403	Prunus serotina	Black Cherry	6.1	15.6		Fair				X	
404	Ulmus americana	American Elm	10.8			Fair				X	
405	Prunus serotina	Black Cherry	5.1			Fair				X	
406	Prunus serotina	Black Cherry	12			Fair				X	
407	Prunus serotina	Black Cherry	7.2			Fair				X	
408	Acer rubrum	Red maple	5.8			Fair				X	
409	Quercus velutina	Black Oak	15.6			Fair			X		
410	Quercus velutina	Black Oak	10.5			Fair			X		
411	Ulmus americana	American Elm	10.2			Fair				X	
412	Prunus serotina	Black Cherry	7.1			Fair				X	
413	Quercus velutina	Black Oak	5.3			Fair				X	
414	Quercus velutina	Black Oak	5.8			Fair				X	
415	Quercus velutina	Black Oak	4.3			Fair				X	
416	Prunus serotina	Black Cherry	7.6			Fair				X	
417	Prunus serotina	Black Cherry	11.3			Fair				X	
418	Prunus serotina	Black Cherry	7			Fair				X	
419	Quercus velutina	Black Oak	19.3			Fair				X	
420	Quercus velutina	Black Oak	9.6			Fair				X	
421	Prunus serotina	Black Cherry	4.4			Fair				X	
422	Acer rubrum	Red maple	5.2			Fair				X	
423	Rhamnus cathartica	Common Buckthorn	4.6			Fair				X	
424	Quercus velutina	Black Oak	12.8			Fair				X	
425	Sassafras albidum	Sassafras	5.9			Fair				X	
426	Acer rubrum	Red maple	10.9			Fair				X	
427	Prunus serotina	Black Cherry	7			Fair				X	
428	Quercus velutina	Black Oak	9.6			Fair				X	
429	Quercus velutina	Black Oak	8.2			Fair			X		
430	Prunus serotina	Black Cherry	11.3			Fair			X		
431	Quercus velutina	Black Oak	12.6			Fair				X	
432	Quercus velutina	Black Oak	10.5			Fair				X	
433	Acer rubrum	Red maple	4.8			Fair				X	
434	Quercus velutina	Black Oak	12.1			Fair				X	
435	Quercus velutina	Black Oak	8.4			Fair				X	
436	Quercus velutina	Black Oak	10.1			Fair				X	
437	Quercus velutina	Black Oak	11.8			Fair				X	
438	Quercus velutina	Black Oak	7			Fair				X	
439	Acer rubrum	Red maple	5.2			Fair				X	
440	Quercus velutina	Black Oak	10.9			Fair				X	
441	Prunus serotina	Black Cherry	5.9			Fair				X	
442	Quercus velutina	Black Oak	11.4			Fair				X	
443	Acer rubrum	Red maple	12.2			Fair				X	
444	Quercus velutina	Black Oak	5			Fair				X	
445	Prunus serotina	Black Cherry	5.6			Fair			X		
446	Quercus velutina	Black Oak	11.1			Fair			X		
447	Quercus alba	White Oak	4.2			Fair				X	
448	Quercus velutina	Black Oak	13.7			Fair				X	
449	Acer rubrum	Red maple	4.6			Fair				X	
450	Acer rubrum	Red maple	5.4			Fair				X	
451	Quercus velutina	Black Oak	11.8			Fair				X	
452	Quercus velutina	Black Oak	13.8			Fair				X	
453	Prunus serotina	Black Cherry	7.5			Fair				X	
454	Acer rubrum	Red maple	6.2			Fair				X	
455	Quercus velutina	Black Oak	7.6			Fair				X	
456	Quercus velutina	Black Oak	13.6			Fair				X	
457	Acer rubrum	Red maple	11			Fair				X	
458	Acer rubrum	Red maple	10.1			Fair				X	
459	Acer rubrum	Red maple	14.2			Fair				X	
460	Acer rubrum	Red maple	5.7			Fair				X	
461	Acer rubrum	Red maple	4.7			Fair		X			
462	Quercus velutina	Black Oak	9.6			Fair				X	
463	Quercus velutina	Black Oak	10.3			Fair				X	
464	Quercus velutina	Black Oak	4.9			Fair				X	
465	Acer rubrum	Red maple	4.7			Fair				X	
466	Acer rubrum	Red maple	8.7			Fair				X	
467	Quercus velutina	Black Oak	4.6			Fair				X	
468	Quercus velutina	Black Oak	8.5			Fair			X		
469	Quercus velutina	Black Oak	10			Fair			X		
470	Quercus velutina	Black Oak	8.6			Fair			X		
471	Quercus velutina	Black Oak	12.6			Fair				X	
472	Prunus serotina	Black Cherry	10.1			Fair				X	
473	Acer rubrum	Red maple	12.2			Fair				X	
474	Prunus serotina	Black Cherry	6.5			Fair			X		
475	Prunus serotina	Black Cherry	5.6			Fair				X	
476	Quercus velutina	Black Oak	20.4			Fair		X			
477	Quercus velutina	Black Oak	12			Fair		X			
478	Quercus velutina	Black Oak	7.7			Fair				X	
479	Prunus serotina	Black Cherry	12.7			Fair		X			
480	Prunus serotina	Black Cherry	9.5			Fair		X			
481	Prunus serotina	Black Cherry	4.5	4		Fair		X			
482	Ulmus americana	American Elm	14.2			Fair		X			
483	Prunus serotina	Black Cherry	12.7			Fair		X			
484	Ulmus americana	American Elm	5.3			Fair		X			
485	Ulmus americana	American Elm	8.3			Fair		X			
486	Ulmus americana	American Elm	5.7			Fair		X			
487	Acer rubrum	Red maple	4.4			Fair		X			
488	Acer rubrum	Red maple	5.4			Fair		X			
489	Prunus serotina	Black Cherry	6.4			Fair		X			
490	Ulmus americana	American Elm	11.2			Fair			X		
491	Quercus velutina	Black Oak	14.5			Fair		X			
492	Populus tremuloides	Quaking Aspen	7.4			Fair			X		
493	Acer rubrum	Red maple	10.8			Fair			X		
494	Prunus serotina	Black Cherry	9	9.6		Fair		X			
495	Ulmus americana	American Elm	5.3			Fair		X			
496	Prunus serotina	Black Cherry	8.7	10		Fair			X		
497	Ulmus americana	American Elm	5.6			Fair			X		
498	Quercus velutina	Black Oak	14.1			Fair		X			
499	Quercus velutina	Black Oak	10.4			Fair			X		
500	Quercus velutina	Black Oak	22			Fair			X		
501	Quercus velutina	Black Oak	4.3			Fair			X		
502	Acer rubrum	Red maple	4.8			Fair			X		
503	Acer rubrum	Red maple	5			Fair			X		
504	Quercus velutina	Black Oak	7.6			Fair				X	
505	Quercus alba	White Oak	11.6			Fair				X	
506	Acer rubrum	Red maple	9			Fair				X	
507	Acer rubrum	Red maple	8.9			Fair				X	
508	Quercus velutina	Black Oak	9.8			Fair				X	
509	Ulmus americana	American Elm	5.3			Fair				X	
510	Quercus velutina	Black Oak	5.1			Fair			X		
511	Quercus velutina	Black Oak	7.1			Fair			X		
512	Prunus serotina	Black Cherry	6.9			Fair			X		
513	Quercus velutina	Black Oak	19.1			Fair			X		
514	Quercus velutina	Black Oak	16.3			Fair			X		
515	Acer rubrum	Red maple	10.9	6.4		Fair		X			
516	Populus tremuloides	Quaking Aspen	10.6			Fair		X			
517	Quercus velutina	Black Oak	7.4			Fair		X			
518	Acer rubrum	Red maple	5.6			Fair		X			
519	Ulmus americana	American Elm	6.3			Fair		X			
520	Acer rubrum	Red maple	4.3			Fair		X			
521	Prunus serotina	Black Cherry	5.7			Fair		X			
522	Acer rubrum	Red maple	5.8			Fair		X			
523	Prunus serotina	Black Cherry	9.7			Fair		X			
524	Ulmus americana	American Elm	7			Fair		X			
525	Prunus serotina	Black Cherry	9.3			Fair		X			
526	Quercus velutina	Black Oak	18.4			Fair				X	
527	Quercus velutina	Black Oak	8			Fair			X		
528	Ulmus americana	American Elm	14			Fair				X	
529	Sassafras albidum	Sassafras	5.9			Fair			X		
530	Acer rubrum	Red maple	9.8	8.8		Fair			X		
531	Juglans nigra	Black Walnut	9.2			Fair				X	
532	Prunus serotina	Black Cherry	22			Fair			X		
533	Quercus velutina	Black Oak	20.3	9.8	7.4	Fair			X		
534	Sassafras albidum	Sassafras	8.4			Fair			X		
535	Sassafras albidum	Sassafras	10.3			Fair			X		
536	Sassafras albidum	Sassafras	20.6			Fair	X				
537	Populus tremuloides	Quaking Aspen	4.2			Fair				X	
538	Ulmus americana	American Elm	10.5			Fair			X		
539	Quercus rubra	Red Oak	9.9			Fair			X		
540	Ulmus americana	American Elm	7.4			Fair			X		
541	Prunus serotina	Black Cherry	10.3			Fair		X			
542	Quercus velutina	Black Oak	10.6			Fair		X			
543	Quercus velutina	Black Oak	11.2			Fair		X			
544	Quercus velutina	Black Oak	6.4			Fair		X			
545	Ulmus americana	American Elm	17.6			Fair		X			
546	Acer rubrum	Red maple	4.1			Fair				X	
547	Acer rubrum	Red maple	9.6			Fair			X		
548	Acer rubrum	Red maple	10			Fair		X			
549	Acer rubrum	Red maple	10.4			Fair		X			
550	Ulmus americana	American Elm	12.9			Fair		X			
551	Acer rubrum	Red maple	4.7			Fair		X			
552	Quercus velutina	Black Oak	7			Fair			X		
553	Quercus velutina	Black Oak	11.1			Fair			X		
554	Quercus velutina	Black Oak	17.4			Fair			X		
555	Acer rubrum	Red maple	7.8			Fair			X		
556	Prunus serotina	Black Cherry	8.6			Fair		X			
557	Prunus serotina	Black Cherry	9.9	6.5		Fair			X		
558	Quercus velutina	Black Oak	14.7			Fair				X	
559	Quercus velutina	Black Oak	17.8			Fair				X	
560	Quercus velutina	Black Oak	9.4			Fair			X		
561	Prunus serotina	Black Cherry	6.9			Fair			X		
562	Populus tremuloides	Quaking Aspen	5.7			Fair				X	
563	Acer rubrum	Red maple	4.8			Fair				X	
564	Prunus serotina	Black Cherry	8			Very Poor				X	
565	Acer rubrum	Red maple	6.2			Fair				X	
566	Prunus serotina	Black Cherry	4.8			Fair				X	
567	Quercus velutina	Black Oak	13.1			Fair				X	
568	Acer rubrum	Red maple	4.5			Fair				X	
569	Ulmus americana	American Elm	7.2			Fair				X	
570	Quercus bicolor	Swamp White Oak	4.2			Fair				X	
571	Quercus velutina	Black Oak	7.5			Fair				X	
572	Quercus velutina	Black Oak	12.6			Fair				X	
573	Quercus velutina	Black Oak	12.3			Fair				X	
574	Quercus velutina	Black Oak	10.7			Fair			X		
575	Quercus velutina	Black Oak	7.6			Fair			X		
576	Prunus serotina	Black Cherry	8.3			Fair			X		
577	Quercus velutina	Black Oak	12.9			Fair		X			
578	Prunus serotina	Black Cherry	8.3	7.2		Fair		X			
579	Acer rubrum	Red maple	7.4			Fair		X			
580	Quercus alba	White Oak	4.4			Fair		X			
581	Quercus velutina	Black Oak	7.6			Fair		X			
582	Prunus serotina	Black Cherry	10.6			Fair		X			
583	Acer rubrum	Red maple	7.7			Fair		X			
584	Quercus velutina	Black Oak	14.6			Fair		X			
585	Quercus velutina	Black Oak	8.4			Fair		X			
586	Quercus velutina	Black Oak	25.1			Fair	X				
587	Quercus velutina	Black Oak	5.4			Fair			X		
588	Acer rubrum	Red maple	7.2			Fair		X			
589	Quercus velutina	Black Oak	7.8			Fair			X		
590	Quercus velutina	Black Oak	11			Fair		X			
591	Prunus serotina	Black Cherry	8.1			Fair			X		
592	Acer rubrum	Red maple	8.3			Fair			X		
593	Acer rubrum	Red maple	12.2			Fair			X		
594	Acer rubrum	Red maple	8			Fair			X		
595	Quercus velutina	Black Oak	11.1			Fair		X			
596	Acer rubrum	Red maple	4.3			Fair		X			
597	Acer rubrum	Red maple	4.3			Fair		X			
598	Acer rubrum	Red maple	4.8			Fair		X			
599	Acer rubrum	Red maple	4.4			Fair		X			
600	Quercus velutina	Black Oak	15.6			Fair		X			
601	Quercus velutina	Black Oak	5.1			Fair		X			
602	Acer rubrum	Red maple	4.2			Fair		X			
603	Quercus bicolor	Swamp White Oak	38.4			Fair	X				
604	Quercus velutina	Black Oak	6.9			Fair		X			
605	Acer rubrum	Red maple	6.7			Fair		X			
606	Quercus velutina	Black Oak	10	6.3		Fair		X			
607	Acer rubrum	Red maple	15.2	5.3		Fair		X			
608	Acer rubrum	Red maple	4.6			Fair		X			
609	Acer rubrum	Red maple	6.1			Fair		X			
610	Quercus alba	White Oak	10.2			Fair		X			
611	Quercus velutina	Black Oak	19.3			Fair		X			
612	Acer rubrum	Red maple	7.3			Fair			X		
613	Quercus velutina	Black Oak	14.7			Fair			X		
614	Quercus alba	White Oak	4.6			Fair			X		
615	Quercus alba	White Oak	6.9			Fair			X		
616	Quercus alba	White Oak	14.3			Fair			X		
617	Quercus alba	White Oak	4.7			Fair			X		
618	Acer rubrum	Red maple	5.2			Fair			X		
619	Quercus alba	White Oak	4.8			Fair			X		
620	Quercus velutina	Black Oak	5.1			Fair			X		
621	Acer rubrum	Red maple	5.4			Fair			X		
622	Acer rubrum	Red maple	6.2			Fair			X		
623	Acer rubrum	Red maple	4.7	4.5		Fair			X		
624	Quercus velutina	Black Oak	4.6			Fair				X	
625	Acer rubrum	Red maple	5.3			Fair				X	
626	Prunus serotina	Black Cherry	4			Fair				X	
627	Prunus serotina	Black Cherry	4.6			Fair				X	
628	Populus grandidentata	Big-toothed Aspen	10			Fair				X	
629	Acer rubrum	Red maple	6.7			Fair				X	
630	Populus grandidentata	Big-toothed Aspen	14.9			Fair				X	
631	Acer rubrum	Red maple	10.9			Fair				X	
632	Prunus serotina	Black Cherry	5.5			Fair				X	
633	Acer rubrum	Red maple	6.4			Fair				X	
634	Acer rubrum	Red maple	10.7	7.1		Fair				X	
635	Sassafras albidum	Sassafras	8.9			Fair				X	
636	Prunus serotina	Black Cherry	25			Fair	X				
637	Quercus alba	White Oak	5			Fair				X	
638	Quercus velutina	Black Oak	5.1			Fair				X	
639	Acer rubrum	Red maple	4.5			Fair				X	
640	Acer rubrum	Red maple	4.9			Fair				X	
641	Prunus serotina	Black Cherry	4.3			Fair				X	
642	Quercus alba	White Oak	7.6			Fair				X	
643	Quercus velutina	Black Oak	13.9			Fair				X	
644	Acer rubrum	Red maple	6.9	6.5		Fair				X	
645	Prunus serotina	Black Cherry	6.8			Fair				X	
646	Quercus rubra	Red Oak	13.2			Fair				X	
647	Quercus alba	White Oak	14			Fair				X	
648	Quercus alba	White Oak	8.7			Fair			X		
649	Acer rubrum	Red maple	5.4			Fair			X		
650	Quercus rubra	Red Oak	8.7			Fair			X		
651	Quercus alba	White Oak	7.1			Fair			X		
652	Acer rubrum	Red maple	4.2			Fair			X		
653	Quercus alba	White Oak	6.6			Fair			X		
654	Quercus alba	White Oak	12.7			Fair			X		
655	Quercus alba	White Oak	8.5			Fair			X		
656	Acer rubrum	Red maple	4.3			Fair			X		
657	Acer rubrum	Red maple	5			Fair				X	
658	Acer rubrum	Red maple	4.3			Fair			X		
659	Acer rubrum	Red maple	7.2			Fair			X		
660	Acer rubrum	Red maple	8.6			Fair		X			
661	Quercus alba	White Oak	10.7			Fair		X			
662	Quercus alba	White Oak	5			Fair		X			
663	Quercus alba	White Oak	4.4			Fair		X			
664	Quercus alba	White Oak	6.7			Fair		X			
665	Quercus rubra	Red Oak	9.6			Fair		X			
666	Quercus alba	White Oak	16.1	11.1		Fair		X			
667	Quercus alba	White Oak	22			Fair		X			
668	Quercus alba	White Oak	14.6			Fair		X			
669	Acer rubrum	Red maple	17.9			Fair		X			
670	Acer rubrum	Red maple	13.5			Fair		X			
671	Acer rubrum	Red maple	4.3			Fair		X			
672	Prunus serotina	Black Cherry	9.7			Fair		X			
673	Acer rubrum	Red maple	6.3			Fair		X			
674	Acer rubrum	Red maple	6.8			Fair		X			
675	Acer rubrum	Red maple	9.7			Fair		X			
676	Quercus velutina	Black Oak	10.9			Fair				X	
677	Acer rubrum	Red maple	5			Fair				X	
678	Quercus velutina	Black Oak	6.1			Fair				X	
679	Acer rubrum	Red maple	4.3			Fair			X		
680	Acer rubrum	Red maple	4.3			Fair		X			
681	Acer rubrum	Red maple	5.7			Fair		X			
682	Quercus alba	White Oak	5			Fair		X			
683	Quercus alba	White Oak	7.4			Fair		X			
684	Quercus alba	White Oak	5.6			Fair		X			
685	Quercus alba	White Oak	9.4			Fair		X			
686	Quercus alba	White Oak	4.4			Fair		X			
687	Quercus alba	White Oak	4.2			Fair		X			
688	Quercus alba	White Oak	6.4			Fair		X			
689	Quercus alba	White Oak	5.7			Fair		X			
690	Quercus alba	White Oak	6.4			Fair			X		
691	Acer rubrum	Red maple	9.6			Fair			X		
692	Quercus rubra	Red Oak	6.4	6.3		Fair			X		
693	Quercus rubra	Red Oak	8.9			Fair		X			
694	Quercus alba	White Oak	4.7			Fair		X			
695	Acer rubrum	Red maple	21.9			Fair		X			
696	Quercus alba	White Oak	5.2			Fair		X			
697	Quercus velutina	Black Oak	5.9			Fair		X			
698	Acer rubrum	Red maple	4.7			Fair			X		
699	Prunus serotina	Black Cherry	5			Fair			X		
700	Acer rubrum	Red maple	6.7			Fair			X		
701	Acer rubrum	Red maple	4.9			Fair		X			
702	Prunus serotina	Black Cherry	6.5			Fair		X			
703	Prunus avium	Sweet Cherry	4.3			Fair		X			
704	Sassafras albidum	Sassafras	7.7			Fair		X			
705	Prunus serotina	Black Cherry	5.8			Fair		X			
706	Sassafras albidum	Sassafras	7.9			Fair		X			
707	Sassafras albidum	Sassafras	4.7			Fair		X			
708	Sassafras albidum	Sassafras	6.9			Fair		X			
709	Ulmus americana	American Elm	6.1			Fair		X			
710	Prunus serotina	Black Cherry	7.6	8		Fair		X			
711	Sassafras albidum	Sassafras	7.7			Fair		X			
712	Sassafras albidum	Sassafras	10.7			Fair		X			
713	Ulmus americana	American Elm	7.6			Fair		X			
714	Acer rubrum	Red maple	4.7			Fair		X			
715	Prunus serotina	Black Cherry	6.5			Fair		X			
716	Ulmus americana	American Elm	4.7			Fair		X			
717	Tilia americana	Basswood	6	4.5		Fair		X			
718	Ulmus americana	American Elm	6.7			Fair		X			
719	Ulmus americana	American Elm	6.3			Fair		X			
720	Ulmus americana	American Elm	5.9			Fair		X			
721	Quercus alba	White Oak	4.3			Fair		X			
722	Acer rubrum	Red maple	18			Fair		X			
723	Prunus serotina	Black Cherry	9.4			Fair		X			
724	Acer rubrum	Red maple	8.9			Fair		X			
725	Acer rubrum	Red maple	8.5			Fair		X			
726	Acer rubrum	Red maple	11.3			Fair			X		
727	Prunus serotina	Black Cherry	6.2			Fair		X			
728	Acer rubrum	Red maple	28.7			Fair	X				
729	Acer rubrum	Red maple	28.9			Fair	X				
730	Sassafras albidum	Sassafras	4.9			Fair		X			
731	Acer rubrum	Red maple	4.4	4.1		Fair			X		
732	Quercus velutina	Black Oak	10.9			Fair		X			
733	Prunus serotina	Black Cherry	6.7			Fair		X			
734	Prunus serotina	Black Cherry	9.8			Fair		X			
735	Rhamnus cathartica	Common Buckthorn	4.7			Fair		X			
736	Prunus serotina	Black Cherry	8.7			Fair		X			
737	Acer rubrum	Red maple	9.7			Fair		X			
738	Acer rubrum	Red maple	7.6			Fair		X			
739	Prunus serotina	Black Cherry	8.4			Fair		X			
740	Prunus serotina	Black Cherry	8.1			Fair		X			
741	Quercus velutina	Black Oak	21.9			Fair		X			
742	Prunus serotina	Black Cherry	4.8			Fair		X			
743	Acer rubrum	Red maple	4.9			Fair		X			
744	Prunus serotina	Black Cherry	8.9			Poor		X			
745	Tilia americana	Basswood	4.1			Fair		X			
746	Tilia americana	Basswood	4.6	3.5		Fair		X			
747	Tilia americana	Basswood	4.8			Poor		X			
748	Quercus alba	White Oak	14.1			Fair		X			
749	Quercus alba	White Oak	5.4			Fair		X			
750	Quercus alba	White Oak	9.4			Fair		X			
751	Acer rubrum	Red maple	5.7			Fair		X			
752	Quercus alba	White Oak	5.7			Fair		X			
753	Acer rubrum	Red maple	4.2			Fair		X			
754	Ulmus americana	American Elm	5.1			Poor		X			
755	Acer rubrum	Red maple	4.7			Fair		X			
756	Acer rubrum	Red maple	4.8			Fair			X		
757	Rhamnus cathartica	Common Buckthorn	4.1			Fair			X		
758	Prunus serotina	Black Cherry	5.7			Poor				X	
759	Acer rubrum	Red maple	7			Fair				X	
760	Acer rubrum	Red maple	12.8			Fair				X	
761	Acer rubrum	Red maple	5			Fair				X	
762	Acer rubrum	Red maple	9.2			Fair				X	

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME:

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:
JACOBSON MOCERI ORION, LLC

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE:
NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
05_Tree--12/16/2022 7:59:35 AM

SHEET NO.
5

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
763	Acer rubrum	Red maple	4.9			Fair			X		
764	Prunus serotina	Black Cherry	4.5			Fair				X	
765	Acer rubrum	Red maple	10.1			Fair				X	
766	Acer rubrum	Red maple	9.2			Fair				X	
767	Acer rubrum	Red maple	8			Fair				X	
768	Rhamnus cathartica	Common Buckthorn	4.7			Fair				X	
769	Prunus serotina	Black Cherry	7.4			Fair				X	
770	Rhamnus cathartica	Common Buckthorn	4.3			Fair				X	
771	Acer negundo	Boxelder	6.8			Fair				X	
772	Ulmus americana	American Elm	4.1			Fair				X	
773	Acer rubrum	Red maple	10.3			Fair				X	
774	Ulmus americana	American Elm	11.1			Fair				X	
775	Carya ovata	Shargbark Hickory	4			Very Poor				X	
776	Tilia americana	Basswood	7.5			Fair				X	
777	Tilia americana	Basswood	8.8			Fair				X	
778	Quercus velutina	Black Oak	16.2			Fair				X	
779	Acer rubrum	Red maple	9.2			Fair				X	
780	Quercus rubra	Red Oak	5.7			Fair				X	
781	Quercus velutina	Black Oak	14.8			Fair				X	
782	Quercus rubra	Red Oak	11.1			Fair				X	
783	Quercus rubra	Red Oak	18.8			Fair				X	
784	Acer rubrum	Red maple	8.8			Fair				X	
785	Sassafras albidum	Sassafras	11.8			Fair				X	
786	Quercus rubra	Red Oak	7.2			Fair				X	
787	Quercus alba	White Oak	6.2			Fair				X	
788	Acer rubrum	Red maple	7	4		Fair				X	
789	Acer rubrum	Red maple	5.5			Fair				X	
790	Acer rubrum	Red maple	4.8			Fair				X	
791	Acer rubrum	Red maple	4.7			Fair				X	
792	Tilia americana	Basswood	6.1			Fair				X	
793	Quercus rubra	Red Oak	23.3	7.8		Fair				X	
794	Quercus rubra	Red Oak	16.1			Fair				X	
795	Ulmus americana	American Elm	5			Fair				X	
796	Sassafras albidum	Sassafras	10.7			Fair				X	
797	Tilia americana	Basswood	5.2	5.5		Fair				X	
798	Acer rubrum	Red maple	7.1			Fair				X	
799	Quercus rubra	Red Oak	15.8			Fair				X	
800	Quercus alba	White Oak	9.8			Fair				X	
801	Quercus rubra	Red Oak	8.5			Poor				X	
802	Quercus alba	White Oak	7.5			Fair				X	
803	Prunus serotina	Black Cherry	11.2			Fair				X	
804	Quercus alba	White Oak	7.8			Fair				X	
805	Quercus alba	White Oak	6.7			Fair				X	
806	Quercus alba	White Oak	15.4			Fair				X	
807	Acer rubrum	Red maple	7.6			Fair				X	
808	Prunus serotina	Black Cherry	8.7			Fair				X	
809	Tilia americana	Basswood	5.8			Fair				X	
810	Acer rubrum	Red maple	7.8			Fair			X		
811	Acer rubrum	Red maple	9.2			Fair			X		
812	Prunus serotina	Black Cherry	8.5			Fair			X		
813	Acer rubrum	Red maple	9.7			Fair				X	
814	Acer rubrum	Red maple	12.4			Fair				X	
815	Acer rubrum	Red maple	9.5	3.9		Fair			X		
816	Acer rubrum	Red maple	4.3			Fair			X		
817	Quercus velutina	Black Oak	17.5			Fair		X			
818	Sassafras albidum	Sassafras	11.1			Fair			X		
819	Acer rubrum	Red maple	16.6			Fair			X		
820	Acer rubrum	Red maple	7.9	5.1	5.2	Fair				X	
821	Acer rubrum	Red maple	4.4			Fair				X	
822	Quercus velutina	Black Oak	18.4			Fair			X		
823	Acer rubrum	Red maple	13.6			Fair				X	
824	Tilia americana	Basswood	5.9			Fair				X	
825	Tilia americana	Basswood	6.6			Fair				X	
826	Acer rubrum	Red maple	9.5			Fair				X	
827	Acer rubrum	Red maple	7.3	6.1		Fair				X	
828	Prunus serotina	Black Cherry	4.1			Fair				X	
829	Sassafras albidum	Sassafras	12.5			Poor				X	
830	Quercus velutina	Black Oak	15.8			Fair			X		
831	Sassafras albidum	Sassafras	6.3			Fair			X		
832	Acer rubrum	Red maple	8.1			Fair			X		
833	Sassafras albidum	Sassafras	4.6			Poor				X	
834	Acer rubrum	Red maple	8.2			Fair				X	
835	Acer rubrum	Red maple	7.4			Fair				X	
836	Acer rubrum	Red maple	8.7	4.9		Fair				X	
837	Acer rubrum	Red maple	11.8	8.3	3.4	Fair				X	
838	Acer rubrum	Red maple	8.7			Fair				X	
839	Acer rubrum	Red maple	5			Fair				X	
840	Acer rubrum	Red maple	11.6			Fair				X	
841	Quercus velutina	Black Oak	12.4			Fair				X	
842	Quercus alba	White Oak	11.8			Fair			X		
843	Acer rubrum	Red maple	4.3			Fair				X	
844	Quercus alba	White Oak	15.6			Fair				X	
845	Acer rubrum	Red maple	4.9	7.5		Poor				X	
846	Acer rubrum	Red maple	8.5			Fair				X	
847	Acer rubrum	Red maple	6.3			Fair				X	
848	Prunus serotina	Black Cherry	4.6			Fair				X	
849	Prunus serotina	Black Cherry	10.7			Fair			X		
850	Quercus alba	White Oak	4.5			Fair			X		
851	Acer rubrum	Red maple	5.5			Fair			X		
852	Acer rubrum	Red maple	5.6			Fair		X			
853	Acer rubrum	Red maple	8.6			Fair				X	
854	Acer rubrum	Red maple	11.3			Fair			X		
855	Quercus alba	White Oak	4.5			Fair		X			
856	Quercus alba	White Oak	7.8	6.2		Fair		X			
857	Acer rubrum	Red maple	7.3			Fair		X			
858	Prunus serotina	Black Cherry	7.4			Fair		X			
859	Quercus velutina	Black Oak	10.6			Fair		X			
860	Quercus velutina	Black Oak	14.2			Fair		X			
861	Quercus rubra	Red Oak	18.2			Fair		X			
862	Acer rubrum	Red maple	8.1			Fair			X		
863	Prunus serotina	Black Cherry	4			Fair			X		
864	Quercus alba	White Oak	9.5			Fair				X	
865	Acer rubrum	Red maple	5.8			Fair			X		
866	Acer rubrum	Red maple	7	7		Fair			X		
867	Acer rubrum	Red maple	4.8			Fair			X		
868	Quercus alba	White Oak	4.4			Fair		X			
869	Acer rubrum	Red maple	5.3			Fair			X		
870	Acer negundo	Boxelder	4			Fair			X		
871	Acer rubrum	Red maple	8.6	4.7		Fair			X		
872	Acer rubrum	Red maple	5.9			Fair				X	
873	Acer rubrum	Red maple	5	5.3		Fair				X	
874	Prunus serotina	Black Cherry	6.8			Fair				X	
875	Sassafras albidum	Sassafras	6.1			Fair				X	
876	Acer rubrum	Red maple	11.1			Fair				X	
877	Acer rubrum	Red maple	6.6			Fair				X	
878	DROPPED	DROPPED	0			Fair				X	
879	Prunus serotina	Black Cherry	6.6			Fair				X	
880	Prunus avium	Sweet Cherry	8.1			Fair				X	
881	Sassafras albidum	Sassafras	7			Fair				X	
882	Sassafras albidum	Sassafras	8.8			Fair				X	
883	Ailanthus altissima	Tree of Heaven	8.4			Fair			X		
884	Ailanthus altissima	Tree of Heaven	7.3			Fair				X	
885	Ailanthus altissima	Tree of Heaven	6.6	5.8	5.2	Fair				X	
886	Acer negundo	Boxelder	4.6			Fair				X	
887	Ailanthus altissima	Tree of Heaven	10.4			Fair				X	
888	Ailanthus altissima	Tree of Heaven	5.6			Fair				X	
889	Prunus serotina	Black Cherry	7.7			Fair			X		
890	Acer negundo	Boxelder	5.2			Fair			X		
891	Sassafras albidum	Sassafras	5.7			Fair			X		
892	Acer rubrum	Red maple	7.8			Fair				X	
893	Prunus serotina	Black Cherry	7.5			Fair				X	
894	Prunus serotina	Black Cherry	6.9			Fair				X	
895	Prunus serotina	Black Cherry	4.2			Fair				X	
896	Prunus serotina	Black Cherry	5.2	5.1		Fair				X	
897	Prunus avium	Sweet Cherry	7.3			Fair				X	
898	Prunus avium	Sweet Cherry	8.4			Fair				X	
899	Prunus serotina	Black Cherry	4.2			Fair				X	
900	Sassafras albidum	Sassafras	8.5			Fair				X	
901	Acer negundo	Boxelder	10.7			Fair				X	
902	Sassafras albidum	Sassafras	5.2			Fair				X	
903	Sassafras albidum	Sassafras	4.4			Fair				X	
904	Prunus serotina	Black Cherry	4.6			Fair				X	
905	Prunus serotina	Black Cherry	6.6			Fair				X	
906	Prunus avium	Sweet Cherry	6.9			Fair				X	
907	Prunus serotina	Black Cherry	7			Fair				X	
908	Acer rubrum	Red maple	5.4			Fair			X		
909	Acer rubrum	Red maple	7.6			Fair				X	
910	Prunus serotina	Black Cherry	5.3			Fair				X	
911	Prunus serotina	Black Cherry	7.4			Fair			X		
912	Prunus serotina	Black Cherry	8.2			Fair			X		
913	Sassafras albidum	Sassafras	4.4			Fair				X	
914	Acer rubrum	Red maple	4.1			Fair			X		
915	Prunus serotina	Black Cherry	6.5	5.5		Fair				X	
916	Sassafras albidum	Sassafras	6.2			Fair			X		
917	Sassafras albidum	Sassafras	7			Fair			X		
918	Sassafras albidum	Sassafras	6.7			Fair			X		
919	Prunus serotina	Black Cherry	6.3			Fair			X		
920	Prunus serotina	Black Cherry	8.9			Fair				X	
921	Quercus rubra	Red Oak	6.1			Fair			X		
922	Quercus rubra	Red Oak	6.4			Fair			X		
923	Acer rubrum	Red maple	7.5			Fair			X		
924	Acer rubrum	Red maple	4.9			Fair			X		
925	Acer rubrum	Red maple	5.9			Fair				X	
926	Acer rubrum	Red maple	4.6			Fair				X	
927	Acer rubrum	Red maple	8			Fair			X		
928	Prunus avium	Sweet Cherry	9.4	8.1		Fair			X		
929	Quercus velutina	Black Oak	5.8	5.2		Fair		X			
930	Prunus serotina	Black Cherry	5.3	4.9		Fair		X			
932	Acer rubrum	Red maple	6			Fair		X			
933	Acer rubrum	Red maple	9	4.3		Fair		X			
934	Acer rubrum	Red maple	8			Fair		X			
935	Acer rubrum	Red maple	10.7	5.2		Fair		X			
936	Quercus velutina	Black Oak	12.2			Fair		X			
937	Acer negundo	Boxelder	5.1			Fair				X	
938	Prunus serotina	Black Cherry	5.4			Fair				X	
939	Prunus avium	Sweet Cherry	4.9			Fair				X	
940	Acer rubrum	Red maple	6.1			Fair				X	
941	Acer rubrum	Red maple	6			Fair			X		
942	Sassafras albidum	Sassafras	9.2			Fair			X		
943	Acer rubrum	Red maple	10.8	6.8		Fair				X	
944	Acer rubrum	Red maple	6.1			Fair				X	
945	Acer rubrum	Red maple	9.3			Fair				X	
946	Prunus avium	Sweet Cherry	7.3			Fair				X	
947	Prunus serotina	Black Cherry	4.4			Fair				X	
948	Sassafras albidum	Sassafras	4.4			Fair				X	
949	Acer rubrum	Red maple	8.7			Fair				X	
950	Acer rubrum	Red maple	8.2			Fair				X	
951	Prunus serotina	Black Cherry	4.2			Fair				X	
952	Sassafras albidum	Sassafras	6.5			Fair				X	
953	Prunus serotina	Black Cherry	7.6			Fair				X	
954	Prunus serotina	Black Cherry	4.5			Fair				X	
955	Prunus serotina	Black Cherry	4.6			Fair				X	
956	Prunus serotina	Black Cherry	4.8			Fair				X	
957	Prunus serotina	Black Cherry	4.9			Fair				X	
958	Prunus serotina	Black Cherry	5.2			Fair				X	
959	Acer rubrum	Red maple	8.4			Fair				X	
960	Acer rubrum	Red maple	10.3			Fair				X	
961	Acer rubrum	Red maple	7.1			Fair				X	
962	Acer rubrum	Red maple	10.2			Fair				X	
963	Prunus serotina	Black Cherry	4.2	4		Fair				X	
964	Sassafras albidum	Sassafras	4.4			Fair				X	
965	Prunus serotina	Black Cherry	4.7			Fair			X		
966	Prunus serotina	Black Cherry	6.1			Fair				X	
967	Prunus serotina	Black Cherry	4.1			Fair				X	
968	Prunus serotina	Black Cherry	6.5			Fair				X	
969	Fraxinus pennsylvanica	Green Ash	6.2			Fair				X	
970	Fraxinus pennsylvanica	Green Ash	4.2			Fair				X	
971	Prunus serotina	Black Cherry	5.2			Fair		X			
972	Acer rubrum	Red maple	4			Fair				X	
973	Prunus avium	Sweet Cherry	4.7			Fair			X		
974	Prunus avium	Sweet Cherry	7.7	5		Fair		X			
975	Prunus avium	Sweet Cherry	4.6			Fair		X			
976	Acer rubrum	Red maple	11.5			Fair		X			
977	Sassafras albidum	Sassafras	7.2			Fair		X			
978	Acer rubrum	Red maple	9.1			Fair		X			
979	Acer rubrum	Red maple	5.9			Fair		X			
980	Acer rubrum	Red maple	18.5			Fair		X			
981	Acer rubrum	Red maple	4.1			Fair		X			
982	Sassafras albidum	Sassafras	8.6			Fair		X			
983	Acer rubrum	Red maple	6.3			Fair		X			
984	Acer rubrum	Red maple	5.2	4		Fair		X			
985	Prunus serotina	Black Cherry	5.5			Fair		X			
986	Acer rubrum	Red maple	4.7			Fair		X			
987	Acer rubrum	Red maple	6.1	4.4		Fair		X			
988	Acer rubrum	Red maple	4.3	4		Fair			X		
989	Acer rubrum	Red maple	7.5			Very Poor			X		
990	Prunus serotina	Black Cherry	4.7	4.6		Fair				X	
991	Acer rubrum	Red maple	4.7			Fair				X	
992	Acer rubrum	Red maple	5.7			Fair				X	
993	Acer rubrum	Red maple	4.8			Fair				X	
994	Acer rubrum	Red maple	6			Fair				X	
995	Prunus serotina	Black Cherry	4.6			Fair				X	
996	Acer rubrum	Red maple	11			Fair				X	
997	Acer rubrum	Red maple	11.2			Fair			X		
998	Prunus serotina	Black Cherry	9.9			Fair			X		
999	Prunus serotina	Black Cherry	10.3			Fair			X		
1000	Acer rubrum	Red maple	7.6			Fair			X		
1547	Picea abies	Norway Spruce	12.1			Fair			X		
1548	Picea abies	Norway Spruce	17.3			Fair			X		
1549	Picea abies	Norway Spruce	18.2			Fair			X		
1550	Picea abies	Norway Spruce	10.9			Fair				X	
1551	Picea abies	Norway Spruce	14.4			Fair			X		
1552	Picea abies	Norway Spruce	13.8			Fair			X		
1553	Juglans nigra	Black Walnut	9			Fair				X	
1554	Juglans nigra	Black Walnut	7.4			Fair				X	
1555	Juglans nigra	Black Walnut	5.2			Fair			X		
1556	Pinus sylvestris	Scots Pine	5.7			Fair			X		
1557	Juglans nigra	Black Walnut	5.1			Fair			X		
1558	Juglans nigra	Black Walnut	4.7			Fair				X	
1559	Juglans nigra	Black Walnut	6.6			Fair			X		
1560	Prunus serotina	Black Cherry	7.9	5.3		Fair				X	
1561	Juglans nigra	Black Walnut	5.6			Fair			X		
1562	Quercus alba	White Oak	4.2			Fair				X	
1563	Pinus sylvestris	Scots Pine	8			Fair			X		
1564	Juglans nigra	Black Walnut	5.2			Fair			X		
1565	Juglans nigra	Black Walnut	5.8			Fair				X	
1566	Juglans nigra	Black Walnut	6.7			Fair				X	
1567	Juglans nigra	Black Walnut	5.2	5.1		Fair				X	
1568	Juglans nigra	Black Walnut	9.4			Fair				X	
1569	Juglans nigra	Black Walnut	6.1			Fair			X		
1570	Juglans nigra	Black Walnut	6.3			Fair			X		
1571	Pinus sylvestris	Scots Pine	4.3			Fair			X		
1572	Juglans nigra	Black Walnut	5.2			Fair			X		
1573	Pinus sylvestris	Scots Pine	4.2			Fair			X		
1574	Pinus sylvestris	Scots Pine	4.9			Fair			X		
1575	Pinus sylvestris	Scots Pine	6.6			Fair			X		
1576	Pinus sylvestris	Scots Pine	5.8			Fair			X		
1577	Pinus sylvestris	Scots Pine	4.8			Fair			X		
1578	Pinus sylvestris	Scots Pine	8.5			Fair			X		
1579	Pinus sylvestris	Scots Pine	6.3	5.8		Fair			X		
1580	Pinus sylvestris	Scots Pine	5.7			Fair			X		
1581	Pinus sylvestris	Scots Pine	5.1			Fair			X		
1582	Pinus sylvestris	Scots Pine	6.4			Fair				X	
1583	Pinus sylvestris	Scots Pine	5.1			Fair				X	
1584	Pinus sylvestris	Scots Pine	4.2			Fair				X	
1585	Pinus sylvestris	Scots Pine	6.6			Fair				X	
1586	Pinus sylvestris	Scots Pine	6.5			Fair				X	
1587	Pinus sylvestris	Scots Pine	8.6			Fair				X	
1588	Pinus sylvestris	Scots Pine	4.8			Fair				X	
1589	Pinus sylvestris	Scots Pine	9.8			Fair				X	
1590	Pinus sylvestris	Scots Pine	4.4			Fair				X	
1591	Pinus sylvestris	Scots Pine	5			Fair				X	
1592	Pinus sylvestris	Scots Pine	5.2			Fair				X	
1593	Pinus sylvestris	Scots Pine	6			Fair			X		
1594	Pinus sylvestris	Scots Pine	6.2			Fair				X	
1595	Pinus sylvestris	Scots Pine	5.5			Fair				X	
1596	Pinus sylvestris	Scots Pine	4.1			Fair			X		
1597	Pinus sylvestris	Scots Pine	4.4			Fair			X		
1598	Pinus sylvestris	Scots Pine	5.1			Fair			X		
1599	Pinus sylvestris	Scots Pine	4.9			Fair			X		
1600	Pyrus communis	Common Pear	4.3			Fair				X	
1601	Pinus sylvestris	Scots Pine	4.5			Fair			X		
1602	Juglans nigra	Black Walnut	5.9			Fair			X		
1603	Pinus sylvestris	Scots Pine	5.3			Fair			X		
1604	Juniperus virginiana	Eastern Red Cedar	4.8			Fair			X		
1605	Pinus sylvestris	Scots Pine	5.5			Fair			X		
1606	Pinus sylvestris	Scots Pine	4			Fair				X	
1607	Pinus sylvestris	Scots Pine	4.9			Fair				X	
1608	Pinus sylvestris	Scots Pine	5.2			Fair			X		
1609	Pinus sylvestris	Scots Pine	4.8			Fair			X		
1610	Pinus sylvestris	Scots Pine	4.4			Fair			X		
1611	Juglans nigra	Black Walnut	4.1			Fair			X		
1612	Juglans nigra	Black Walnut	4.6			Fair			X		
1613	Quercus rubra	Red Oak	4.2			Fair				X	
1614	Quercus velutina	Black Oak	7.9			Fair			X		
1615	Juglans nigra	Black Walnut	5.2			Fair			X		
1616	Juglans nigra	Black Walnut	6.8			Fair			X		
1617	Malus pumila	Common Apple	10	9.2		Fair			X		
1618	Prunus serotina	Black Cherry	5.6			Fair			X		
1619	Rhamnus cathartica	European Buckthorn	4.6	4.1	4	Fair			X		
1620	Juglans nigra	Black Walnut	4.8			Fair			X		
1621	Juglans nigra	Black Walnut	5.7			Fair			X		
1622	Quercus rubra	Red Oak	4			Fair			X		
1623	Malus pumila	Common Apple	10.5			Fair			X		
1624	Juglans nigra	Black Walnut	6.3			Fair			X		
1625	Prunus serotina	Black Cherry	7.3			Fair				X	
1626	Quercus velutina	Black Oak	30			Fair	X				
1627	Prunus serotina	Black Cherry	4.5			Fair				X	
1628	Quercus velutina	Black Oak	12.6			Fair				X	
1629	Quercus rubra	Red Oak	5.6			Fair				X	
1630	Quercus velutina	Black Oak	14.1			Fair			X		
1631	Prunus serotina	Black Cherry	7.1			Fair			X		
1632	Quercus rubra	Red Oak	4.1			Fair			X		
1633	Quercus velutina	Black Oak	7.1			Fair			X		
1634	Acer rubrum	Red Maple	7.3			Fair				X	
1635	Quercus velutina	Black Oak	11			Fair				X	
1636	Quercus velutina	Black Oak	12.3			Fair				X	
1637	Quercus velutina	Black Oak	18.4	17.1		Fair				X	
1638	Quercus velutina	Black Oak	18.9			Fair				X	
1639	Quercus velutina	Black Oak	12.5			Fair				X	
1640	Prunus serotina	Black Cherry	11.6			Fair				X	
1641	Quercus velutina	Black Oak	13			Fair				X	
1642	Quercus velutina	Black Oak	17.4			Fair				X	
1643	Quercus velutina	Black Oak	7.8			Fair				X	
1644	Quercus velutina	Black Oak	24.1			Fair	X				
1645	Prunus serotina	Black Cherry	9.3			Fair				X	
1646	Quercus velutina	Black Oak	24			Fair	X				
1647	Juglans nigra	Black Walnut	6.1			Fair				X	
1648	Juglans nigra	Black Walnut	5.8			Fair				X	
1649	Quercus velutina	Black Oak	12.6	12.6		Fair				X	
1650	Quercus velutina	Black Oak	20.5			Fair				X	
1651	Quercus velutina	Black Oak	9.8			Fair				X	
1652	Ulmus americana	American Elm	6.9			Fair				X	
1653	Quercus velutina	Black Oak	6.8			Fair				X	
1654	Quercus velutina	Black Oak	20.1			Fair				X	
1655	Quercus velutina	Black Oak	10			Fair				X	
1656	Quercus velutina	Black Oak	10.4			Fair				X	
1657	Quercus velutina	Black Oak	9.3			Fair				X	
1658	Quercus velutina	Black Oak	10.1			Fair			X		
1659	Quercus velutina	Black Oak	4.2			Fair			X		
1660	Prunus serotina	Black Cherry	7.8	5.4		Fair				X	
1661	Quercus velutina	Black Oak	17.5			Fair				X	
1662	Quercus velutina	Black Oak	8.5			Fair				X	
1663	Quercus velutina	Black Oak	15.7	12.3		Fair				X	
1664	Quercus rubra	Red Oak	5.2			Fair			X		
1665	Quercus velutina	Black Oak	9.9			Fair				X	
1666	Quercus velutina	Black Oak	9.3			Fair				X	
1667	Quercus velutina	Black Oak	15.4			Fair				X	
1668	Quercus velutina	Black Oak	16.1			Fair				X	
1669	Prunus serotina	Black Cherry	5.1			Fair				X	
1670	Quercus velutina	Black Oak	21.7			Fair			X		
1671	Quercus velutina	Black Oak	10.6	9.9		Fair				X	
1672	Quercus velutina	Black Oak	14.2			Fair				X	
1673	Quercus rubra	Red Oak	4.1			Fair			X		
1674	Quercus velutina	Black Oak	8.3			Fair				X	
1675	Prunus serotina	Black Cherry	17.1			Fair				X	
1676	Quercus velutina	Black Oak	8.5			Fair				X	
1677	Quercus velutina	Black Oak	13.6			Fair			X		
1678	Quercus velutina	Black Oak	8.9			Fair				X	
1679	Juglans nigra	Black Walnut	9.8			Fair				X	
1680	Quercus velutina	Black Oak	23.2			Fair				X	
1681	Quercus velutina	Black Oak	20.8			Fair				X	
1682	Quercus rubra	Red Oak	5.1			Fair				X	
1683	Juglans nigra	Black Walnut	9.9			Fair				X	
1684	Juglans nigra	Black Walnut	7.9			Fair				X	
1685	Ulmus rubra	Slippery Elm	9.8			Fair				X	
1686	Quercus velutina	Black Oak	9.5			Fair					X
1687	Quercus velutina	Black Oak	7.6			Fair					X
1688	Prunus serotina	Black Cherry	10.4			Fair					X
1689	Prunus serotina	Black Cherry	11			Very Poor					X
1690	Prunus serotina	Black Cherry	8.6			Fair		X			
1691	Prunus serotina	Black Cherry	5			Fair		X			
1692	Prunus serotina	Black Cherry	4.7			Fair			X		
1693	Prunus serotina	Black Cherry	10.9			Fair			X		
1694	Prunus serotina	Black Cherry	4.5			Fair			X		
1695	Prunus serotina	Black Cherry	5			Fair			X		
1696	Prunus serotina	Black Cherry	5.4			Fair				X	
1697	Prunus serotina	Black Cherry	6.9			Fair				X	
1698	Acer negundo	Boxelder	4.3			Fair				X	
1699	Prunus serotina	Black Cherry	5.5			Fair				X	
1700	Acer negundo	Boxelder	5.1			Fair				X	
1701	Prunus serotina	Black Cherry	9.7			Fair				X	
1702	Acer rubrum	Red maple	9.4			Fair				X	
1703	Prunus serotina	Black Cherry	4.7			Fair				X	
1704	Prunus serotina	Black Cherry	5.6			Fair				X	
1705	Acer negundo	Boxelder	4.7			Fair				X	
1706	Acer negundo	Boxelder	7.5			Fair				X	
1707	Acer negundo	Boxelder	5.1	4.2		Fair			X		
1708	Prunus serotina	Black Cherry	5			Fair			X		
1709	Prunus serotina	Black Cherry	4.4			Fair				X	
1710	Acer negundo	Boxelder	4.2	4		Fair			X		
1711	Prunus serotina	Black Cherry	5.5			Fair		X			
1712	Prunus serotina	Black Cherry	9.8			Fair		X			
1713	Prunus serotina	Black Cherry	7.2			Fair		X			
1714	Prunus serotina	Black Cherry	6.9			Fair		X			
1715	Sassafras albidum	Sassafras	7.8			Fair					X
1716	Prunus serotina	Black Cherry	17.4			Fair					X
1717	Prunus serotina	Black Cherry	6.1			Fair					X
1718	Prunus serotina	Black Cherry	14.8			Fair					X
1719	Prunus serotina	Black Cherry	12.2			Fair					X
1720	Robinia Pseudoacacia	Black Locust	9.4			Fair		X			
1721	Sassafras albidum	Sassafras	4.8			Fair		X			
1722	Sassafras albidum	Sassafras	7			Fair		X			
1723	Prunus serotina	Black Cherry	12.7			Fair					X
1724	Acer rubrum	Red maple	12.5			Fair					X
1725	Prunus serotina	Black Cherry	6.4			Fair		X			
1726	Acer rubrum	Red maple	6.8			Fair		X			
1727	Acer rubrum	Red maple	6.6			Fair		X			
1728	Acer rubrum	Red maple	5			Fair					X
1729	Acer rubrum	Red maple	7.6			Fair		X			
1730	Prunus serotina	Black Cherry	9.7			Fair		X			
1731	Ulmus americana	American Elm	12.1			Fair			X		
1732	Acer negundo	Boxelder	5.8			Fair			X		
1733	Robinia Pseudoacacia	Black Locust	6.8			Fair		X			
1734	Prunus serotina	Black Cherry	7.8			Fair			X		
1735	Prunus serotina	Black Cherry	6.6			Fair			X		
1736	Acer negundo	Boxelder	4.8	5.1		Fair				X	
1737	Prunus serotina	Black Cherry	5.3			Fair				X	
1738	Prunus serotina	Black Cherry	5.3			Fair				X	
1739	Acer negundo	Boxelder	8.7			Fair				X	
1740	Acer negundo	Boxelder	5.1			Fair				X	
1741	Prunus serotina	Black Cherry	6.5			Fair				X	
1742	Acer negundo	Boxelder	5.8			Fair				X	
1743	Acer rubrum	Red maple	21.7	10.2		Fair				X	
1744	Prunus avium	Sweet Cherry	15			Fair				X	
1745	Acer negundo	Boxelder	4.7			Fair				X	
1746	Prunus serotina	Black Cherry	7.5			Fair				X	
1747	Prunus serotina	Black Cherry	8.5			Fair				X	
1748	Acer negundo	Boxelder	9			Fair			X		
1749	Ulmus americana	American Elm	5.2			Fair			X		
1750	Prunus serotina	Black Cherry	12.7			Fair		X			
1751	Acer rubrum	Red maple	4.6			Fair		X			
1752	Acer rubrum	Red maple	5.4			Fair		X			
1753	Prunus serotina	Black Cherry	11.6			Fair					X
1754	Acer rubrum	Red maple	6.4			Fair					X
1755	Acer rubrum	Red maple	7.5			Fair					X
1756	Acer rubrum	Red maple	4.8			Fair					X
1757	Pyrus communis	Common Pear	11.3			Fair		X			
1758	Quercus velutina	Black Oak	7.2			Fair					X
1759	Quercus velutina	Black Oak	19.5			Fair					X
1760	Prunus serotina	Black Cherry	16.2			Fair					X
1761	Acer rubrum	Red maple	5.6			Fair			X		
1762	Acer rubrum	Red maple	5			Fair			X		
1763	Acer rubrum	Red maple	6.2			Fair			X		
1764	Prunus serotina	Black Cherry	11			Fair			X		
1765	Prunus serotina	Black Cherry	8.6			Very Poor			X		
1766	Acer rubrum	Red maple	5.1			Fair			X		
1767	Acer rubrum	Red maple	11.5			Fair			X		
1768	Prunus serotina	Black Cherry	7.2			Fair			X		
1769	Acer rubrum	Red maple	6			Fair			X		
1770	Acer rubrum	Red maple	4			Fair			X		
1771	Prunus serotina	Black Cherry	7.4			Fair			X		
1772	Acer rubrum	Red maple	9.1			Fair		X			
1773	Acer rubrum	Red maple	6.6	4.6		Fair			X		
1774	Sassafras albidum	Sassafras	4.1			Fair			X		
1775	Robinia Pseudoacacia	Black Locust	8			Fair		X			
1776	Acer rubrum	Red maple	6.5			Fair		X			
1777	Quercus velutina	Black Oak	9			Fair		X			
1778	Quercus velutina	Black Oak	24.1			Fair	X				
1779	Quercus velutina	Black Oak	15.8			Fair		X			
1780	Quercus velutina	Black Oak	13.6			Fair		X			
1781	Robinia Pseudoacacia	Black Locust	11.1			Fair		X			
1782	Sassafras albidum	Sassafras	8.8			Fair		X			
1783	Robinia Pseudoacacia	Black Locust	15.6			Fair		X			
1784	Robinia Pseudoacacia	Black Locust	8.7			Fair		X			
1785	Acer rubrum	Red maple	9			Fair		X			
1786	Acer rubrum	Red maple	4.8	4.4		Fair					X
1787	Quercus rubra	Red Oak	19.7			Fair		X			
1788	Acer rubrum	Red maple	14.9			Fair					X
1789	Prunus serotina	Black Cherry	6.9			Fair		X			
1790	Acer rubrum	Red maple	14.9			Fair					X
1791	Robinia Pseudoacacia	Black Locust	10.2	9.2		Fair					X
1792	Morus alba	White Mulberry	5.4			Fair					X
1793	Quercus velutina	Black Oak	20			Fair			X		
1794	Juglans nigra	Black Walnut	4.8			Fair					X
1795	Robinia Pseudoacacia	Black Locust	8.4	9.8		Fair			X		
1796	Acer rubrum	Red maple	17.4			Fair			X		
1797	Acer rubrum	Red maple	16.1			Fair				X	
1798	Robinia Pseudoacacia	Black Locust	9.4			Fair				X	
1799	Acer rubrum	Red maple	12.8			Fair				X	
1800	Acer rubrum	Red maple	8.6			Fair				X	
1801	Acer rubrum	Red maple	16			Fair				X	
1802	Sassafras albidum	Sassafras	15.2			Fair	X				
1803	Sassafras albidum	Sassafras	12.1			Fair			X		
1804	Acer rubrum	Red maple	6.1			Fair			X		
1805	Acer rubrum	Red maple	7.3			Fair				X	
1806	Sassafras albidum	Sassafras	10			Fair			X		
1807	Sassafras albidum	Sassafras	11.8			Fair				X	
1808	Acer rubrum	Red maple	12.6			Fair			X		
1809	Quercus velutina	Black Oak	10.4			Fair				X	
1810	Acer rubrum	Red maple	6.2			Fair				X	
1811	Acer rubrum	Red maple	8.1			Fair			X		
1812	Acer rubrum	Red maple	13.1			Fair		X			
1813	Acer rubrum	Red maple	13.2			Fair			X		
1814	Acer rubrum	Red maple	8.4			Fair		X			
1815	Acer rubrum	Red maple	5			Fair		X			
1816	Quercus velutina	Black Oak	22.1			Fair			X		
1817	Acer rubrum	Red maple	6.1			Fair				X	
1818	Acer rubrum	Red maple	8.8			Very Poor			X		
1819	Robinia Pseudoacacia	Black Locust	4.2			Fair			X		
1820	Acer rubrum	Red maple	5.1			Fair		X			
1821	Acer rubrum	Red maple	8.7			Fair		X			
1822	Acer rubrum	Red maple	4.1			Fair		X			
1823	Sassafras albidum	Sassafras	4.7			Fair					X
1824	Acer rubrum	Red maple	9.6			Fair					X
1825	Juglans nigra	Black Walnut	12.9			Fair		X			
1826	Acer rubrum	Red maple	4.6			Fair				X	
1827	Acer rubrum	Red maple	4.6			Fair			X		
1828	Acer rubrum	Red maple	4.1			Fair			X		
1829	Sassafras albidum	Sassafras	4.7			Fair				X	
1830	Acer rubrum	Red maple	6.2			Fair			X		
1831	Acer rubrum	Red maple	4.1			Fair				X	
1832	Prunus serotina	Black Cherry	4.4			Fair				X	
1833	Acer rubrum	Red maple	5.6	4.8		Fair			X		
1834	Acer rubrum	Red maple	4			Fair			X		
1835	Acer rubrum	Red maple	8.4			Fair			X		
1836	Sassafras albidum	Sassafras	10.5			Fair			X		
1837	Acer rubrum	Red maple	4.1			Fair			X		
1838	Acer rubrum	Red maple	12.3			Fair			X		
1839	Acer rubrum	Red maple	5.2			Fair			X		
1840	Acer rubrum	Red maple	10.7			Fair			X		
1841	Acer rubrum	Red maple	24.5	15.8		Fair	X				
1842	Sassafras albidum	Sassafras	4.8			Fair			X		
1843	Sassafras albidum	Sassafras	5.5			Fair			X		
1844	Juglans nigra	Black Walnut	7.4			Fair			X		
1845	Quercus alba	White Oak	15.1			Fair					X
1846	Acer rubrum	Red maple	9.2			Fair					X
1847	Acer rubrum	Red maple	4.7			Fair		X			
1848	Acer rubrum	Red maple	13.3			Fair		X			
1849	Sassafras albidum	Sassafras	8.6			Fair		X			
1850	Acer rubrum	Red maple	8.2			Fair			X		
1851	Acer rubrum	Red maple	8.2			Fair		X			
1852	Sassafras albidum	Sassafras	11.9			Fair		X			
1853	Quercus alba	White Oak	10.2			Fair					X
1854	Sassafras albidum	Sassafras	10.8			Fair		X			
1855	Sassafras albidum	Sassafras	8.2			Fair					X
1856	Acer rubrum	Red maple	14.2	4.6		Fair			X		
1857	Acer saccharum	Sugar maple	7.3			Fair			X		
1858	Acer saccharum	Sugar maple	5.4			Fair			X		
1859	Acer rubrum	Red maple	8.7			Fair		X			
1860	Acer rubrum	Red maple	7.6			Fair		X			
1861	Acer rubrum	Red maple	28			Fair	X				
1862	Sassafras albidum	Sassafras	8.3			Fair					X
1863	Prunus serotina	Black Cherry	12.3			Fair					X
1864	Quercus velutina	Black Oak	26.2			Fair	X				
1865	Sassafras albidum	Sassafras	6.2			Fair					X
1866	Sassafras albidum	Sassafras	5.1			Fair					X
1867	Carya glabra	Pignut Hickory	25.7			Fair	X				
1868	Acer negundo	Boxelder	4			Fair		X			
1869	Quercus velutina	Black Oak	16.9			Fair					X
1870	Sassafras albidum	Sassafras	4.2			Fair					X
1871	Quercus alba	White Oak	13			Fair		X			
1873	Sassafras albidum	Sassafras	11.2			Fair		X			
1874	Sassafras albidum	Sassafras	5.1			Fair		X			
1875	Sassafras albidum	Sassafras	4.6			Fair		X			
1876	Prunus serotina	Black Cherry	9.4			Fair		X			
1877	Acer rubrum	Red maple	7			Fair			X		
1878	Prunus serotina	Black Cherry	4.2			Fair			X		
1879	Acer rubrum	Red maple	6.1			Fair			X		
1880	Sassafras albidum	Sassafras	5.2			Fair			X		
1881	Sassafras albidum	Sassafras	10			Fair			X		
1882	Prunus serotina	Black Cherry	6.1			Fair			X		
1883	Acer rubrum	Red maple	9.3			Fair			X		
1884	Acer rubrum	Red maple	7.2			Fair		X			
1885	Sassafras albidum	Sassafras	4.2			Fair		X			
1886	Prunus serotina	Black Cherry	4.5			Fair		X			
1887	Sassafras albidum	Sassafras	5.7			Fair		X			
1888	Acer rubrum	Red maple	10.2			Fair			X		
1889	Acer rubrum	Red maple	5.8			Fair		X			
1890	Acer rubrum	Red maple	6.9			Fair		X			
1891	Acer rubrum	Red maple	5.9			Fair		X			
1892	Sassafras albidum	Sassafras	5			Fair			X		
1893	Acer rubrum	Red maple	5.6			Fair			X		
1894	Sassafras albidum	Sassafras	6.2			Fair				X	
1895	Sassafras albidum	Sassafras	9.4			Fair				X	
1896	Prunus serotina	Black Cherry	4.6			Fair			X		
1897	Prunus serotina	Black Cherry	6.4			Fair			X		
1898	Acer rubrum	Red maple	9.7	4.9		Fair			X		
1899	Sassafras albidum	Sassafras	5.4			Fair		X			
1900	Sassafras albidum	Sassafras	4.7			Fair		X			
1901	Prunus serotina	Black Cherry	10.7			Fair		X			
1902	Prunus serotina	Black Cherry	10.9			Fair					X
1903	Prunus serotina	Black Cherry	11.7			Fair					X
1904	Sassafras albidum	Sassafras	6.8			Fair		X			
1905	Sassafras albidum	Sassafras	6.9			Fair		X			
1906	Quercus velutina	Black Oak	28.4	16.7		Fair	X				
1907	Sassafras albidum	Sassafras	4.3			Fair					X
1908	Sassafras albidum	Sassafras	5.1			Fair					X
1909	Sassafras albidum	Sassafras	8.8			Fair					X
1910	Sassafras albidum	Sassafras	4.3			Fair		X			
1911	Sassafras albidum	Sassafras	7.5			Fair		X			
1912	Acer rubrum	Red maple	8.1			Fair		X			
1913	Acer rubrum	Red maple	4.6			Fair		X			
1914	Sassafras albidum	Sassafras	5.2			Fair			X		
1915	Quercus velutina	Black Oak	25			Fair	X				
1916	Sassafras albidum	Sassafras	18.8			Fair	X				
1917	Acer rubrum	Red maple	6.7			Fair			X		
1918	Acer rubrum	Red maple	6.9			Fair			X		
1919	Sassafras albidum	Sassafras	10			Fair			X		
1920	Sassafras albidum	Sassafras	5.2			Fair			X		
1921	Sassafras albidum	Sassafras	4.6			Fair		X			
1922	Prunus serotina	Black Cherry	4.2			Fair		X			
1923	Acer rubrum	Red maple	5.2			Fair		X			
1924	Acer rubrum	Red maple	10.4			Fair		X			
1925	Acer rubrum	Red maple	11.6			Fair		X			
1926	Prunus serotina	Black Cherry	14.6	11.9		Fair					X
1927	Sassafras albidum	Sassafras	16.7			Fair	X				
1928	Sassafras albidum	Sassafras	5.8			Fair		X			
1929	Sassafras albidum	Sassafras	15.2			Fair	X				
1930	Sassafras albidum	Sassafras	8.3			Fair		X			
1931	Sassafras albidum	Sassafras	5.4			Fair		X			
1932	Sassafras albidum	Sassafras	6.4			Fair		X			
1933	Sassafras albidum	Sassafras	4.1			Fair		X			
1934	Prunus serotina	Black Cherry	5			Fair		X			
1935	Quercus alba	White Oak	12.7			Fair		X			
1936	Quercus rubra	Red Oak	29.4			Fair	X				
1937	Prunus serotina	Black Cherry	4.6			Fair				X	
1938	Sassafras albidum	Sassafras	5.6			Fair		X			
1939	Sassafras albidum	Sassafras	4.2			Fair		X			
1940	Prunus serotina	Black Cherry	5.9			Fair		X			
1941	Prunus serotina	Black Cherry	4.3			Fair		X			
1942	Sassafras albidum	Sassafras	5.8			Fair		X			
1943	Prunus serotina	Black Cherry	4			Fair		X			
1944	Prunus serotina	Black Cherry	5.7			Fair		X			
1945	Sassafras albidum	Sassafras	8.1			Fair		X			
1946	Sassafras albidum	Sassafras	10			Fair		X			
1947	Sassafras albidum	Sassafras	10.2			Fair		X			
1948	Tilia americana	Basswood	8.9			Fair		X			
1949	Sassafras albidum	Sassafras	15.3	10.2		Fair	X				
1950	Prunus serotina	Black Cherry	4.2			Fair		X			
1951	Sassafras albidum	Sassafras	6.6			Fair		X			
1952	Sassafras albidum	Sassafras	9.3			Fair		X			
1953	Quercus velutina	Black Oak	15.4			Fair		X			
1954	Prunus serotina	Black Cherry	10.1			Fair		X			
1955	Sassafras albidum	Sassafras	8.5			Fair					X
1956	Sassafras albidum	Sassafras	13.7			Fair		X			
1957	Acer rubrum	Red maple	5.1			Fair		X			
1958	Quercus velutina	Black Oak	13.2			Fair					X
1959	Sassafras albidum	Sassafras	9.3			Fair					X
1960	Tilia americana	Basswood	7.2	5.2		Fair					X
1961	Prunus serotina	Black Cherry	12.3	9.4		Fair		X			
1962	Quercus velutina	Black Oak	10			Fair		X			
1963	Quercus velutina	Black Oak	21.4			Fair		X			
1964	Quercus rubra	Red Oak	5.4			Fair		X			
1965	Quercus rubra	Red Oak	4.4			Fair		X			
1966	Quercus rubra	Red Oak	5.5			Fair		X			
1967	Quercus rubra	Red Oak	11.9			Fair		X			
1968	Quercus velutina	Black Oak	23.3			Fair		X			
1969	Prunus avium	Sweet Cherry	14			Fair		X			
1970	Prunus serotina	Black Cherry	5.6			Fair		X			
1971	Quercus velutina	Black Oak	24.9			Fair	X				
1972	Acer rubrum	Red maple	4.7			Very Poor		X			
1973	Acer rubrum	Red maple	8.3			Fair		X			
1974	Quercus velutina	Black Oak	7.7			Fair		X			
1975	Quercus velutina	Black Oak	14			Fair		X			
1976	Acer rubrum	Red maple	5.1			Fair		X			
1977	Acer rubrum	Red maple	4.8			Fair		X			
1978	Tilia americana	Basswood	6.8	5.4		Fair		X			
1979	Acer rubrum	Red maple	10.1			Fair		X			
1980	Carya ovata	Shargbark Hickory	6			Fair		X			
1981	Acer rubrum	Red maple	6.6	6.4		Fair		X			
1982	Ulmus americana	American Elm	4.9			Fair		X			
1983	Acer rubrum	Red maple	7			Poor		X			
1984	Acer rubrum	Red maple	7.2			Fair		X			
1985	Robinia Pseudoacacia	Black Locust	5.3			Fair		X			
1986	Prunus serotina	Black Cherry	5			Fair		X			
1987	Quercus alba	White Oak	10.8			Fair		X			
1988	Acer rubrum	Red maple	7.5			Fair		X			
1989	Acer rubrum	Red maple	8.4			Fair		X			
1990	Ulmus americana	American Elm	4.6			Fair		X			
1991	Tilia americana	Basswood	6.1	4.4		Fair		X			
1992	Robinia Pseudoacacia	Black Locust	4.2			Fair		X			
1993	Sassafras albidum	Sassafras	6.4			Fair		X			
1994	Acer rubrum	Red maple	16.6			Very Poor		X			
1995	Acer rubrum	Red maple	7.5			Fair		X			
1996	Acer rubrum	Red maple	12.9			Fair		X			
1997	Sassafras albidum	Sassafras	4.7			Fair		X			
1998	Acer rubrum	Red maple	6			Fair		X			
1999	Sassafras albidum	Sassafras	7.6			Fair		X			
2000	Acer rubrum	Red maple	10.1			Fair		X			
2001	Robinia Pseudoacacia	Black Locust	7.9			Fair		X			
2002	Quercus velutina	Black Oak	21.2			Fair		X			
2003	Acer negundo	Boxelder	4.6			Fair		X			
2004	Acer rubrum	Red maple	19.6			Fair		X			
2005	Tilia americana	Basswood	5	4.7	4.2	Fair		X			
2006	Acer rubrum	Red maple	8.2			Fair		X			
2007	Acer rubrum	Red maple	4.5			Fair		X			
2008	Acer rubrum	Red maple	4			Fair		X			
2009	Sassafras albidum	Sassafras	4.7			Fair		X			
2010	Carya glabra	Pignut Hickory	4.3			Fair		X			
2011	Sassafras albidum	Sassafras	9.4			Fair		X			
2012	Acer rubrum	Red maple	7.4			Fair		X			
2013	Sassafras albidum	Sassafras	10.5			Fair		X			
2014	Quercus alba	White Oak	17.1			Fair		X			
2015	Quercus velutina	Black Oak	9.8			Fair		X			
2016	Quercus alba	White Oak	18			Fair		X			
2017	Ulmus americana	American Elm	4.2			Fair		X			
2018	Quercus velutina	Black Oak	17.7			Fair			X		
2019	Acer rubrum	Red maple	9.4	7.2	7.2	Fair				X	
2020	Carya glabra	Pignut Hickory	9.6			Fair			X		
2021	Acer rubrum	Red maple	4.4			Fair				X	
2022	Quercus velutina	Black Oak	14.4			Fair			X		
2023	Populus deltoides	Eastern Cottonwood	11.3			Fair				X	
2024	Ulmus americana	American Elm	6.3			Fair		X			
2025	Juglans nigra	Black Walnut	6			Fair		X			
2026	Quercus velutina	Black Oak	21.3			Fair		X			
2027	Acer rubrum	Red maple	8.6			Fair		X			
2028	Acer rubrum	Red maple	5.2			Fair		X			
2029	Acer rubrum	Red maple	5.2			Fair		X			
2030	Quercus velutina	Black Oak	18			Fair		X			
2031	Robinia Pseudoacacia	Black Locust	5			Fair			X		
2032	Acer negundo	Boxelder	5			Fair				X	
2033	Acer rubrum	Red maple	6.4	4.6		Fair				X	
2034	Prunus serotina	Black Cherry	5.4			Fair			X		
2035	Acer rubrum	Red maple	9			Fair			X		
2036	Quercus alba	White Oak	4.2			Fair				X	
2037	Prunus serotina	Black Cherry	13.9			Fair				X	
2038	Quercus alba	White Oak	14.3			Fair				X	
2039	Quercus velutina	Black Oak	17.1			Fair				X	
2040	Ulmus americana	American Elm	4.6			Fair				X	
2041	Juglans nigra	Black Walnut	10.6			Fair			X		
2042	Prunus serotina	Black Cherry	10.1			Fair				X	
2043	Ulmus americana	American Elm	4.6			Fair				X	
2044	Juglans nigra	Black Walnut	17.1			Fair				X	
2045	Sassafras albidum	Sassafras	7.2			Fair				X	
2046	Prunus serotina	Black Cherry	8.5			Fair				X	
2047	Prunus serotina	Black Cherry	6.2			Fair			X		
2048	Sassafras albidum	Sassafras	4.6			Poor			X		
2049	Acer rubrum	Red maple	5.8			Fair			X		
2050	Quercus alba	White Oak	6.5	5.8		Fair				X	
2051	Prunus serotina	Black Cherry	16.6			Fair			X		
2052	Acer rubrum	Red maple	10.2			Fair				X	
2053	Acer rubrum	Red maple	4.5			Fair				X	
2054	Acer rubrum	Red maple	6.6			Fair				X	
2055	Acer rubrum	Red maple	6.7	3.8		Fair				X	
2056	Sassafras albidum	Sassafras	9.9			Fair				X	
2057	Prunus serotina	Black Cherry	6.2			Fair			X		
2058	Robinia Pseudoacacia	Black Locust	5.3			Fair				X	
2059	Acer rubrum	Red maple	6.4			Fair				X	
2060	Sassafras albidum	Sassafras	12.4			Fair			X		
2061	Acer rubrum	Red maple	6.7			Fair			X		
2062	Prunus serotina	Black Cherry	8.4			Fair			X		
2063	Acer rubrum	Red maple	9.5			Fair		X			
2064	Sassafras albidum	Sassafras	6			Fair		X			
2065	Robinia Pseudoacacia	Black Locust	7.3			Fair		X			
2066	Acer rubrum	Red maple	4.7			Fair		X			
2067	Acer rubrum	Red maple	6.7			Very Poor		X			
2068	Quercus alba	White Oak	13.1	6.8		Fair		X			
2069	Prunus serotina	Black Cherry	7.5			Fair			X		
2070	Acer rubrum	Red maple	13.9			Fair			X		

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 536

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

JACOBSON MOCERI ORION, LLC

PRELIMINARY / CONSTRUCTION / RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE:

NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG 06_Tree--12/16/2022 8:04:58 AM

SHEET NO.

6

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

Tag	Scientific Name	Common Name	DBH			Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
			Trunk 1	Trunk 2	Trunk 3						
2071	Quercus alba	White Oak	17.1			Fair			X		
2072	Acer rubrum	Red maple	5.6			Fair			X		
2073	Prunus serotina	Black Cherry	11.7			Fair			X		
2074	Robinia Pseudoacacia	Black Locust	5.5			Fair			X		
2075	Acer rubrum	Red maple	23.7	8.5		Fair			X		
2076	Sassafras albidum	Sassafras	4.2			Fair				X	
2077	Sassafras albidum	Sassafras	8.6			Fair				X	
2078	Acer rubrum	Red maple	12.2			Fair				X	
2079	Acer rubrum	Red maple	5.1			Fair				X	
2080	Acer rubrum	Red maple	18.4			Fair				X	
2081	Acer rubrum	Red maple	9.4			Fair				X	
2082	Acer rubrum	Red maple	10			Fair			X		
2083	Sassafras albidum	Sassafras	8.7			Fair			X		
2084	Acer rubrum	Red maple	7			Fair			X		
2085	Acer rubrum	Red maple	5.4			Fair			X		
2086	Acer rubrum	Red maple	5	3.8		Fair		X			
2087	Acer rubrum	Red maple	5.1			Fair		X			
2088	Prunus serotina	Black Cherry	6.8			Fair					X
2089	Prunus serotina	Black Cherry	9.9			Fair					X
2090	Acer rubrum	Red maple	16.5			Fair			X		
2091	Acer rubrum	Red maple	5.6			Fair				X	
2092	Acer rubrum	Red maple	17.1			Fair			X		
2093	Robinia Pseudoacacia	Black Locust	5.5			Fair				X	
2094	Acer rubrum	Red maple	5.1			Fair				X	
2095	Sassafras albidum	Sassafras	4.6	4.5		Fair				X	
2096	Sassafras albidum	Sassafras	8.4			Fair			X		
2097	Sassafras albidum	Sassafras	4.2			Fair			X		
2098	Acer rubrum	Red maple	4.1			Fair			X		
2099	Prunus avium	Sweet Cherry	4.6			Fair				X	
2100	Acer rubrum	Red maple	8.1	5.4		Fair			X		
2101	Acer rubrum	Red maple	5.8			Fair			X		
2102	Acer rubrum	Red maple	8.7			Fair			X		
2103	Acer rubrum	Red maple	9.4	9.3		Fair			X		
2104	Acer rubrum	Red maple	4.2			Fair			X		
2105	Acer rubrum	Red maple	5.5	4.8		Fair				X	
2106	Acer rubrum	Red maple	8.3			Fair			X		
2107	Acer rubrum	Red maple	7.7			Fair			X		
2108	Acer rubrum	Red maple	15.3			Fair				X	
2109	Prunus serotina	Black Cherry	5.6			Fair				X	
2110	Prunus serotina	Black Cherry	4.6			Fair				X	
2111	Acer rubrum	Red maple	5.8			Fair				X	
2112	Acer rubrum	Red maple	17.7			Fair				X	
2113	Robinia Pseudoacacia	Black Locust	6.3			Fair				X	
2114	Acer rubrum	Red maple	5.6			Fair				X	
2115	Quercus alba	White Oak	13.4			Fair				X	
2116	Prunus serotina	Black Cherry	9.4			Fair				X	
2117	Acer rubrum	Red maple	5.8			Fair				X	
2118	Prunus serotina	Black Cherry	4.6			Fair				X	
2119	Acer rubrum	Red maple	13.2			Fair				X	
2120	Acer rubrum	Red maple	6.2			Fair				X	
2121	Prunus serotina	Black Cherry	6.6			Fair				X	
2122	Prunus serotina	Black Cherry	5.9			Fair				X	
2123	Acer rubrum	Red maple	6.2			Fair				X	
2124	Acer rubrum	Red maple	5.1			Fair				X	
2125	Acer rubrum	Red maple	5.9			Poor			X		
2126	Prunus serotina	Black Cherry	5.1			Fair			X		
2127	Acer rubrum	Red maple	5.4			Fair			X		
2128	Acer rubrum	Red maple	9.7			Fair				X	
2129	Acer rubrum	Red maple	10.6			Fair				X	
2130	Sassafras albidum	Sassafras	8.9			Fair				X	
2131	Acer rubrum	Red maple	8.5			Fair			X		
2132	Prunus serotina	Black Cherry	6.1			Fair			X		
2133	Prunus serotina	Black Cherry	7.7			Fair			X		
2134	Acer rubrum	Red maple	7.8			Fair			X		
2135	Acer rubrum	Red maple	5.5			Fair			X		
2136	Sassafras albidum	Sassafras	10.1			Fair				X	
2137	Acer rubrum	Red maple	6.4			Fair		X			
2138	Sassafras albidum	Sassafras	10.8			Fair					X
2139	Acer rubrum	Red maple	9			Fair					X
2140	Acer rubrum	Red maple	10.6			Fair					X
2141	Acer rubrum	Red maple	15.1			Fair					X
2142	Acer rubrum	Red maple	4.1			Fair		X			
2143	Ulmus americana	American Elm	8.2			Fair					X
2144	Robinia Pseudoacacia	Black Locust	5.7			Fair				X	
2145	Robinia Pseudoacacia	Black Locust	7.4			Fair				X	
2146	Robinia Pseudoacacia	Black Locust	5.9			Fair				X	
2147	Robinia Pseudoacacia	Black Locust	5.1			Fair				X	
2148	Acer rubrum	Red maple	6.7			Fair				X	
2149	Acer rubrum	Red maple	5.2			Fair			X		
2150	Acer rubrum	Red maple	7.5			Fair				X	
2151	Acer rubrum	Red maple	4.3			Fair				X	
2152	Acer rubrum	Red maple	7.2			Fair				X	
2153	Prunus serotina	Black Cherry	6.2			Fair				X	
2154	Acer rubrum	Red maple	17.1			Fair				X	
2155	Sassafras albidum	Sassafras	5.6			Fair				X	
2156	Ailanthus altissima	Tree of Heaven	5.7			Fair				X	
2157	Sassafras albidum	Sassafras	7.1			Fair				X	
2158	Acer rubrum	Red maple	4.9			Fair				X	
2159	Sassafras albidum	Sassafras	7.4			Fair				X	
2160	Sassafras albidum	Sassafras	6.3			Fair				X	
2161	Acer rubrum	Red maple	8.9			Fair				X	
2162	Prunus serotina	Black Cherry	4.9			Fair			X		
2163	Acer rubrum	Red maple	7.3			Fair			X		
2164	Acer rubrum	Red maple	4.6			Fair				X	
2165	Acer rubrum	Red maple	8.9			Fair			X		
2166	Prunus serotina	Black Cherry	4.1			Fair			X		
2167	Prunus serotina	Black Cherry	5.4			Fair				X	
2168	Robinia Pseudoacacia	Black Locust	5.8			Fair				X	
2169	Acer rubrum	Red maple	7			Fair				X	
2170	Acer rubrum	Red maple	5.4	6.2		Fair			X		
2171	Acer rubrum	Red maple	5.1			Fair				X	
2172	Acer rubrum	Red maple	6.9			Fair				X	
2173	Acer rubrum	Red maple	7.1			Fair			X		
2174	Acer rubrum	Red maple	11.3			Fair				X	
2175	Prunus serotina	Black Cherry	8.1			Fair				X	
2176	Prunus serotina	Black Cherry	4.4			Fair				X	
2177	Robinia Pseudoacacia	Black Locust	7.3			Fair				X	
2178	Robinia Pseudoacacia	Black Locust	7			Fair				X	
2179	Robinia Pseudoacacia	Black Locust	6			Fair				X	
2180	Sassafras albidum	Sassafras	6.3			Fair				X	
2181	Acer rubrum	Red maple	13.2			Fair				X	
2182	Acer rubrum	Red maple	5.2	4.5		Fair				X	
2183	Prunus serotina	Black Cherry	7.8			Fair			X		
2184	Acer rubrum	Red maple	7.8	6.2		Fair			X		
2185	Robinia Pseudoacacia	Black Locust	7	8.1		Fair			X		
2186	Acer rubrum	Red maple	7.8			Fair			X		
2187	Acer rubrum	Red maple	13.7			Fair			X		
2188	Robinia Pseudoacacia	Black Locust	4.4			Fair				X	
2189	Prunus serotina	Black Cherry	7.4			Fair				X	
2190	Acer rubrum	Red maple	5			Fair			X		
2191	Acer rubrum	Red maple	8.1			Fair			X		
2192	Acer rubrum	Red maple	7.8			Fair			X		
2193	Acer rubrum	Red maple	4.6			Fair			X		
2194	Acer rubrum	Red maple	5.7			Fair			X		
2195	Sassafras albidum	Sassafras	5.2			Fair			X		
2196	Acer rubrum	Red maple	5.4			Fair			X		
2197	Acer rubrum	Red maple	5			Fair		X			
2198	Acer rubrum	Red maple	5.8			Fair					X
2199	Acer rubrum	Red maple	8.1			Fair		X			
2201	Prunus serotina	Black Cherry	9.9			Fair					X
2202	Rhamnus cathartica	Common Buckthorn	7.7			Fair					X
2203	Acer negundo	Boxelder	11.4			Fair					X
2204	Prunus serotina	Black Cherry	7			Poor					X
2205	Prunus serotina	Black Cherry	6.4			Fair					X
2206	Prunus serotina	Black Cherry	8.8			Fair					X
2207	Prunus serotina	Black Cherry	6.5			Fair					X
2208	Prunus serotina	Black Cherry	10.6			Fair					X
2209	Prunus serotina	Black Cherry	4.7			Fair					X
2210	Acer negundo	Boxelder	7.7			Fair					X
2211	Acer negundo	Boxelder	16.1			Fair			X		
2212	Acer negundo	Boxelder	8.3			Poor			X		
2213	Acer negundo	Boxelder	5			Fair			X		
2214	Ulmus americana	American Elm	10.6			Fair			X		
2215	Prunus serotina	Black Cherry	23.7			Fair			X		
2216	Quercus velutina	Black Oak	28.5			Good	X				
2217	Acer rubrum	Red maple	12.5			Fair			X		
2218	Prunus serotina	Black Cherry	24.1			Fair	X				
2219	Quercus velutina	Black Oak	8			Good			X		
2220	Rhamnus cathartica	Common Buckthorn	5.5			Fair		X			
2221	Prunus serotina	Black Cherry	32.2	11.2		Fair	X				
2222	Rhamnus cathartica	Common Buckthorn	7			Fair		X			
2223	Quercus velutina	Black Oak	8			Fair		X			
2224	Prunus serotina	Black Cherry	24	17.7		Poor	X				
2225	Quercus velutina	Black Oak	15			Good			X		
2226	Ulmus americana	American Elm	7.6			Fair		X			
2227	Prunus serotina	Black Cherry	22.5			Fair			X		
2228	Rhamnus cathartica	Common Buckthorn	4.3			Fair			X		
2229	Acer negundo	Boxelder	4.2			Fair			X		
2230	Rhamnus cathartica	Common Buckthorn	4.2			Fair			X		
2231	Prunus serotina	Black Cherry	14.1			Fair			X		
2232	Rhamnus cathartica	Common Buckthorn	5.6			Fair			X		
2233	Rhamnus cathartica	Common Buckthorn	5.2			Fair		X			
2234	Prunus serotina	Black Cherry	12.7			Good		X			
2235	Rhamnus cathartica	Common Buckthorn	4.8			Fair			X		
2236	Prunus serotina	Black Cherry	22.6			Fair			X		
2237	Prunus serotina	Black Cherry	11.1			Good			X		
2238	Rhamnus cathartica	Common Buckthorn	4.4			Fair			X		
2239	Rhamnus cathartica	Common Buckthorn	4.1			Fair			X		
2240	Rhamnus cathartica	Common Buckthorn	4.4			Fair			X		
2241	Rhamnus cathartica	Common Buckthorn	5.1			Fair		X			
2242	Rhamnus cathartica	Common Buckthorn	6.7			Fair		X			
2243	Quercus velutina	Black Oak	7.3			Fair					X
2244	Quercus velutina	Black Oak	19.2			Good					X
2245	Rhamnus cathartica	Common Buckthorn	5.6			Fair					X
2246	Acer saccharum	Sugar maple	6.1			Fair					X
2247	Acer negundo	Boxelder	6.1	4.5	4.3	Fair					X
2248	Acer negundo	Boxelder	5.4			Fair					X
2249	Acer negundo	Boxelder	4.3			Fair					X
2250	Rhamnus cathartica	Common Buckthorn	4.6			Fair		X			
2251	Rhamnus cathartica	Common Buckthorn	7			Fair		X			
2252	Acer negundo	Boxelder	6.8			Fair		X			
2253	Acer rubrum	Red maple	10.6			Fair					X
2254	Prunus serotina	Black Cherry	4.5			Fair			X		
2255	Prunus serotina	Black Cherry	4.7			Fair			X		
2256	Acer negundo	Boxelder	8.8			Fair			X		
2257	Acer negundo	Boxelder	7.2			Fair		X			
2258	Prunus serotina	Black Cherry	15.5	15.4	14.6	Fair		X			
2259	Acer negundo	Boxelder	10.9			Fair		X			
2260	Acer negundo	Boxelder	6.1			Fair					X
2261	Acer negundo	Boxelder	4.6			Poor					X
2262	Acer negundo	Boxelder	4.2			Fair					X
2263	Prunus serotina	Black Cherry	21.9			Good					X
2264	Rhamnus cathartica	Common Buckthorn	6.4			Fair					X
2265	Acer negundo	Boxelder	11.7			Fair		X			
2266	Prunus serotina	Black Cherry	15.1			Poor					X
2267	Acer negundo	Boxelder	8.1			Fair					X
2268	Quercus velutina	Black Oak	9.4			Fair					X
2269	Ulmus americana	American Elm	5.2			Fair		X			
2270	Prunus serotina	Black Cherry	30.6			Good	X				
2271	Acer negundo	Boxelder	5.2			Poor		X			
2272	Quercus velutina	Black Oak	6.1			Fair		X			
2273	Rhamnus cathartica	Common Buckthorn	6.7			Fair		X			
2274	Ailanthus altissima	Tree of Heaven	7.9			Fair		X			
2275	Ulmus americana	American Elm	9.4			Fair		X			
2276	Quercus velutina	Black Oak	14.7			Good			X		
2277	Rhamnus cathartica	Common Buckthorn	5.3			Fair		X			
2278	Acer negundo	Boxelder	10.9	5.2		Fair					X
2279	Acer negundo	Boxelder	6.9			Fair		X			
2280	Acer negundo	Boxelder	4.7			Fair					X
2281	Prunus serotina	Black Cherry	36.7			Fair	X				
2282	Prunus serotina	Black Cherry	13.3			Fair		X			
2283	Quercus velutina	Black Oak	9.2			Good		X			
2284	Acer negundo	Boxelder	14.6			Fair			X		
2285	Quercus velutina	Black Oak	12.3			Fair				X	
2286	Quercus velutina	Black Oak	14.3			Good			X		
2287	Quercus velutina	Black Oak	7.9			Good				X	
2288	Rhamnus cathartica	Common Buckthorn	6			Fair				X	
2289	Prunus serotina	Black Cherry	8.7			Fair			X		
2290	Quercus velutina	Black Oak	18.1			Good				X	
2291	Prunus serotina	Black Cherry	10			Good				X	
2292	Prunus serotina	Black Cherry	5.6			Good			X		
2293	Quercus velutina	Black Oak	22.8			Good				X	
2294	Quercus rubra	Red Oak	11.3			Good		X			
2295	Quercus velutina	Black Oak	5.9			Fair			X		
2296	Prunus serotina	Black Cherry	4.9			Fair			X		
2297	Prunus serotina	Black Cherry	6.5			Good				X	
2298	Rhamnus cathartica	Common Buckthorn	5.1			Fair				X	
2299	Acer negundo	Boxelder	5.7			Poor			X		
2300	Prunus serotina	Black Cherry	9.8			Fair			X		
2301	Acer rubrum	Red maple	4.9			Good			X		
2302	Prunus serotina	Black Cherry	14.1			Good			X		
2303	Prunus serotina	Black Cherry	10.2			Good			X		
2304	Prunus serotina	Black Cherry	18.1			Good			X		
2305	Prunus serotina	Black Cherry	11.3			Fair				X	
2306	Quercus velutina	Black Oak	8.5			Fair				X	
2307	Acer negundo	Boxelder	6.3			Poor				X	
2308	Quercus velutina	Black Oak	11.7			Fair			X		
2309	Quercus velutina	Black Oak	11.7			Good			X		
2310	Acer negundo	Boxelder	5.9			Fair				X	
2311	Quercus velutina	Black Oak	10.9			Good				X	
2312	Quercus velutina	Black Oak	10			Good			X		
2313	Acer rubrum	Red maple	5.4			Good			X		
2314	Quercus velutina	Black Oak	14.7			Good			X		
2315	Quercus velutina	Black Oak	16.6			Good			X		
2316	Quercus velutina	Black Oak	12.8			Fair		X			
2317	Quercus velutina	Black Oak	21.4			Good		X			
2318	Quercus velutina	Black Oak	8.1			Fair		X			
2319	Rhamnus cathartica	Common Buckthorn	7	4.8		Fair		X			
2320	Prunus serotina	Black Cherry	42.9			Fair	X				
2321	Quercus velutina	Black Oak	11.8	2.7		Fair		X			
2322	Quercus velutina	Black Oak	5.4			Fair			X		
2323	Rhamnus cathartica	Common Buckthorn	4.8			Fair			X		
2324	Quercus velutina	Black Oak	18.2			Fair		X			
2325	Ulmus americana	American Elm	16.2			Fair		X			
2326	Prunus serotina	Black Cherry	19.9	13.5	12.8	Fair		X			
2327	Quercus velutina	Black Oak	8.7								X
2328	Quercus velutina	Black Oak	16.8			Fair			X		
2329	Prunus serotina	Black Cherry	10.4			Fair			X		
2330	Quercus velutina	Black Oak	9.9			Fair				X	
2331	Prunus serotina	Black Cherry	7.7			Fair				X	
2332	Quercus velutina	Black Oak	4.5			Fair				X	
2333	Quercus velutina	Black Oak	13.1			Fair				X	
2334	Quercus velutina	Black Oak	15.5			Fair				X	
2335	Quercus velutina	Black Oak	7.2			Fair				X	
2336	Prunus serotina	Black Cherry	6.7			Fair			X		
2337	Quercus velutina	Black Oak	11.3			Fair			X		
2338	Quercus velutina	Black Oak	10.5			Fair				X	
2339	Rhamnus cathartica	Common Buckthorn	4.5			Fair				X	
2340	Quercus velutina	Black Oak	14.8			Fair			X		
2341	Quercus velutina	Black Oak	14.3			Fair			X		
2342	Quercus velutina	Black Oak	6.4			Fair			X		
2343	Quercus velutina	Black Oak	8.8			Fair			X		
2344	Ulmus americana	American Elm	12			Fair		X			
2345	Acer negundo	Boxelder	9.1			Fair		X			
2346	Prunus serotina	Black Cherry	30.2			Fair	X				
2347	Rhamnus cathartica	Common Buckthorn	6.5			Fair		X			
2348	Ailanthus altissima	Tree of Heaven	4.9			Fair		X			
2349	Rhamnus cathartica	Common Buckthorn	4.1			Fair		X			
2350	Rhamnus cathartica	Common Buckthorn	4.7			Fair		X			
2351	Rhamnus cathartica	Common Buckthorn	5.2			Fair		X			
2352	Prunus serotina	Black Cherry	8.2			Fair		X			
2353	Prunus serotina	Black Cherry	11.5			Fair		X			
2354	Rhamnus cathartica	Common Buckthorn	8.7			Fair		X			
2355	Prunus serotina	Black Cherry	9.4			Fair		X			
2356	Prunus serotina	Black Cherry	6.3			Fair			X		
2357	Quercus velutina	Black Oak	8			Fair				X	
2358	Quercus velutina	Black Oak	11.1			Fair				X	
2359	Quercus velutina	Black Oak	16.4			Fair			X		
2360	Quercus velutina	Black Oak	20.8			Fair			X		
2361	Acer negundo	Boxelder	6.2			Fair			X		
2362	Quercus velutina	Black Oak	13.1			Fair			X		
2363	Quercus velutina	Black Oak	5.6			Fair			X		
2364	Prunus serotina	Black Cherry	12.2			Fair			X		
2365	Quercus velutina	Black Oak	12.6			Fair			X		
2366	Quercus velutina	Black Oak	15.4			Fair				X	
2367	Prunus serotina	Black Cherry	5.9			Fair				X	
2368	Prunus serotina	Black Cherry	7.3			Fair				X	
2369	Quercus velutina	Black Oak	15.9			Fair				X	
2370	Prunus serotina	Black Cherry	5.3			Fair			X		
2371	Prunus serotina	Black Cherry	9.9			Poor			X		
2372	Prunus serotina	Black Cherry	16.5			Fair			X		
2373	Prunus serotina	Black Cherry	15.6			Fair		X			
2374	Rhamnus cathartica	Common Buckthorn	6.3			Fair			X		
2376	Quercus velutina	Black Oak	6.9			Fair			X		
2377	Rhamnus cathartica	Common Buckthorn	4.7			Fair			X		
2378	Acer rubrum	Red Maple	10.2	5.2		Fair		X			
2379	Rhamnus cathartica	Common Buckthorn	4.2			Poor		X			
2380	Rhamnus cathartica	Common Buckthorn	5.4			Fair		X			
2381	Rhamnus cathartica	Common Buckthorn	6.1			Fair		X			
2382	Rhamnus cathartica	Common Buckthorn	5.7			Fair		X			
2383	Prunus serotina	Black Cherry	11.8	12.2		Fair		X			
2384	Quercus velutina	Black Oak	13.5			Fair		X			
2385	Quercus velutina	Black Oak	10.9	10		Fair		X			
2386	Quercus velutina	Black Oak	11.4			Fair		X			
2387	Prunus serotina	Black Cherry	12.4			Fair		X			
2388	Quercus velutina	Black Oak	9.6			Fair		X			
2389	Acer rubrum	Red maple	5.1			Fair		X			
2390	Sassafras albidum	Sassafras	6.6			Fair		X			
2391	Quercus velutina	Black Oak	17.8			Fair		X			
2392	Quercus velutina	Black Oak	11.2	10		Fair		X			
2393	Acer rubrum	Red maple	9.4			Fair		X			
2394	Quercus velutina	Black Oak	12.6			Fair		X			
2395	Quercus velutina	Black Oak	11.1			Fair		X			
2396	Quercus velutina	Black Oak	12.2			Fair		X			
2397	Quercus velutina	Black Oak	18.7			Fair		X			
2398	Quercus velutina	Black Oak	6.1			Fair		X			
2399	Prunus serotina	Black Cherry	8.3			Fair		X			
2400	Prunus serotina	Black Cherry	4.3			Fair		X			
2401	Sassafras albidum	Sassafras	8.5			Fair					X
2402	Acer rubrum	Red maple	19.4			Fair		X			
2403	Acer rubrum	Red maple	10.6			Fair			X		
2404	Acer rubrum	Red maple	10.8			Fair				X	
2405	Acer rubrum	Red maple	8.4			Poor				X	
2406	Acer rubrum	Red maple	4.3			Fair			X		
2407	Acer rubrum	Red maple	9.4			Fair			X		
2408	Acer rubrum	Red maple	9.6			Fair				X	
2409	Acer rubrum	Red maple	7.9			Fair			X		
2410	Acer rubrum	Red maple	6.1			Fair				X	
2411	Acer rubrum	Red maple	10.3			Fair				X	
2412	Acer rubrum	Red maple	14.6			Fair				X	
2413	Acer rubrum	Red maple	11.8			Fair				X	
2414	Prunus serotina	Black Cherry	4.3			Fair				X	
2415	Prunus serotina	Black Cherry	6.8			Fair				X	
2416	Acer rubrum	Red maple	11.8	4.5		Fair				X	
2417	Prunus avium	Sweet Cherry	4.6			Fair				X	
2418	Prunus serotina	Black Cherry	7.3			Fair				X	
2419	Prunus serotina	Black Cherry	4.5			Fair				X	
2420	Acer rubrum	Red maple	14			Fair				X	
2421	Prunus serotina	Black Cherry	8.9			Fair				X	
2422	Prunus serotina	Black Cherry	4.6			Fair				X	
2423	Acer rubrum	Red maple	8.9			Fair				X	
2424	Acer rubrum	Red maple	21.4			Fair				X	
2425	Acer rubrum	Red maple	4.6			Fair				X	
2426	Acer rubrum	Red maple	7.8			Fair				X	
2427	Sassafras albidum	Sassafras	7.5			Fair				X	
2428	Prunus serotina	Black Cherry	5.1			Fair				X	
2429	Acer rubrum	Red maple	9.3			Fair				X	
2430	Sassafras albidum	Sassafras	5.7			Fair			X		
2431	Prunus serotina	Black Cherry	4.6			Fair				X	
2432	Acer rubrum	Red maple	12			Fair			X		
2433	Prunus serotina	Black Cherry	4.4			Fair				X	
2434	Robinia Pseudoacacia	Black Locust	5.4			Fair		X			
2435	Prunus serotina	Black Cherry	4.9			Fair		X			
2436	Acer rubrum	Red maple	6.8			Fair		X			
2437	Acer rubrum	Red maple	10.4	5.4		Fair		X			
2438	Acer rubrum	Red maple	16.2	9.3		Fair				X	
2439	Prunus serotina	Black Cherry	8.6			Fair			X		
2440	Sassafras albidum	Sassafras	5.8			Fair			X		
2441	Acer rubrum	Red maple	4.1			Fair			X		
2442	Prunus serotina	Black Cherry	4.6			Fair			X		
2443	Prunus serotina	Black Cherry	4.9			Fair				X	
2444	Acer rubrum	Red maple	12.6			Fair				X	
2445	Acer rubrum	Red maple	10.6			Fair				X	
2446	Acer rubrum	Red maple	6			Fair			X		
2447	Prunus serotina	Black Cherry	5.6			Fair			X		
2448	Acer rubrum	Red maple	12.7			Fair				X	
2449	Acer rubrum	Red maple	11			Fair				X	
2450	Prunus serotina	Black Cherry	6			Fair				X	
2451	Prunus serotina	Black Cherry	4.5			Fair				X	
2452	Prunus serotina	Black Cherry	5			Fair				X	
2453	Acer rubrum	Red maple	10			Fair				X	
2454	Prunus serotina	Black Cherry	6			Fair				X	
2455	Acer rubrum	Red maple	9.5			Fair				X	
2456	Acer rubrum	Red maple	9			Fair			X		
2457	Acer rubrum	Red maple	8.7			Fair			X		
2458	Acer rubrum	Red maple	5.3			Fair			X		
2459	Prunus serotina	Black Cherry	9.7			Fair				X	
2460	Prunus serotina	Black Cherry	6.7			Fair			X		
2461	Prunus serotina	Black Cherry	5			Fair			X		
2462	Acer rubrum	Red maple	12.2			Fair				X	
2463	Acer rubrum	Red maple	10.8			Fair			X		
2464	Acer rubrum	Red maple	5.6			Fair				X	
2465	Prunus serotina	Black Cherry	7.7			Fair			X		
2466	Ulmus americana	American Elm	4.9			Fair				X	
2467	Acer rubrum	Red maple	6.5	8.4		Fair				X	
2468	Prunus serotina	Black Cherry	6.7			Fair				X	
2469	Sassafras albidum	Sassafras	4.1			Fair			X		
2470	Acer rubrum	Red maple	14.2			Fair			X		
2471	Acer rubrum	Red maple	10.3	3.6		Fair			X		
2472	Acer rubrum	Red maple	14.5			Fair			X		
2473	Acer rubrum	Red maple	7.5			Fair			X		
2474	Prunus serotina	Black Cherry	6.3			Fair			X		
2475	Sassafras albidum	Sassafras	8.5			Very Poor			X		
2476	Acer rubrum	Red maple	9.6			Fair			X		
2477	Prunus serotina	Black Cherry	6.2			Fair			X		
2478	Acer rubrum	Red maple	5	4.1		Fair			X		
2479	Acer rubrum	Red maple	6	5	4.7	Fair			X		
2480	Prunus serotina	Black Cherry	5			Fair		X			
2481	Prunus serotina	Black Cherry	8.1			Fair				X	
2482	Sassafras albidum	Sassafras	5.7			Fair		X			
2483	Prunus serotina	Black Cherry	6.3			Fair				X	
2484	Sassafras albidum	Sassafras	6.3			Fair		X			
2485	Acer rubrum	Red maple	13.6			Fair		X			
2486	Prunus serotina	Black Cherry	5.4			Fair		X			
2487	Populus grandidentata	Big-toothed Aspen	10.3			Fair		X			
2488	Populus grandidentata	Big-toothed Aspen	6.3			Fair		X			
2489	Acer rubrum	Red maple	14.1			Fair		X			
2490	Acer rubrum	Red maple	11.5			Fair		X			
2491	Prunus serotina	Black Cherry	5.4			Fair		X			
2492	Prunus serotina	Black Cherry	4.5			Fair		X			
2493	Prunus serotina	Black Cherry	4.8			Fair		X			
2494	Prunus serotina	Black Cherry	6.1			Fair		X			
2495	Quercus alba	White Oak	5.3			Fair		X			
2496	Quercus alba	White Oak	14.8	11.1		Very Poor		X			
2497	Quercus alba	White Oak	5.2			Fair		X			
2498	Prunus serotina	Black Cherry	5.3			Fair		X			
2499	Quercus alba	White Oak	11.4			Fair		X			
2500	Fraxinus pennsylvanica	Green Ash	4.1			Fair		X			
2501	Acer rubrum	Red maple	12.3			Fair		X			
2502	Acer rubrum	Red maple	9.5			Fair		X			
2503	Prunus serotina	Black Cherry	9.7			Fair		X			
2504	Acer rubrum	Red maple	6.8			Fair		X			
2505	Sassafras albidum	Sassafras	5			Fair		X			
2506	Sassafras albidum	Sassafras	4.9			Fair			X		
2507	Prunus serotina	Black Cherry	5.8			Fair			X		
2508	Sassafras albidum	Sassafras	5.8			Fair		X			
2509	Acer rubrum	Red maple	12			Fair		X			
2510	Acer rubrum	Red maple	4.9	4.4		Fair			X		
2511	Prunus serotina	Black Cherry	6.4			Fair		X			
2512	Acer rubrum	Red maple	6			Fair		X			
2513	Prunus serotina	Black Cherry	6.9			Fair		X			
2514	Acer rubrum	Red maple	10.2			Fair		X			
2515	Prunus serotina	Black Cherry	5			Fair		X			
2516	Acer rubrum	Red maple	10			Fair		X			
2517	Acer rubrum	Red maple	4			Fair		X			
2518	Acer rubrum	Red maple	8.7			Fair		X			
2519	Acer rubrum	Red maple	4.4			Fair		X			
2520	Populus grandidentata	Big-toothed Aspen	11.2			Fair		X			
2521	Populus grandidentata	Big-toothed Aspen	8.9			Fair		X			
2522	Populus grandidentata	Big-toothed Aspen	14.3			Fair		X			
2523	Acer rubrum	Red maple	5.7			Fair		X			
2524	Fraxinus pennsylvanica	Green Ash	7.2			Fair		X			
2525	Prunus serotina	Black Cherry	7.2			Fair		X			
2526	Prunus serotina	Black Cherry	6.4			Fair		X			
2527	Acer rubrum	Red maple	4.4			Fair		X			
2528	Acer rubrum	Red maple	6.1			Fair		X			
2529	Acer rubrum	Red maple	5.4			Fair		X			
2530	Acer rubrum	Red maple	4.1			Fair		X			
2531	Acer rubrum	Red maple	10			Fair		X			
2532	Acer rubrum	Red maple	8.5			Fair		X			
2533	Prunus serotina	Black Cherry	7.2			Fair		X			
2534	Acer rubrum	Red maple	11.8			Fair		X			
2535	Acer rubrum	Red maple	7.2			Fair		X			
2536	Prunus serotina	Black Cherry	5			Fair		X			
2537	Acer rubrum	Red maple	4.8			Fair		X			
2538	Prunus serotina	Black Cherry	5.9			Fair		X			
2539	Acer rubrum	Red maple	9			Fair		X			
2540	Acer rubrum	Red maple	4.1			Fair		X			
2541	Prunus serotina	Black Cherry	5.3			Fair		X			
2542	Sassafras albidum	Sassafras	4.1			Fair		X			
2543	Sassafras albidum	Sassafras	4.3			Fair		X			
2544	Quercus velutina	Black Oak	10.2			Fair		X			
2545	Sassafras albidum	Sassafras	5			Fair		X			
2546	Prunus serotina	Black Cherry	6.3			Fair		X			
2547	Acer rubrum	Red maple	6			Fair		X			
2548	Sassafras albidum	Sassafras	4.2			Fair		X			
2549	Sassafras albidum	Sassafras	4.3			Fair		X			
2550	Sassafras albidum	Sassafras	4.3			Fair		X			
2551	Prunus serotina	Black Cherry	4.2			Fair		X			
2552	Prunus serotina	Black Cherry	9.6			Fair		X			
2553	Acer rubrum	Red maple	8.9			Fair		X			
2554	Sassafras albidum	Sassafras	7.7			Fair		X			
2555	Prunus serotina	Black Cherry	5.5			Fair		X			
2556	Sassafras albidum	Sassafras	4.4			Fair		X			
2557	Prunus serotina	Black Cherry	4.4			Fair		X			
2558	Sassafras albidum	Sassafras	6.2			Fair		X			
2559	Acer rubrum	Red maple	4.3	4		Fair		X			
2560	Acer rubrum	Red maple	5.9	5		Fair		X			
2561	Acer negundo	Boxelder	5.9			Fair		X			
2562	Sassafras albidum	Sassafras	8			Fair		X			
2563	Prunus serotina	Black Cherry	4.8			Fair		X			
2564	Sassafras albidum	Sassafras	5.2			Fair		X			
2565	Sassafras albidum	Sassafras	9.2			Fair		X			
2566	Prunus serotina	Black Cherry	5.4			Fair		X			
2567	Sassafras albidum	Sassafras	6.6			Very Poor		X			
2568	Prunus serotina	Black Cherry	4.6			Fair		X			
2569	Sassafras albidum	Sassafras	5.1			Fair		X			
2570	Sassafras albidum	Sassafras	10.9			Fair		X			
2571	Acer rubrum	Red maple	4			Fair		X			
2572	Acer rubrum	Red maple	8.1			Fair		X			
2573	Sassafras albidum	Sassafras	9.8			Fair		X			
2574	Sassafras albidum	Sassafras	6			Fair		X			
2575	Sassafras albidum	Sassafras	8.5			Fair		X			
2576	Acer rubrum	Red maple	8.3			Fair		X			
2577	Acer rubrum	Red maple	5			Fair		X			
2578	Prunus serotina	Black Cherry	5.5			Fair		X			
2579	Prunus serotina	Black Cherry	6.9			Fair		X			
2580	Sassafras albidum	Sassafras	6.9			Fair		X			
2581	Acer rubrum	Red maple	9.9			Fair		X			
2582	Sassafras albidum	Sassafras	6.4			Fair		X			
2583	Prunus serotina	Black Cherry	6.5			Fair		X			
2584	Sassafras albidum	Sassafras	4.4			Fair		X			
2585	Prunus serotina	Black Cherry	7.6			Fair		X			
2586	Acer rubrum	Red maple	6.7			Fair		X			
2587	Prunus serotina	Black Cherry	4.2			Fair		X			
2588	Acer rubrum	Red maple	5.7			Fair		X			
2589	Sassafras albidum	Sassafras	10.7			Fair		X			
2590	Sassafras albidum	Sassafras	4.8			Fair		X			
2591	Sassafras albidum	Sassafras	11.3			Fair		X			
2593	Ulmus americana	American Elm	4.2			Fair		X			
2594	Sassafras albidum	Sassafras	7.6			Fair		X			
2595	Sassafras albidum	Sassafras	9.8			Fair		X			
2596	Sassafras albidum	Sassafras	5.5			Fair		X			
2597	Quercus velutina	Black Oak	4.6			Fair		X			
2598	Sassafras albidum	Sassafras	7.9			Fair		X			
2599	Sassafras albidum	Sassafras	8.4			Fair		X			
2600	Acer rubrum	Red maple	4.3			Fair		X			
2601	Prunus serotina	Black Cherry	4.1			Very Poor		X			
2602	Quercus velutina	Black Oak	5.8			Fair			X		
2603	Rhamnus cathartica	Common Buckthorn	5	3.9		Fair		X			
2604	Prunus serotina	Black Cherry	5.4			Fair		X			
2605	Prunus serotina	Black Cherry	5.5	7.2		Fair		X			
2606	Prunus serotina	Black Cherry	6			Fair		X			
2607	Prunus serotina	Black Cherry	4.3			Fair		X			
2608	Ulmus americana	American Elm	7.9			Fair		X			
2609	Prunus serotina	Black Cherry	4.2			Fair		X			
2610	Prunus serotina	Black Cherry	12.2			Fair		X			
2611	Rhamnus cathartica	Common Buckthorn	4.6			Fair			X		
2612	Acer rubrum	Red maple	8.5			Fair			X		
2613	Quercus rubra	Red Oak	7.5			Fair			X		
2614	Sassafras albidum	Sassafras	10.2			Fair			X		
2615	Acer rubrum	Red maple	8.1			Fair			X		
2616	Quercus velutina	Black Oak	12.1			Fair				X	
2617	Acer rubrum	Red maple	13.6			Fair			X		
2618	Acer rubrum	Red maple	5.6			Fair			X		
2619	Prunus serotina	Black Cherry	7.4			Fair		X			
2620	Rhamnus cathartica	Common Buckthorn	4.1			Fair		X			
2621	Prunus serotina	Black Cherry	9.1			Very Poor		X			
2622	Ulmus americana	American Elm	6			Fair		X			
2623	Rhamnus cathartica	Common Buckthorn	4.5			Fair		X			
2624	Acer rubrum	Red maple	6.1			Fair				X	
2625	Acer rubrum	Red maple	6.5			Fair			X		
2626	Prunus serotina	Black Cherry	9.2	14.3		Fair		X			
2627	Acer rubrum	Red maple	13.9			Fair			X		
2628	Prunus serotina	Black Cherry	5			Fair			X		
2629	Acer rubrum	Red maple	29.2			Poor	X				
2630	Prunus serotina	Black Cherry	6.9			Fair		X			
2631	Prunus serotina	Black Cherry	9.1	6.4	5.6	Fair			X		
2632	Quercus alba	White Oak	5.6			Fair			X		
2633	Prunus serotina	Black Cherry	4.6			Poor		X			
2634	Prunus serotina	Black Cherry	8.4			Fair			X		
2635	Ulmus americana	American Elm	9.4			Fair			X		
2636	Prunus serotina	Black Cherry	11.7			Fair			X		
2637	Quercus velutina	Black Oak	7			Fair			X		
2638	Quercus velutina	Black Oak	9.6			Fair				X	
2639	Prunus serotina	Black Cherry	7.3			Fair				X	
2640	Prunus serotina	Black Cherry	13.2			Fair			X		
2641	Acer rubrum	Red maple	5.1			Fair				X	
2642	Prunus serotina	Black Cherry	4			Very Poor				X	
2643	Prunus serotina	Black Cherry	8.1	6		Fair				X	
2644	Quercus velutina	Black Oak	8.2			Fair				X	
2645	Rhamnus cathartica	Common Buckthorn	7.5			Fair				X	
2646	Quercus velutina	Black Oak	17.5			Fair				X	
2647	Ulmus americana	American Elm	5.4			Fair				X	
2648	Ulmus americana	American Elm	7.3			Fair				X	
2649	Acer rubrum	Red maple	9.5			Fair			X		
2650	Quercus velutina	Black Oak	4.1			Fair				X	
2651	Prunus serotina	Black Cherry	10.4			Fair				X	
2652	Quercus velutina	Black Oak	10.9			Fair				X	
2653	Quercus velutina	Black Oak	12.9			Fair				X	
2654	Ulmus americana	American Elm	8.3			Fair				X	
2655	Prunus serotina	Black Cherry	5.1			Fair				X	
2656	Rhamnus cathartica	Common Buckthorn	4.3			Fair				X	
2657	Prunus serotina	Black Cherry	4.2			Fair				X	
2658	Prunus serotina	Black Cherry	6.4			Fair				X	
2659	Prunus serotina	Black Cherry	4.2			Poor				X	
2660	Prunus serotina	Black Cherry	21.6			Fair				X	
2661	Prunus serotina	Black Cherry	9.5			Poor				X	
2662	Rhamnus cathartica	Common Buckthorn	5			Fair				X	
2663	Quercus velutina	Black Oak	14.9			Fair				X	
2664	Prunus serotina	Black Cherry	7.2			Fair				X	
2665	Quercus velutina	Black Oak	18.1			Fair				X	
2666	Rhamnus cathartica	Common Buckthorn	5.5			Fair				X	
2667	Quercus velutina	Black Oak	11.8			Fair				X	
2668	Quercus velutina	Black Oak	14			Fair			X		
2669	Quercus velutina	Black Oak	13.1			Fair			X		
2670	Quercus velutina	Black Oak	18			Fair			X		
2671	Quercus velutina	Black Oak	5.1			Fair			X		
2672	Quercus velutina	Black Oak	4.5			Fair		X			
2673	Quercus velutina	Black Oak	5			Fair			X		
2674	Quercus velutina	Black Oak	30.3			Fair	X				
2675	Quercus velutina	Black Oak	6.1			Fair		X			
2676	Quercus rubra	Red Oak	11.5			Fair		X			
2677	Quercus velutina	Black Oak	8.6			Fair		X			
2678	Prunus serotina	Black Cherry	11.7			Fair		X			
2679	Quercus alba	White Oak	7.7			Fair		X			
2680	Quercus velutina	Black Oak	6	5.2		Fair		X			
2681	Quercus velutina	Black Oak	11			Fair		X			
2682	Prunus serotina	Black Cherry	5.5			Fair			X		
2683	Prunus serotina	Black Cherry	5.6			Fair			X		
2684	Quercus velutina	Black Oak	10.8			Fair			X		
2685	Quercus velutina	Black Oak	7.5			Fair			X		
2686	Quercus velutina	Black Oak	12.3			Fair			X		
2687	Quercus velutina	Black Oak	10.9			Fair			X		
2688	Quercus velutina	Black Oak	4.8			Fair			X		
2689	Quercus alba	White Oak	6.7			Fair			X		
2690	Acer rubrum	Red maple	6.3			Fair		X			
2691	Quercus rubra	Red Oak	4.5			Fair			X		
2692	Quercus velutina	Black Oak	19			Fair			X		
2693	Prunus serotina	Black Cherry	6.7			Fair			X		
2694	Quercus velutina	Black Oak	10.5			Fair			X		
2695	Prunus serotina	Black Cherry	9.1			Fair			X		
2696	Quercus rubra	Red Oak	14.7			Fair			X		
2697	Acer rubrum	Red maple	8.6			Fair		X			
2698	Quercus velutina	Black Oak	18.4			Fair			X		
2699	Prunus serotina	Black Cherry	10.8			Fair			X		
2700	DROPPED	DROPPED	0			Fair			X		
2701	Acer rubrum	Red maple	5.5			Fair		X			
2702	Prunus avium	Sweet Cherry	4.2			Fair		X			
2703	Acer rubrum	Red maple	5.9	3.3		Fair		X			
2704	Acer rubrum	Red maple	4.5			Fair		X			
2705	Prunus serotina	Black Cherry	5.6			Fair		X			
2706	Prunus serotina	Black Cherry	4.9	3.6		Fair		X			
2707	Acer rubrum	Red maple	4.3			Fair		X			
2708	Prunus serotina	Black Cherry	4.9	4.2	4	Fair		X			
2709	Quercus alba	White Oak	16.3			Fair		X			
2710	Acer rubrum	Red maple	7.4			Fair		X			
2711	Fraxinus pennsylvanica	Green Ash	15.5			Fair		X			
2712	Acer rubrum	Red maple	4.2	3.4		Fair		X			
2713	Quercus rubra	Red Oak	15			Fair		X			
2714	Quercus alba	White Oak	5.3			Fair		X			
2715	Acer rubrum	Red maple	10.1	5.1		Fair		X			
2716	Sassafras albidum	Sassafras	4.5			Fair		X			
2717	Sassafras albidum	Sassafras	4.2			Fair		X			
2718	Sassafras albidum	Sassafras	5.2	3.9		Fair		X			
2719	Quercus velutina	Black Oak	4.2			Fair		X			
2720	Acer rubrum	Red maple	18.9			Fair		X			
2721	Quercus alba	White Oak	5.6			Fair		X			
2722	Acer rubrum	Red maple	13.9			Fair		X			
2723	Prunus serotina	Black Cherry	4			Poor		X			
2724	Sassafras albidum	Sassafras	5.6			Fair		X			
2725	Acer negundo	Boxelder	9			Poor		X			
2726	Sassafras albidum	Sassafras	4.4			Fair		X			
2727	Sassafras albidum	Sassafras	6.7			Fair		X			
2728	Sassafras albidum	Sassafras	5			Fair		X			
2729	Sassafras albidum	Sassafras	4.6			Fair		X			
2730	Sassafras albidum	Sassafras	4.6			Fair		X			
2731	Acer rubrum	Red maple	4.7	4.5	3.4	Fair		X			
2732	Acer rubrum	Red maple	12.1			Fair		X			
2733	Acer rubrum	Red maple	4			Fair		X			
2734	Sassafras albidum	Sassafras	4.7			Fair		X			
2735	Quercus velutina	Black Oak	27.7			Fair	X				
2736	Quercus velutina	Black Oak	22.5			Fair					X
2737	Quercus velutina	Black Oak	19.6			Fair		X			
2738	Quercus velutina	Black Oak	17.7			Fair		X			
2739	Quercus velutina	Black Oak	24.3			Fair	X				
2740	Quercus velutina	Black Oak	27.6			Fair	X				
2741	Sassafras albidum	Sassafras	5.3			Fair		X			
2742	Cornus florida	Flowering Dogwood	4.9			Fair		X			
2743	Sassafras albidum	Sassafras	7.2			Fair		X			
2744	Sassafras albidum	Sassafras	9.6			Fair		X			
2745	Sassafras albidum	Sassafras	9.8			Fair		X			
2746	Prunus serotina	Black Cherry	6.4			Fair		X			
2747	Sassafras albidum	Sassafras	4.5			Fair		X			
2748	Sassafras albidum	Sassafras	4.6	4.4		Fair		X			
2749	Prunus serotina	Black Cherry	4.6			Fair		X			
2750	Acer rubrum	Red maple	9.2			Fair		X			
2751	Tilia americana	Basswood	4.8			Fair		X			
2752	Prunus serotina	Black Cherry	5.4			Fair		X			
2753	Sassafras albidum	Sassafras	6.3			Fair		X			
2754	Prunus serotina	Black Cherry	4.2			Fair		X			
2755	Acer rubrum	Red maple	6.5			Fair		X			
2756	Acer rubrum	Red maple	4.9	4.4	4.6	Fair		X			
2757	Prunus serotina	Black Cherry	5.2	0	0	Fair		X			
2758	Ulmus americana	American Elm	5			Fair		X			
2759	Tilia americana	Basswood	6.3			Fair		X			
2760	Sassafras albidum	Sassafras	4.1			Fair		X			
2761	Acer rubrum	Red maple	5			Fair		X			
2762	Sassafras albidum	Sassafras	4.5			Fair		X			
2763	Quercus velutina	Black Oak	18.1			Fair		X			
2764	Acer rubrum	Red maple	7.5	7.1	5.1	Poor		X			
2765	Prunus serotina	Black Cherry	5.2			Fair		X			
2766	Quercus alba	White Oak	20.5			Fair		X			
2767	Prunus serotina	Black Cherry	8.4			Fair		X			
2768	Sassafras albidum	Sassafras	14.3			Very Poor		X			
2769	Prunus serotina	Black Cherry	5.4			Fair		X			
2770	Acer rubrum	Red maple	10.6			Fair		X			
2771	Sassafras albidum	Sassafras	11.1			Fair		X			
2772	Sassafras albidum	Sassafras	15.5			Very Poor	X				
2773	Sassafras albidum	Sassafras	10.9			Poor		X			
2774	Sassafras albidum	Sassafras	7.5			Fair		X			
2775	Sassafras albidum	Sassafras	7.7			Fair		X			
2776	Sassafras albidum	Sassafras	11			Poor		X			
2777	Sassafras albidum	Sassafras	7.5			Fair		X			
2778	Prunus serotina	Black Cherry	20.1			Fair		X			
2779	Quercus rubra	Red Oak	7.6			Fair		X			
2780	Sassafras albidum	Sassafras	12			Fair		X			
2781	Sassafras albidum	Sassafras	9.8			Poor		X			
2782	Acer rubrum	Red maple	9.5			Fair		X			
2783	Sassafras albidum	Sassafras	10.1			Very Poor		X			
2784	Quercus velutina	Black Oak	14.8	11.7		Fair		X			
2785	Quercus velutina	Black Oak	10.4			Fair		X			
2786	Prunus serotina	Black Cherry	7.2			Fair		X			
2787	Prunus serotina	Black Cherry	8.9			Poor		X			
2788	Sassafras albidum	Sassafras	4.5			Poor		X			
2789	Sassafras albidum	Sassafras	6.4			Fair		X			
2790	Sassafras albidum	Sassafras	5.5			Fair		X			
2791	Sassafras albidum	Sassafras	4.6			Fair		X			
2792	Sassafras albidum	Sassafras	7.2			Very Poor		X			
2793	Sassafras albidum	Sassafras	10.8			Poor		X			
2794	Sassafras albidum	Sassafras	9.1			Very Poor		X			
2795	Sassafras albidum	Sassafras	9.7			Very Poor		X			
2796	Sassafras albidum	Sassafras	7.9			Poor		X			
2797	Sassafras albidum	Sassafras	8.1			Fair		X			
2798	Quercus alba	White Oak	25			Fair	X				
2799	Quercus velutina	Black Oak	14.1			Fair		X			
2800	Acer rubrum	Red maple	5.7			Fair		X			
2801	Quercus velutina	Black Oak	6.6			Fair		X			
2802	Prunus serotina	Black Cherry	5.6			Fair		X			
2803	Quercus velutina	Black Oak	21			Fair		X			
2804	Sassafras albidum	Sassafras	8.1			Poor		X			
2805	Prunus serotina	Black Cherry	9.3			Fair		X			
2806	Quercus velutina	Black Oak	17.2			Fair		X			
2807	Sassafras albidum	Sassafras	6			Poor		X			
2808	Sassafras albidum	Sassafras	7.8			Fair		X			
2809	Sassafras albidum	Sassafras	4.9			Poor		X			
2810	Sassafras albidum	Sassafras	8.5			Fair		X			
2811	Sassafras albidum	Sassafras	7.4			Fair		X			
2812	Prunus serotina	Black Cherry	13.9			Fair		X			
2813	Sassafras albidum	Sassafras	10.7			Fair		X			
2814	Sassafras albidum	Sassafras	9.9			Poor					X
2815	Quercus velutina	Black Oak	15.3			Fair					X
2816	Quercus velutina	Black Oak	5.2			Fair					X
2817	Quercus velutina	Black Oak	15.5			Fair		X			
2818	Quercus velutina	Black Oak	5.3			Fair		X			
2819	Quercus velutina	Black Oak	4.1			Poor		X			
2820	Quercus velutina	Black Oak	10.1			Fair		X			
2821	Sassafras albidum	Sassafras	6.7			Fair		X			
2822	Quercus velutina	Black Oak	5.3			Fair		X			
2823	Quercus velutina	Black Oak	11.8			Fair		X			
2824	Quercus velutina	Black Oak	4.8			Fair		X			
2825	Quercus velutina	Black Oak	7			Fair		X			
2826	Quercus velutina	Black Oak	4.3			Poor		X			
2827	Quercus velutina	Black Oak	5.6			Fair		X			
2828	Quercus velutina	Black Oak	13.9			Fair		X			
2829	Quercus velutina	Black Oak	7.9			Fair		X			
2830	Quercus velutina	Black Oak	7			Fair		X			
2831	Prunus serotina	Black Cherry	4.4			Fair		X			
2832	Quercus velutina	Black Oak	14.8			Fair		X			
2833	Quercus velutina	Black Oak	5.2			Fair		X			

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 537

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

JACOBSON MOCERI ORION, LLC

PRELIMINARY / CONSTRUCTION / RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE:

NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
07_Tree--12/16/2022 8:07:54 AM

SHEET NO.

7

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
2834	Sassafras albidum	Sassafras	6.8			Fair		X			
2835	Quercus velutina	Black Oak	18.2			Fair		X			
2836	Quercus velutina	Black Oak	7.9			Fair		X			
2837	Quercus velutina	Black Oak	14.2	11.5		Fair		X			
2838	Quercus velutina	Black Oak	10.9			Fair		X			
2839	Prunus serotina	Black Cherry	7.8			Fair		X			
2840	Quercus velutina	Black Oak	12.9			Fair		X			
2841	Quercus velutina	Black Oak	15.2			Fair		X			
2842	Quercus velutina	Black Oak	13.9			Fair		X			
2843	Sassafras albidum	Sassafras	6.2			Fair		X			
2844	Quercus velutina	Black Oak	5.2			Fair		X			
2845	Quercus velutina	Black Oak	10.4	11.4		Fair		X			
2846	Quercus velutina	Black Oak	14.3			Fair		X			
2847	Quercus velutina	Black Oak	8.3			Fair		X			
2848	Quercus velutina	Black Oak	5.5			Fair		X			
2849	Quercus velutina	Black Oak	4.3			Fair		X			
2850	Acer rubrum	Red maple	8.2			Fair		X			
2851	Sassafras albidum	Sassafras	7.4			Fair		X			
2852	Quercus velutina	Black Oak	4.9			Fair		X			
2853	Acer rubrum	Red maple	4.3			Fair		X			
2854	Quercus velutina	Black Oak	11.2			Fair		X			
2855	Prunus serotina	Black Cherry	6.3			Fair		X			
2856	Quercus velutina	Black Oak	13.5			Fair		X			
2857	Quercus velutina	Black Oak	10			Fair		X			
2858	Quercus velutina	Black Oak	7.5			Fair		X			
2859	Quercus velutina	Black Oak	7.1			Fair		X			
2860	Quercus velutina	Black Oak	11.7			Fair		X			
2861	Quercus velutina	Black Oak	12.6			Fair		X			
2862	Quercus velutina	Black Oak	9.6			Fair		X			
2863	Quercus velutina	Black Oak	4.2			Fair		X			
2864	Quercus velutina	Black Oak	7			Fair		X			
2865	Quercus velutina	Black Oak	9.5			Fair		X			
2866	Quercus velutina	Black Oak	6.3			Fair		X			
2867	Quercus velutina	Black Oak	10.3			Fair		X			
2868	Quercus velutina	Black Oak	12.4	10.4		Fair		X			
2869	Quercus velutina	Black Oak	11.6			Fair		X			
2870	Quercus velutina	Black Oak	6.7			Fair		X			
2871	Quercus velutina	Black Oak	5.1			Fair		X			
2872	Quercus velutina	Black Oak	12.4			Fair		X			
2873	Quercus velutina	Black Oak	12.3			Fair		X			
2874	Quercus velutina	Black Oak	13.4			Fair		X			
2875	Prunus serotina	Black Cherry	5.6			Fair		X			
2876	Quercus velutina	Black Oak	15.3			Fair		X			
2877	Quercus velutina	Black Oak	13			Fair		X			
2878	Acer rubrum	Red maple	4.1			Fair		X			
2879	Acer rubrum	Red maple	5.6			Fair		X			
2880	Prunus serotina	Black Cherry	7.4			Fair		X			
2881	Quercus velutina	Black Oak	13.1			Fair		X			
2882	Quercus velutina	Black Oak	16.6			Fair		X			
2883	Quercus velutina	Black Oak	9.5			Fair		X			
2884	Quercus velutina	Black Oak	7.5			Fair		X			
2885	Sassafras albidum	Sassafras	5.6			Fair		X			
2886	Quercus velutina	Black Oak	9.7			Fair		X			
2887	Quercus velutina	Black Oak	7			Fair		X			
2888	Quercus velutina	Black Oak	8.2			Fair		X			
2889	Quercus velutina	Black Oak	7.8			Fair		X			
2890	Quercus velutina	Black Oak	12			Fair		X			
2891	Quercus velutina	Black Oak	5			Fair		X			
2892	Quercus velutina	Black Oak	6.4			Fair		X			
2893	Quercus velutina	Black Oak	5.7			Fair		X			
2894	Quercus velutina	Black Oak	13.4	13.4		Fair		X			
2895	Prunus serotina	Black Cherry	6.6			Fair		X			
2896	Prunus serotina	Black Cherry	7			Fair		X			
2897	Acer rubrum	Red maple	5.7			Fair		X			
2898	Quercus velutina	Black Oak	4.3			Fair		X			
2899	Prunus serotina	Black Cherry	6.6			Fair		X			
2900	Quercus velutina	Black Oak	16.9	14.2		Fair		X			
2901	Prunus serotina	Black Cherry	7.1			Fair		X			
2902	Prunus serotina	Black Cherry	4.4			Fair		X			
2903	Quercus velutina	Black Oak	19.1			Fair		X			
2904	Sassafras albidum	Sassafras	6.7			Fair		X			
2905	Quercus velutina	Black Oak	4.3			Fair		X			
2906	Quercus velutina	Black Oak	8.6			Fair		X			
2907	Quercus velutina	Black Oak	11.9			Fair		X			
2908	Quercus velutina	Black Oak	9.1			Fair		X			
2909	Quercus velutina	Black Oak	8.9			Fair		X			
2910	Quercus velutina	Black Oak	8.3			Fair		X			
2911	Quercus velutina	Black Oak	7.7			Fair		X			
2912	Quercus velutina	Black Oak	5.3			Fair		X			
2913	Quercus velutina	Black Oak	13.7			Fair		X			
2914	Prunus serotina	Black Cherry	8			Fair		X			
2915	Quercus velutina	Black Oak	7			Fair		X			
2916	Quercus velutina	Black Oak	8.7			Fair		X			
2917	Quercus velutina	Black Oak	12.2			Fair		X			
2918	Quercus velutina	Black Oak	15.8			Fair		X			
2919	Prunus serotina	Black Cherry	14.6	6.7		Fair		X			
2920	Rhamnus cathartica	Common Buckthorn	16			Fair		X			
2921	Quercus velutina	Black Oak	5.8			Fair		X			
2922	Quercus velutina	Black Oak	5.1			Fair		X			
2923	Quercus velutina	Black Oak	13.9			Fair		X			
2924	Quercus velutina	Black Oak	8.9			Fair		X			
2925	Quercus velutina	Black Oak	18.1			Fair		X			
2926	Quercus velutina	Black Oak	11.1			Fair		X			
2927	Quercus velutina	Black Oak	8.3			Fair		X			
2928	Quercus velutina	Black Oak	5.8			Fair		X			
2929	Quercus velutina	Black Oak	7.1			Fair		X			
2930	Quercus velutina	Black Oak	12.7			Fair		X			
2931	Quercus velutina	Black Oak	17			Fair		X			
2932	Quercus velutina	Black Oak	17.1			Fair		X			
2933	Prunus serotina	Black Cherry	4.9			Fair		X			
2934	Quercus velutina	Black Oak	12.2			Fair			X		
2935	Quercus velutina	Black Oak	12.5			Fair		X			
2936	Acer rubrum	Red maple	10.6	5.2		Fair		X			
2937	Prunus serotina	Black Cherry	7.9			Fair			X		
2938	Acer rubrum	Red maple	5.5			Fair			X		
2939	Quercus velutina	Black Oak	18.3			Fair			X		
2940	Quercus velutina	Black Oak	12.5			Fair			X		
2941	Quercus velutina	Black Oak	11.2			Fair			X		
2942	Quercus velutina	Black Oak	11.6			Fair			X		
2943	Prunus serotina	Black Cherry	4.4			Fair			X		
2944	Quercus velutina	Black Oak	7.6			Fair			X		
2945	Quercus velutina	Black Oak	13.2			Fair			X		
2946	Quercus velutina	Black Oak	7.9			Fair			X		
2947	Quercus velutina	Black Oak	17.6			Fair			X		
2948	Quercus velutina	Black Oak	11.7			Fair			X		
2949	Sassafras albidum	Sassafras	7.9			Fair			X		
2950	Acer rubrum	Red maple	9.2	7.6		Fair				X	
2951	Quercus velutina	Black Oak	15.8			Fair				X	
2952	Ulmus americana	American Elm	4.9			Fair				X	
2953	Acer rubrum	Red maple	16.1			Fair				X	
2954	Prunus serotina	Black Cherry	22.5			Fair			X		
2955	Quercus velutina	Black Oak	9.4			Fair			X		
2956	Quercus velutina	Black Oak	9.1			Fair		X			
2957	Prunus serotina	Black Cherry	7.6			Fair		X			
2958	Quercus velutina	Black Oak	10			Fair		X			
2959	Quercus velutina	Black Oak	8.9			Fair		X			
2960	Quercus velutina	Black Oak	12.9			Fair		X			
2961	Quercus velutina	Black Oak	12.1			Fair		X			
2962	Quercus velutina	Black Oak	15.3			Fair		X			
2963	Quercus velutina	Black Oak	9.3			Fair		X			
2964	Quercus velutina	Black Oak	7.3			Fair		X			
2965	Quercus velutina	Black Oak	11			Fair		X			
2966	Quercus velutina	Black Oak	11.5			Fair		X			
2967	Quercus velutina	Black Oak	9.8			Fair		X			
2968	Quercus velutina	Black Oak	10.1			Fair		X			
2969	Quercus velutina	Black Oak	4.8			Fair		X			
2970	Quercus velutina	Black Oak	8.6			Fair		X			
2971	Quercus velutina	Black Oak	7.1			Fair		X			
2972	Quercus velutina	Black Oak	10.6			Fair		X			
2973	Quercus velutina	Black Oak	8.8			Fair		X			
2974	Quercus velutina	Black Oak	13.5			Fair			X		
2975	Quercus velutina	Black Oak	16.9			Fair			X		
2976	Quercus velutina	Black Oak	8.5			Fair			X		
2977	Quercus velutina	Black Oak	15.1			Fair			X		
2978	Prunus serotina	Black Cherry	8.7			Fair			X		
2979	Quercus velutina	Black Oak	14.6			Fair			X		
2980	Quercus velutina	Black Oak	13.9			Fair			X		
2981	Quercus velutina	Black Oak	16.7			Fair			X		
2982	Quercus velutina	Black Oak	6.7			Fair			X		
2983	Quercus velutina	Black Oak	12.2			Fair			X		
2984	Prunus serotina	Black Cherry	5.7			Fair			X		
2985	Quercus velutina	Black Oak	13			Fair			X		
2986	Quercus velutina	Black Oak	11.1			Fair				X	
2987	Acer rubrum	Red maple	7.7			Fair				X	
2988	Quercus velutina	Black Oak	16.3			Fair				X	
2989	Quercus velutina	Black Oak	17.3			Fair				X	
2990	Quercus velutina	Black Oak	14.5			Fair				X	
2991	Quercus velutina	Black Oak	6.5			Fair			X		
2992	Quercus velutina	Black Oak	11			Fair				X	
2993	Quercus velutina	Black Oak	5.8			Fair				X	
2994	Quercus velutina	Black Oak	5.4			Fair				X	
2995	Quercus velutina	Black Oak	20.5			Fair				X	
2996	Quercus velutina	Black Oak	5.3			Fair				X	
2997	Prunus serotina	Black Cherry	10.2			Fair			X		
2998	Sassafras albidum	Sassafras	9.6			Fair				X	
2999	Quercus velutina	Black Oak	15	9.9		Fair				X	
3000	Prunus serotina	Black Cherry	6.9			Fair				X	
3001	Acer rubrum	Red Maple	10			Fair				X	
3002	Acer rubrum	Red Maple	8.7			Fair				X	
3003	Prunus serotina	Black Cherry	19.8	13	6.5	Fair				X	
3004	Amelanchier arborea	Serviceberry	5.1			Fair				X	
3005	Acer saccharinum	Silver Maple	10.1			Fair				X	
3006	Sassafras albidum	Sassafras	13.8			Fair				X	
3007	Prunus serotina	Black Cherry	7.7			Fair				X	
3008	Acer saccharinum	Silver Maple	12			Fair				X	
3009	Prunus serotina	Black Cherry	9			Fair				X	
3010	Ulmus americana	American Elm	8.5			Fair				X	
3011	Rhamnus cathartica	European Buckthorn	5.9			Fair				X	
3012	Malus pumila	Common Apple	6.1			Fair				X	
3013	Malus pumila	Common Apple	5.6			Fair				X	
3014	Malus pumila	Common Apple	4.4	4.3		Fair				X	
3015	Rhamnus cathartica	European Buckthorn	4.6			Fair				X	
3016	Ulmus americana	American Elm	5			Fair				X	
3017	Prunus serotina	Black Cherry	4.4			Fair				X	
3018	Quercus alba	White Oak	11.5			Fair				X	
3019	Prunus serotina	Black Cherry	4.4			Fair				X	
3020	Prunus serotina	Black Cherry	8.4			Fair				X	
3021	Prunus serotina	Black Cherry	4.2			Fair				X	
3022	Sassafras albidum	Sassafras	5.9			Fair				X	
3023	Prunus serotina	Black Cherry	4.4			Fair				X	
3024	Prunus serotina	Black Cherry	5			Fair				X	
3025	Quercus velutina	Black Oak	18			Fair				X	
3026	Rhamnus cathartica	European Buckthorn	5.5			Fair				X	
3027	Acer rubrum	Red Maple	8.2			Fair			X		
3028	Prunus serotina	Black Cherry	23			Fair				X	
3029	Prunus serotina	Black Cherry	14.1			Fair				X	
3030	Quercus velutina	Black Oak	14.6			Fair			X		
3031	Quercus velutina	Black Oak	13			Fair			X		
3032	Prunus serotina	Black Cherry	14.8			Fair			X		
3033	Acer negundo	Boxelder	9.1			Fair			X		
3034	Rhamnus cathartica	European Buckthorn	7.5			Fair				X	
3035	Malus pumila	Common Apple	6.9			Poor				X	
3036	Amelanchier arborea	Serviceberry	4.9			Fair			X		
3037	Amelanchier arborea	Serviceberry	4.5			Fair				X	
3038	Rhamnus cathartica	European Buckthorn	4.5			Fair			X		
3039	Rhamnus cathartica	European Buckthorn	5.7			Fair			X		
3040	Prunus serotina	Black Cherry	11.9			Fair			X		
3041	Prunus serotina	Black Cherry	9.8			Fair			X		
3042	Prunus serotina	Black Cherry	5.8			Fair			X		
3043	Amelanchier arborea	Serviceberry	4.5			Fair			X		
3044	Prunus serotina	Black Cherry	40.9			Fair	X				
3045	Amelanchier arborea	Serviceberry	5.7			Fair		X			
3046	Acer negundo	Boxelder	5.4			Fair			X		
3047	Prunus serotina	Black Cherry	6.5			Fair			X		
3048	Quercus velutina	Black Oak	18.6	16.7		Fair			X		
3049	Quercus velutina	Black Oak	7.6			Fair			X		
3050	Sassafras albidum	Sassafras	5.5			Fair			X		
3051	Quercus velutina	Black Oak	14.4			Fair				X	
3052	Prunus serotina	Black Cherry	5.4			Fair				X	
3053	Prunus serotina	Black Cherry	7.9			Fair				X	
3054	Quercus alba	White Oak	4.3			Fair				X	
3055	Prunus serotina	Black Cherry	11.1			Fair				X	
3056	Prunus serotina	Black Cherry	15.6			Fair				X	
3057	Prunus serotina	Black Cherry	17.7			Fair				X	
3058	Quercus velutina	Black Oak	16.5			Fair				X	
3059	Quercus velutina	Black Oak	8.1			Fair				X	
3060	Quercus velutina	Black Oak	16.7			Fair				X	
3061	Quercus velutina	Black Oak	12.7			Fair				X	
3062	Prunus serotina	Black Cherry	14.7			Fair				X	
3063	Prunus serotina	Black Cherry	6.6			Fair				X	
3064	Quercus velutina	Black Oak	18.9			Fair				X	
3065	Prunus serotina	Black Cherry	6.8			Fair				X	
3066	Malus pumila	Common Apple	5.9			Fair				X	
3067	Juglans nigra	Black Walnut	13			Fair				X	
3068	Prunus serotina	Black Cherry	16.4			Fair				X	
3069	Prunus serotina	Black Cherry	8.4			Fair				X	
3070	Prunus serotina	Black Cherry	20.1			Fair				X	
3071	Acer negundo	Boxelder	7.3			Fair				X	
3072	Quercus velutina	Black Oak	20.7			Fair				X	
3073	Prunus serotina	Black Cherry	5.4			Fair				X	
3074	Quercus velutina	Black Oak	23.6			Fair				X	
3075	Quercus velutina	Black Oak	7.4			Fair				X	
3076	Quercus velutina	Black Oak	15.9			Fair				X	
3077	Quercus velutina	Black Oak	10.3			Fair			X		
3078	Quercus velutina	Black Oak	12.1			Fair			X		
3079	Quercus velutina	Black Oak	5.7			Fair			X		
3080	Quercus velutina	Black Oak	7			Fair			X		
3081	Quercus velutina	Black Oak	16			Fair			X		
3082	Quercus velutina	Black Oak	9.7			Fair			X		
3083	Prunus serotina	Black Cherry	7.5			Fair			X		
3084	Prunus serotina	Black Cherry	12.3			Fair			X		
3085	Prunus serotina	Black Cherry	6.7			Fair				X	
3086	Quercus velutina	Black Oak	6.7			Fair				X	
3087	Quercus velutina	Black Oak	4.6			Fair			X		
3088	Quercus velutina	Black Oak	12.3			Fair			X		
3089	Quercus velutina	Black Oak	15.3			Fair			X		
3090	Quercus velutina	Black Oak	12.3			Fair			X		
3091	Prunus serotina	Black Cherry	11			Fair				X	
3092	Prunus serotina	Black Cherry	8.5	8		Fair			X		
3093	Quercus velutina	Black Oak	6.1			Fair			X		
3094	Acer rubrum	Red Maple	4.6			Fair			X		
3095	Acer rubrum	Red Maple	4.9			Fair			X		
3096	Quercus velutina	Black Oak	13.1			Fair			X		
3097	Prunus serotina	Black Cherry	8			Fair			X		
3098	Quercus velutina	Black Oak	17.5	6.8		Fair			X		
3099	Prunus serotina	Black Cherry	7.2			Fair			X		
3100	Quercus velutina	Black Oak	13.4			Fair			X		
3101	Acer rubrum	Red Maple	12.4			Fair				X	
3102	Rhamnus cathartica	European Buckthorn	5.8			Fair				X	
3103	Prunus serotina	Black Cherry	16.4			Fair				X	
3104	Prunus serotina	Black Cherry	14	8.8		Fair			X		
3105	Ulmus americana	American Elm	7.7			Fair				X	
3106	Acer negundo	Boxelder	4.7			Fair				X	
3107	Acer negundo	Boxelder	6.7			Fair			X		
3108	Ulmus americana	American Elm	13.4			Fair			X		
3109	Juniperus virginiana	Eastern Red Cedar	9.5			Fair			X		
3110	Juniperus virginiana	Eastern Red Cedar	9.7			Fair			X		
3111	Prunus serotina	Black Cherry	5.5			Fair			X		
3112	Prunus serotina	Black Cherry	4.6			Fair			X		
3113	Acer negundo	Boxelder	8.1			Fair			X		
3114	Acer rubrum	Red Maple	10.7			Fair			X		
3115	Acer rubrum	Red Maple	4.5			Poor			X		
3116	Acer rubrum	Red Maple	8.8			Fair			X		
3117	Juniperus virginiana	Eastern Red Cedar	7.4	7.2	4.8	Fair			X		
3118	Prunus serotina	Black Cherry	8.2	7.1		Fair			X		
3119	Prunus serotina	Black Cherry	8.2	8.2	6.4	Fair				X	
3120	Ulmus americana	American Elm	8.4			Fair				X	
3121	Ulmus americana	American Elm	4.5			Fair				X	
3122	Prunus serotina	Black Cherry	15.7			Fair				X	
3123	Acer rubrum	Red Maple	9.1			Fair				X	
3124	Juniperus virginiana	Eastern Red Cedar	10.7			Fair				X	
3125	Juniperus virginiana	Eastern Red Cedar	4.8			Fair				X	
3126	Prunus serotina	Black Cherry	17.8	11.8		Fair				X	
3127	Acer rubrum	Red Maple	10.3	9		Fair				X	
3128	Juniperus virginiana	Eastern Red Cedar	7.2			Fair				X	
3129	Juniperus virginiana	Eastern Red Cedar	13.3			Fair	X				
3130	Quercus velutina	Black Oak	8.2			Fair				X	
3131	Quercus velutina	Black Oak	10.1			Fair				X	
3132	Prunus serotina	Black Cherry	16.8			Poor				X	
3133	Prunus serotina	Black Cherry	13.1	7.3		Fair			X		
3134	Prunus serotina	Black Cherry	10.4	7.4		Fair			X		
3135	Juniperus virginiana	Eastern Red Cedar	8.7			Fair				X	
3136	Ulmus americana	American Elm	12.7			Fair				X	
3137	Prunus serotina	Black Cherry	18.4	10.6		Poor				X	
3138	Quercus rubra	Red Oak	11.6			Fair				X	
3139	Quercus velutina	Black Oak	17.7			Fair				X	
3140	Prunus serotina	Black Cherry	15			Fair				X	
3141	Prunus serotina	Black Cherry	11			Fair				X	
3142	Prunus serotina	Black Cherry	7.9			Fair				X	
3143	Quercus velutina	Black Oak	12.3			Fair			X		
3144	Quercus velutina	Black Oak	11.5	8.7		Fair				X	
3145	Quercus velutina	Black Oak	10.5			Fair			X		
3146	Quercus velutina	Black Oak	11.1			Fair				X	
3147	Prunus serotina	Black Cherry	8.4			Fair				X	
3148	Prunus serotina	Black Cherry	5			Fair				X	
3149	Quercus velutina	Black Oak	5.7			Fair			X		
3150	Prunus serotina	Black Cherry	7.3			Fair			X		
3151	Quercus velutina	Black Oak	17.6			Fair			X		
3152	Quercus velutina	Black Oak	4.3			Fair			X		
3153	Prunus serotina	Black Cherry	11.4			Fair			X		
3154	Quercus velutina	Black Oak	10.8			Fair			X		
3155	Quercus velutina	Black Oak	12.9			Fair				X	
3156	Quercus velutina	Black Oak	8.8			Fair				X	
3157	Acer rubrum	Red Maple	8.1			Fair				X	
3158	Quercus velutina	Black Oak	11.7			Fair				X	
3159	Quercus velutina	Black Oak	6.9			Fair				X	
3160	Quercus velutina	Black Oak	19.8			Fair				X	
3161	Quercus velutina	Black Oak	6			Fair			X		
3162	Prunus serotina	Black Cherry	11.1			Fair				X	
3163	Acer rubrum	Red Maple	6			Fair				X	
3164	Acer rubrum	Red Maple	4.3			Fair				X	
3165	Acer negundo	Boxelder	7.3			Fair				X	
3166	Morus alba	Common Mulberry	4.5			Fair				X	
3167	Quercus velutina	Black Oak	19.4			Fair				X	
3168	Quercus velutina	Black Oak	5			Fair				X	
3169	Quercus velutina	Black Oak	16			Fair				X	
3170	Quercus velutina	Black Oak	15.7			Fair				X	
3171	Quercus velutina	Black Oak	18.3			Fair				X	
3172	Acer rubrum	Red Maple	4.8			Fair				X	
3173	Prunus serotina	Black Cherry	6			Fair				X	
3174	Prunus serotina	Black Cherry	13.1	5.2		Fair				X	
3175	Quercus velutina	Black Oak	4.1			Fair				X	
3176	Prunus serotina	Black Cherry	12.2			Fair				X	
3177	Acer rubrum	Red Maple	11.8			Fair				X	
3178	Ulmus americana	American Elm	4.3			Fair				X	
3179	Quercus velutina	Black Oak	10	5.1		Fair				X	
3180	Quercus velutina	Black Oak	4.7			Fair				X	
3181	Prunus serotina	Black Cherry	5.1			Fair				X	
3182	Quercus velutina	Black Oak	15.3			Fair				X	
3183	Prunus serotina	Black Cherry	7			Fair				X	
3184	Acer negundo	Boxelder	10.7			Fair				X	
3185	Prunus serotina	Black Cherry	7.8			Fair				X	
3186	Prunus serotina	Black Cherry	9.4			Fair				X	
3187	Prunus serotina	Black Cherry	11.5	7.1		Fair				X	
3188	Prunus serotina	Black Cherry	19.7			Fair				X	
3189	Prunus serotina	Black Cherry	15.8			Fair				X	
3190	Prunus serotina	Black Cherry	4.9			Fair				X	
3191	Prunus serotina	Black Cherry	17.1			Poor				X	
3192	Ulmus americana	American Elm	4.5			Fair				X	
3193	Morus alba	Common Mulberry	11.2			Fair				X	
3194	Quercus velutina	Black Oak	15.5			Fair				X	
3195	Quercus velutina	Black Oak	20.5			Fair				X	
3196	Prunus serotina	Black Cherry	18.6			Fair			X		
3198	Prunus serotina	Black cherry	4.7			Fair					X
3199	Prunus serotina	Black cherry	5.1			Fair					X
3200	Robinia pseudoacacia	Black locust	4.7			Fair			X		
3201	Juglans nigra	Black walnut	8.9			Fair			X		
3202	Juglans nigra	Black walnut	6.7			Fair			X		
3203	Juglans nigra	Black walnut	12.3			Fair			X		
3204	Morus alba	Mulberry	12.1	6.4		Fair			X		
3205	Morus alba	Mulberry	11.7	7.7		Fair			X		
3206	Morus alba	Mulberry	13			Poor			X		
3207	Morus alba	Mulberry	4.8			Poor			X		
3208	Juglans nigra	Black walnut	7.6			Fair			X		
3209	Juglans nigra	Black walnut	10.3			Fair			X		
3210	Morus alba	Mulberry	10.1	6.7	4.3	Fair			X		
3211	Juglans nigra	Black walnut	20.4			Fair			X		
3212	Morus alba	Mulberry	25.1			Fair			X		
3213	Juglans nigra	Black walnut	4.4			Fair			X		
3214	Acer negundo	Boxelder	11			Fair			X		
3215	Prunus serotina	Black cherry	12.4			Fair			X		
3216	Rhamnus cathartica	European buckthorn	7			Fair			X		
3217	Quercus velutina	Black oak	18.2			Fair			X		
3218	Acer rubrum	Red maple	16.2			Fair			X		
3219	Juglans nigra	Black walnut	7			Fair			X		
3220	Acer negundo	Boxelder	4.8			Fair			X		
3221	Acer negundo	Boxelder	4.2			Fair			X		
3222	Acer negundo	Boxelder	8.2			Fair			X		
3223	Acer negundo	Boxelder	7.6			Fair			X		
3224	Rhamnus cathartica	European buckthorn	6			Fair			X		
3225	Quercus alba	White oak	6.1			Fair			X		
3226	Acer negundo	Boxelder	6.7			Fair			X		
3227	Acer negundo	Boxelder	13.6			Fair			X		
3228	Acer negundo	Boxelder	9.2			Fair			X		
3229	Morus alba	Mulberry	15.9			Fair			X		
3230	Quercus velutina	Black oak	14.6	12		Fair			X		
3231	Quercus velutina	Black oak	9.4	7.7		Fair			X		
3232	Juglans nigra	Black walnut	16.6			Fair			X		
3233	Quercus macrocarpa	Bur oak	6.5			Fair				X	
3234	Quercus velutina	Black oak	16.1			Fair			X		
3235	Quercus velutina	Black oak	12.8			Fair				X	
3236	Acer negundo	Boxelder	10.5			Fair				X	
3237	Acer negundo	Boxelder	12.7			Fair			X		
3238	Robinia pseudoacacia	Black locust	9.1			Fair			X		
3239	Morus alba	Mulberry	13.7	13	11.9	Fair			X		
3240	Robinia pseudoacacia	Black locust	10.2	8.4		Fair				X	
3241	Acer rubrum	Red maple	6.3			Fair				X	
3242	Acer negundo	Boxelder	7.7			Fair				X	
3243	Acer negundo	Boxelder	7.9			Fair			X		
3244	Robinia pseudoacacia	Black locust	9.1			Fair			X		
3245	Robinia pseudoacacia	Black locust	10.1	9.8		Fair			X		
3246	Acer rubrum	Red maple	12.2	11.2		Fair			X		
3247	Robinia pseudoacacia	Black locust	8.9			Fair			X		
3248	Robinia pseudoacacia	Black locust	8.3			Fair			X		
3249	Robinia pseudoacacia	Black locust	9.6			Fair			X		
3250	Robinia pseudoacacia	Black locust	8.1			Fair			X		
3251	Robinia pseudoacacia	Black locust	8.4	10.8		Fair			X		
3252	Robinia pseudoacacia	Black locust	12	12.1		Fair			X		
3253	Robinia pseudoacacia	Black locust	12.3			Fair			X		
3254	Robinia pseudoacacia	Black locust	13.6			Fair			X		
3255	Acer negundo	Boxelder	5.1			Fair			X		
3256	Robinia pseudoacacia	Black locust	7			Fair			X		
3257	Robinia pseudoacacia	Black locust	9.2			Fair			X		
3258	Robinia pseudoacacia	Black locust	11.5			Fair			X		
3259	Robinia pseudoacacia	Black locust	5.1			Fair			X		
3260	Robinia pseudoacacia	Black locust	6.5	8.2		Fair			X		
3261	Robinia pseudoacacia	Black locust	9.4			Fair			X		
3262	Robinia pseudoacacia	Black locust	7.9			Fair			X		
3263	Acer negundo	Boxelder	11.8			Fair			X		
3264	Populus deltoides	Cottonwood	7.4			Fair			X		
3265	Juglans nigra	Black walnut	20			Fair			X		
3266	Juglans nigra	Black walnut	8.9	10.6		Fair			X		
3267	Robinia pseudoacacia	Black locust	7.2			Fair			X		
3268	Robinia pseudoacacia	Black locust	6.4			Fair			X		
3269	Quercus velutina	Black oak	11.4			Fair			X		
3270	Quercus velutina	Black oak	14.2			Fair			X		
3271	Quercus velutina	Black oak	15.3			Fair			X		
3272	Juglans nigra	Black walnut	5.2			Fair			X		
3273	Quercus velutina	Black oak	15.7			Fair			X		
3274	Quercus velutina	Black oak	10			Fair			X		
3275	Juglans nigra	Black walnut	6			Fair			X		
3276	Juglans nigra	Black walnut	12.6			Fair			X		
3277	Juglans nigra	Black walnut	9.7			Fair			X		
3278	Juglans nigra	Black walnut	7.4			Fair			X		
3279	Juglans nigra	Black walnut	6.4			Fair		X			
3280	Juglans nigra	Black walnut	9.1			Fair			X		
3281	Juglans nigra	Black walnut	6.2			Fair		X			
3282	Juglans nigra	Black walnut	6.9			Fair		X			
3283	Juglans nigra	Black walnut	4.9			Fair					
3284	Juglans nigra	Black walnut	19.1			Fair		X			
3285	Juglans nigra	Black walnut	15.3			Fair					X
3286	Quercus velutina	Black oak	5.8			Fair		X			
3287	Juglans nigra	Black walnut	5.2			Fair		X			
3288	Juglans nigra	Black walnut	6.2			Fair		X			
3289	Quercus velutina	Black oak	13.4			Fair			X		
3290	Quercus velutina	Black oak	10.3			Fair		X			
3291	Quercus velutina	Black oak	6.9			Fair			X		
3292	Juglans nigra	Black walnut	5.1			Fair		X			
3293	Juglans nigra	Black walnut	7.4			Fair		X			
3294	Juglans nigra	Black walnut	7			Very Poor		X			
3295	Quercus velutina	Black oak	19			Fair		X			
3296	Juglans nigra	Black walnut	10.2			Fair		X			
3297	Juglans nigra	Black walnut	7.3			Fair			X		
3298	Juglans nigra	Black walnut	8.4			Fair			X		
3299	Juglans nigra	Black walnut	8.1			Fair			X		
3300	Quercus velutina	Black oak	22.8			Fair			X		
3301	Quercus velutina	Black oak	6.3			Fair			X		
3302	Quercus velutina	Black oak	12.2			Fair			X		
3303	Quercus velutina	Black oak	9.4			Fair			X		
3304	Quercus velutina	Black oak	6.9			Fair			X		
3305	Quercus velutina	Black oak	13.2			Fair			X		
3306	Quercus velutina	Black oak	9.7			Fair			X		
3307	Acer rubrum	Red maple	4.2			Fair			X		
3308	Tilia americana	Basswood	4.3			Fair			X		
3309	Juglans nigra	Black walnut	5.9	4.6	4.3	Fair			X		
3310	Populus deltoides	Cottonwood	6.3			Fair			X		
3311	Populus deltoides	Cottonwood	5.2			Fair			X		
3312	Juglans nigra	Black walnut	6.3			Fair			X		
3313	Quercus velutina	Black oak	13.1			Fair			X		
3314	Juglans nigra	Black walnut	6.1	5.6		Fair			X		
3315	Populus grandidentata	Bigtooth aspen	10			Fair			X		
3316	Populus grandidentata	Bigtooth aspen	8.2			Fair			X		
3317	Populus grandidentata	Bigtooth aspen	8.5			Fair			X		
3318	Populus grandidentata	Bigtooth aspen	9.8			Fair			X		
3319	Quercus velutina	Black oak	15			Fair			X		
3320	Juglans nigra	Black walnut	6.8			Fair			X		
3321	Quercus velutina	Black oak	8.1			Fair			X		
3322	Quercus velutina	Black oak	4.7			Fair			X		
3323	Quercus velutina	Black oak	12			Fair			X		
3324	Quercus velutina	Black oak	5			Fair			X		
3325	Quercus velutina	Black oak	14.1			Fair			X		
3326	Juglans nigra	Black walnut	5			Fair			X		
3327	Juglans nigra	Black walnut	8.5			Fair			X		
3328	Quercus velutina	Black oak	8.5			Fair			X		
3329	Juglans nigra	Black walnut	11.5			Fair			X		
3330	Quercus velutina	Black oak	6.8			Fair			X		
3331	Juglans nigra	Black walnut	9.8			Fair			X		
3332	Juglans nigra	Black walnut	7.7			Fair			X		
3333	Juglans nigra	Black walnut	15			Fair			X		
3334	Juglans nigra	Black walnut	4.2			Fair			X		
3335	Juglans nigra	Black walnut	6.2			Fair			X		
3336	Juglans nigra	Black walnut	4.9			Fair			X		
3337	Quercus velutina	Black oak	23.4	20.5		Fair			X		
3338	Quercus velutina	Black oak	9.3	6.2		Fair			X		
3339	Quercus velutina	Black oak	20			Fair			X		
3340	Quercus velutina	Black oak	26.5			Fair	X				
3341	Quercus velutina	Black oak	14.6			Fair			X		
3342	Acer negundo	Boxelder	5.9			Fair			X		
3343	Acer rubrum	Red maple	4.1			Fair			X		
3344	Ulmus americana	American elm	5.4			Fair			X		
3345	Robinia pseudoacacia	Black locust	8.4			Fair			X		
3346	Robinia pseudoacacia	Black locust	10.9			Fair			X		
3347	Morus alba	Mulberry	9.6	8.1		Fair			X		
3348	Morus alba	Mulberry	5.5			Fair			X		
3349	Robinia pseudoacacia	Black locust	6.4			Fair				X	
3350	Robinia pseudoacacia	Black locust	8.9			Fair			X		
3351	Robinia pseudoacacia	Black locust	4.7			Fair			X		
3352	Juglans nigra	Black walnut	6.6			Fair			X		
3353	Acer rubrum	Red maple	15.6			Fair			X		
3354	Acer rubrum	Red maple	5.8			Fair				X	
3355	Quercus velutina	Black oak	24			Fair	X				
3356	Morus alba	Mulberry	4.1			Fair			X		
3357	Quercus velutina	Black oak	19			Fair			X		
3358	Acer negundo	Boxelder	5.6			Fair			X		
3359	Quercus velutina	Black oak	9.5			Fair			X		
3360	Acer rubrum	Red maple	4.3			Fair			X		
3361	Robinia pseudoacacia	Black locust	5.1			Fair			X		
3362	Robinia pseudoacacia	Black locust	8.3			Fair			X		
3363	Robinia pseudoacacia	Black locust	5.8			Fair			X		
3364	Juglans nigra	Black walnut	4.4			Fair			X		
3365	Morus alba	Mulberry	7.7			Fair			X		
3366	Morus alba	Mulberry	9.3			Fair			X		
3367	Juglans nigra	Black walnut	23.7			Fair			X		
3368	Quercus velutina	Black oak	18.6			Fair			X		
3369	Quercus velutina	Black oak	14.9			Fair			X		
3370	Morus alba	Mulberry	10	7.6	7.3	Very Poor			X		
3371	Quercus velutina	Black oak	10.7			Fair			X		
3372	Juglans nigra	Black walnut	12.8			Fair			X		
3373	Juglans nigra	Black walnut	10.4			Fair			X		
3374	Quercus velutina	Black oak	24.8			Fair	X				
3375	Quercus velutina	Black oak	6.7			Fair			X		
3376	Juglans nigra	Black walnut	7.1			Poor			X		
3377	Juglans nigra	Black walnut	11.4			Fair			X		
3378	Juglans nigra	Black walnut	4.3			Poor			X		
3379	Juglans nigra	Black walnut	13.7			Fair			X		
3380	Juglans nigra	Black walnut	14.4			Fair			X		
3381	Quercus velutina	Black oak	12.8			Fair			X		
3382	Juglans nigra	Black walnut	10.6			Fair			X		
3383	Juglans nigra	Black walnut	9.5			Fair			X		
3384	Juglans nigra	Black walnut	14.7			Fair			X		
3385	Juglans nigra	Black walnut	5.2			Fair			X		
3386	Juglans nigra	Black walnut	11	10.3		Fair			X		
3387	Juglans nigra	Black walnut	10.2			Fair			X		
3388	Juglans nigra	Black walnut	10.5			Fair			X		
3389	Juglans nigra	Black walnut	6.1	5.3	4	Fair			X		
3390	Juglans nigra	Black walnut	7.8	6.6	6.4	Fair			X		
3391	Populus grandidentata	Bigtooth aspen	9.4			Fair			X		
3392	Prunus serotina	Black cherry	5.6			Fair			X		
3393	Populus grandidentata	Bigtooth aspen	7.3			Fair			X		
3394	Populus grandidentata	Bigtooth aspen	8.6			Fair			X		
3395	Prunus avium	Wild cherry	4.2			Fair			X		
3396	Prunus serotina	Black cherry	5.1			Fair			X		
3397	Prunus serotina	Black cherry	4.3			Fair			X		
3398	Prunus serotina	Black cherry	6.2			Fair			X		
3399	Prunus serotina	Black cherry	4.2			Fair			X		
3400	Prunus serotina	Black cherry	4.5			Fair			X		
3401	Prunus serotina	Black cherry	7.3	5.3		Fair			X		
3402	Prunus serotina	Black cherry	5.8			Fair			X		
3403	Prunus serotina	Black cherry	4			Fair			X		
3404	Prunus serotina	Black cherry	4.2			Fair			X		
3405	Prunus serotina	Black cherry	9.8			Fair			X		
3406	Juglans nigra	Black walnut	10.6			Fair		X			
3407	Juglans nigra	Black walnut	9.1			Fair		X			
3408	Juglans nigra	Black walnut	12.2	11.2		Fair		X			
3409	Juglans nigra	Black walnut	7.6			Fair		X			
3410	Juglans nigra	Black walnut	8.7			Fair					X
3411	Quercus velutina	Black oak	9.1			Fair					X
3412	Populus deltoides	Cottonwood	10.3			Fair			X		
3413	Juglans nigra	Black walnut	8.6	8	5.2	Fair		X			
3414	Quercus velutina	Black oak	20.7			Fair			X		
3415	Acer rubrum	Red maple	6.2			Fair		X			
3416	Acer rubrum	Red maple	8.7			Fair			X		
3417	Prunus serotina	Black cherry	7.9			Fair			X		
3418	Acer rubrum	Red maple	4			Fair		X			
3419	Acer rubrum	Red maple	5.8			Fair		X			
3420	Prunus serotina	Black cherry	4			Fair			X		
3421	Acer rubrum	Red maple	6.3			Fair		X			
3422	Prunus serotina	Black cherry	7.7			Fair		X			
3423	Acer rubrum	Red maple	4.3	5.8		Fair		X			
3424	Prunus serotina	Black cherry	6			Fair		X			
3425	Prunus serotina	Black cherry	4.8			Fair			X		
3426	Prunus serotina	Black cherry	6.4			Fair			X		
3427	Acer rubrum	Red maple	8.2	5.2		Fair				X	
3428	Prunus serotina	Black cherry	7			Fair			X		
3429	Prunus serotina	Black cherry	5.3			Fair			X		
3430	Acer negundo	Boxelder	5.1			Fair			X		
3431	Prunus serotina	Black cherry	6.7			Fair			X		
3432	Prunus serotina	Black cherry	7.3			Fair			X		
3433	Quercus alba	White oak	10.9			Fair				X	
3434	Acer negundo	Boxelder	5			Fair			X		
3435	Acer negundo	Boxelder	4.2			Fair				X	
3436	Acer negundo	Boxelder	4.5			Fair			X		
3437	Juglans nigra	Black walnut	5.2			Fair			X		
3438	Prunus serotina	Black cherry	5.2	5.1		Fair			X		
3439	Juglans nigra	Black walnut	4.4			Fair			X		
3440	Juglans nigra	Black walnut	6.2			Fair			X		
3441	Acer negundo	Boxelder	4.6	4.1		Fair			X		
3442	Acer negundo	Boxelder	4.4			Fair			X		
3443	Prunus serotina	Black cherry	6.2			Fair			X		
3444	Prunus serotina	Black cherry	7.7			Fair			X		
3445	Prunus serotina	Black cherry	7.3			Fair			X		
3446	Acer saccharum	Sugar maple	6.5			Fair			X		
3447	Acer saccharum	Sugar maple	6.2			Fair			X		
3448	Populus grandidentata	Bigtooth aspen	11.3			Fair			X		
3449	Prunus serotina	Black cherry	5.7			Fair			X		
3450	Prunus serotina	Black cherry	6.5			Fair			X		
3451	Quercus velutina	Black oak	10.1			Fair		X			
3452	Quercus velutina	Black oak	14.2			Fair		X			
3453	Quercus velutina	Black oak	12.8			Fair		X			
3454	Quercus velutina	Black oak	11.3			Fair		X			
3455	Quercus velutina	Black oak	6.5			Fair		X			
3456	Ulmus americana	American elm	6.9			Fair			X		
3457	Fraxinus pennsylvanica	Green ash	4.1			Fair				X	
3458	Quercus rubra	Red oak	12.2			Fair			X		
3459	Acer saccharum	Sugar maple	4			Fair			X		
3460	Juglans nigra	Black walnut	4			Fair			X		
3461	Juglans nigra	Black walnut	8.1			Fair			X		
3462	Quercus velutina	Black oak	4.2			Fair			X		
3463	Juglans nigra	Black walnut	10.4			Fair			X		
3464	Quercus velutina	Black oak	4.4			Fair			X		
3465	Morus alba	Mulberry	9.1	6		Fair			X		
3466	Juglans nigra	Black walnut	7.7			Fair			X		
3467	Juglans nigra	Black walnut	7.9			Fair			X		
3468	Juglans nigra	Black walnut	6.8			Fair			X		
3469	Juglans nigra	Black walnut	7.5			Fair			X		
3470	Juglans nigra	Black walnut	9.2			Fair			X		
3471	Juglans nigra	Black walnut	5.5	4.7		Poor			X		
3472	Juglans nigra	Black walnut	17.7			Fair			X		
3473	Prunus serotina	Black cherry	8.1			Fair			X		
3474	Prunus serotina	Black cherry	6.4	5.4	4.5	Fair			X		
3475	Prunus avium	Wild cherry	5.3			Fair			X		
3476	Ulmus americana	American elm	17.1			Fair			X		
3477	Ulmus americana	American elm	9.1			Fair			X		
3478	Prunus avium	Wild cherry	16.3			Poor			X		
3479	Acer rubrum	Red maple	11.9	6.4		Fair			X		
3480	Prunus serotina	Black cherry	6.5			Fair			X		
3481	Juglans nigra	Black walnut	4.2			Fair			X		
3482	Prunus serotina	Black cherry	8.2			Fair			X		
3483	Populus deltoides	Cottonwood	19.2			Fair				X	
3484	Acer rubrum	Red maple	4.3			Fair				X	
3485	Acer negundo	Boxelder	5.3			Fair			X		
3486	Prunus serotina	Black cherry	5.4			Fair				X	
3487	Prunus serotina	Black cherry	5.1			Fair				X	
3488	Prunus serotina	Black cherry	4			Fair				X	
3489	Quercus velutina	Black oak	5.3			Fair			X		
3490	Prunus serotina	Black cherry	4.7			Poor				X	
3491	Ulmus americana	American elm	5.8			Fair			X		
3492	Acer rubrum	Red maple	4.8			Fair			X		
3493	Prunus avium	Wild cherry	8.1			Fair				X	
3494	Quercus velutina	Black oak	6.6			Fair			X		
3495	Acer rubrum	Red maple	6.5			Fair			X		
3496	Prunus serotina	Black cherry	13.7			Very Poor			X		
3497	Prunus serotina	Black cherry	9.5			Fair			X		
3498	Juglans nigra	Black walnut	8.4			Fair			X		
3499	Ailanthus altissima	Tree of heaven	15			Fair			X		
3500	Juglans nigra	Black walnut	9.3	7.2	4.2	Fair				X	
3501	Juglans nigra	Black walnut	8.9	7.8		Fair				X	
3502	Prunus serotina	Black cherry	6			Fair			X		
3503	Morus alba	Mulberry	11.4			Fair			X		
3504	Juglans nigra	Black walnut	7.4			Fair			X		
3505	Juglans nigra	Black walnut	7.5			Fair				X	
3506	Juglans nigra	Black walnut	22			Fair				X	
3507	Juglans nigra	Black walnut	11.7			Fair				X	
3508	Ulmus americana	American elm	15.6			Fair				X	
3509	Sassafras albidum	Sassafras	9.1			Fair			X		
3510	Quercus velutina	Black oak	14			Fair			X		
3511	Quercus velutina	Black oak	20.1			Fair				X	
3512	Prunus serotina	Black cherry	6.1			Fair			X		
3513	Prunus serotina	Black cherry	6.9	6.5		Fair			X		
3514	Prunus serotina	Black cherry	10.2	9.2		Fair			X		
3515	Juglans nigra	Black walnut	5.6			Fair				X	
3516	Juglans nigra	Black walnut	11.1	43		Fair				X	
3517	Quercus rubra	Red oak	6.6			Fair			X		
3518	Populus grandidentata	Bigtooth aspen	12.3			Fair				X	
3519	Juglans nigra	Black walnut	10.5	10.3	6.2	Fair				X	
3520	Prunus serotina	Black cherry	6.1			Fair				X	
3521	Acer rubrum	Red maple	6.2			Fair				X	
3522	Prunus serotina	Black cherry	12.3	7.6		Fair			X		
3523	Quercus alba	White oak	10.2			Fair			X		
3524	Prunus serotina	Black cherry	4			Fair				X	
3525	Morus alba	Mulberry	5.4			Fair			X		
3526	Sassafras albidum	Sassafras	5.3			Fair			X		
3527	Quercus velutina	Black oak	5.4			Fair			X		
3528	Quercus velutina	Black oak	10.8			Fair			X		
3529	Prunus serotina	Black cherry	10			Fair			X		
3530	Acer rubrum	Red maple	5.7			Fair			X		
3531	Acer rubrum	Red maple	6.5			Fair			X		
3532	Prunus serotina	Black cherry	10.5			Fair			X		
3533	Prunus serotina	Black cherry	6.6			Fair			X		
3534	Fraxinus pennsylvanica	Green ash	8.5			Fair			X		
3535	Acer rubrum	Red maple	4.3			Fair				X	
3536	Prunus serotina	Black cherry	8.9			Fair			X		
3537	Quercus velutina	Black oak	6	5.9		Fair			X		
3538	Acer rubrum	Red maple	4.9			Fair			X		
3539	Acer rubrum	Red maple	4.2			Fair			X		
3540	Acer rubrum	Red maple	10.4			Fair			X		
3541	Sassafras albidum	Sassafras	4.3			Fair			X		
3542	Acer rubrum	Red maple	11.8			Fair			X		
3543	Prunus serotina	Black Cherry	8.4			Fair				X	
3544	Acer rubrum	Red maple	9.2			Fair			X		
3545	Acer rubrum	Red maple	11.9			Fair			X		
3546	Prunus serotina	Black Cherry	7.1			Fair			X		
3547	Acer rubrum	Red maple	4			Fair		X			
3548	Sassafras albidum	Sassafras	4.3			Fair		X			
3549	Sassafras albidum	Sassafras	9.2			Fair		X			
3550	Sassafras albidum	Sassafras	4.7			Fair		X			
3551	Sassafras albidum	Sassafras	5			Fair		X			
3552	Acer rubrum	Red maple	7			Fair		X			
3553	Prunus serotina	Black Cherry	4.2			Fair				X	
3554	Acer rubrum	Red maple	8.6			Fair				X	
3555	Acer rubrum	Red maple	9.4			Fair				X	
3556	Acer rubrum	Red maple	10.6			Fair				X	
3557	Acer rubrum	Red maple	6.9			Fair				X	
3558	Prunus serotina	Black Cherry	8.2			Fair			X		
3559	Acer rubrum	Red maple	4			Fair				X	
3560	Acer rubrum	Red maple	6.9			Fair				X	
3561	Acer rubrum	Red maple	7.3			Fair				X	
3562	Acer rubrum	Red maple	7.3			Fair				X	
3563	Acer rubrum	Red maple	14.3			Fair				X	
3564	Prunus serotina	Black Cherry	7.7	5.9		Fair				X	
3565	Quercus alba	White Oak	11.5			Fair				X	
3566	Prunus serotina	Black Cherry	5.4			Fair				X	
3567	Acer rubrum	Red maple	6.3			Fair				X	
3568	Sassafras albidum	Sassafras	5.8			Fair				X	
3569	Sassafras albidum	Sassafras	5			Fair				X	
3570	Prunus serotina	Black Cherry	5.9			Fair				X	
3571	Prunus serotina	Black Cherry	6.1			Fair				X	
3572	Acer rubrum	Red maple	5.4			Fair				X	
3573	Prunus serotina	Black Cherry	4.2			Fair				X	
3574	Acer rubrum	Red maple	5.9			Fair				X	
3575	Acer rubrum	Red maple	19.4			Fair				X	
3576	Prunus serotina	Black Cherry	5.4			Fair				X	
3577	Prunus serotina	Black Cherry	4.2			Fair				X	
3578	Prunus serotina	Black Cherry	4.2			Fair				X	
3579	Acer rubrum	Red maple	4.4			Fair				X	
3580	Prunus serotina	Black Cherry	5.1			Fair				X	
3581	Prunus serotina	Black Cherry	5.9			Fair		X			
3582	Acer rubrum	Red maple	9.1	6.6	4.4	Fair			X		
3583	Acer rubrum	Red maple	7.6			Fair		X			
3584	Acer rubrum	Red maple	6.3			Fair		X			
3585	Prunus serotina	Black Cherry	6.2			Fair				X	
3586	Acer rubrum	Red maple	7.4			Fair				X	
3587	Prunus serotina	Black Cherry	6.3			Fair				X	
3588	Sassafras albidum	Sassafras	5	4.4		Fair				X	
3589	Prunus serotina	Black Cherry	5.2			Fair				X	
3590	Sassafras albidum	Sassafras	4.2			Fair				X	
3591	Acer rubrum	Red maple	13.5			Fair				X	
3592	Acer rubrum	Red maple	4.2			Fair				X	
3593	Prunus serotina	Black Cherry	6.8			Fair				X	
3594	Prunus avium	Sweet Cherry	4			Fair				X	

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 538

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

JACOBSON MOCERI ORION, LLC

PRELIMINARY CONSTRUCTION RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE: NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO. 0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG 08_Tree--12/16/2022 8:11:18 AM

SHEET NO. 8

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

Tag	Scientific Name	Common Name	DBH Trunk 1	DBH Trunk 2	DBH Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
3595	Sassafras albidum	Sassafras	6.2			Fair				X	
3596	Prunus serotina	Black Cherry	4.7			Fair				X	
3597	Prunus serotina	Black Cherry	4.4			Fair				X	
3598	Prunus serotina	Black Cherry	4.2			Fair		X			
3599	Robinia Pseudoacacia	Black Locust	4.2			Fair		X			
3600	Sassafras albidum	Sassafras	4.8	4.5		Fair		X			
3601	Prunus serotina	Black Cherry	6.1			Fair		X			
3602	Quercus velutina	Black Oak	4.8			Fair		X			
3603	Quercus velutina	Black Oak	7			Very Poor		X			
3604	Quercus velutina	Black Oak	13.2			Fair		X			
3605	Tilia americana	Basswood	4.9			Fair		X			
3606	Acer rubrum	Red maple	4			Fair		X			
3607	Quercus velutina	Black Oak	11.3			Fair		X			
3608	Quercus velutina	Black Oak	16.4			Fair		X			
3609	Sassafras albidum	Sassafras	5.4			Poor		X			
3610	Sassafras albidum	Sassafras	6.2			Fair		X			
3611	Prunus serotina	Black Cherry	4			Fair		X			
3612	Quercus velutina	Black Oak	16			Fair		X			
3613	Ulmus americana	American Elm	4.7			Fair		X			
3614	Prunus serotina	Black Cherry	4.9			Fair		X			
3615	Prunus serotina	Black Cherry	8.9			Fair		X			
3616	Quercus velutina	Black Oak	13.4			Fair		X			
3617	Acer rubrum	Red maple	5.5	3.2		Fair		X			
3618	Quercus rubra	Red Oak	5.1			Fair		X			
3619	Prunus serotina	Black Cherry	4.3			Fair		X			
3620	Tilia americana	Basswood	4			Fair		X			
3621	Prunus serotina	Black Cherry	4.2			Fair		X			
3622	Acer rubrum	Red maple	24.9			Fair	X				
3623	Prunus serotina	Black Cherry	14.8			Poor		X			
3624	Prunus serotina	Black Cherry	6.1			Fair		X			
3625	Quercus velutina	Black Oak	43.5			Good	X				
3626	Prunus serotina	Black Cherry	4.1			Fair		X			
3627	Acer rubrum	Red maple	4.2			Fair		X			
3628	Quercus velutina	Black Oak	11.8			Fair		X			
3629	Ulmus americana	American Elm	5.9			Fair		X			
3630	Sassafras albidum	Sassafras	6.7			Fair		X			
3631	Prunus serotina	Black Cherry	6.7			Fair		X			
3632	Quercus velutina	Black Oak	14.8			Fair		X			
3633	Prunus serotina	Black Cherry	7			Fair		X			
3634	Acer rubrum	Red maple	8.8			Fair		X			
3635	Acer rubrum	Red maple	7.1			Fair		X			
3636	Quercus velutina	Black Oak	18.2			Fair		X			
3637	Prunus serotina	Black Cherry	4.5			Fair		X			
3638	Prunus serotina	Black Cherry	5.6	5.2		Fair		X			
3639	Quercus alba	White Oak	17.7			Fair		X			
3640	Quercus velutina	Black Oak	5.8			Fair		X			
3641	Prunus serotina	Black Cherry	9.8			Fair		X			
3642	Quercus velutina	Black Oak	18.4			Fair		X			
3643	Quercus velutina	Black Oak	15.2	11.2	8.3	Fair		X			
3644	Quercus velutina	Black Oak	5.7			Fair		X			
3645	Quercus velutina	Black Oak	16.8			Fair		X			
3646	Quercus velutina	Black Oak	6.3			Fair		X			
3647	Acer rubrum	Red maple	4.5	4.3		Fair		X			
3648	Quercus velutina	Black Oak	10.3	5.8		Fair		X			
3649	Quercus velutina	Black Oak	4.9			Fair		X			
3650	Quercus velutina	Black Oak	9.5			Fair		X			
3651	Quercus velutina	Black Oak	7.8			Fair		X			
3652	Quercus velutina	Black Oak	15.6			Fair		X			
3653	Quercus velutina	Black Oak	6.2			Fair		X			
3654	Quercus velutina	Black Oak	12.5			Fair		X			
3655	Prunus serotina	Black Cherry	6.1			Fair		X			
3656	Prunus serotina	Black Cherry	14.9			Very Poor		X			
3657	Sassafras albidum	Sassafras	5.1			Fair		X			
3658	Prunus serotina	Black Cherry	6.2	7		Fair		X			
3659	Sassafras albidum	Sassafras	10.4			Fair		X			
3660	Prunus serotina	Black Cherry	5.9			Fair		X			
3661	Quercus velutina	Black Oak	4.9			Fair		X			
3662	Prunus serotina	Black Cherry	4.6			Fair		X			
3663	Prunus serotina	Black Cherry	12.2	8		Fair		X			
3664	Sassafras albidum	Sassafras	4.9			Fair		X			
3665	Quercus velutina	Black Oak	16.6			Fair		X			
3666	Quercus velutina	Black Oak	10.5	7.6		Fair		X			
3667	Quercus velutina	Black Oak	6.3			Fair		X			
3668	Quercus velutina	Black Oak	14	7.9	6.1	Fair		X			
3669	Quercus alba	White Oak	6.5			Fair		X			
3670	Quercus velutina	Black Oak	18.2	9.2		Fair		X			
3671	Tilia americana	Basswood	5.1			Fair		X			
3672	Prunus serotina	Black Cherry	4			Fair		X			
3673	Sassafras albidum	Sassafras	11.1			Fair		X			
3674	Quercus velutina	Black Oak	8.8			Fair		X			
3675	Prunus serotina	Black Cherry	5.7			Fair		X			
3676	Quercus velutina	Black Oak	14.2			Fair		X			
3677	Prunus serotina	Black Cherry	4.8			Fair		X			
3678	Quercus velutina	Black Oak	10.7			Fair		X			
3679	Quercus velutina	Black Oak	13.6	12.5		Fair		X			
3680	Quercus velutina	Black Oak	6.6	5.9		Fair		X			
3681	Quercus velutina	Black Oak	13.5			Fair		X			
3682	Quercus velutina	Black Oak	14.4			Fair		X			
3683	Quercus velutina	Black Oak	11	11.3		Fair		X			
3684	Quercus velutina	Black Oak	12.2			Fair		X			
3685	Quercus velutina	Black Oak	4.8			Fair		X			
3686	Prunus serotina	Black Cherry	7.5			Fair		X			
3687	Acer rubrum	Red maple	7.4			Fair		X			
3688	Prunus serotina	Black Cherry	6.6			Fair		X			
3689	Ulmus americana	American Elm	11			Fair		X			
3690	Prunus serotina	Black Cherry	4.7			Fair		X			
3691	Prunus serotina	Black Cherry	7			Fair		X			
3692	Prunus serotina	Black Cherry	6.3			Fair		X			
3693	Prunus serotina	Black Cherry	6.7			Fair		X			
3694	Sassafras albidum	Sassafras	4.2			Fair		X			
3695	Prunus serotina	Black Cherry	7.6			Fair		X			
3696	Prunus serotina	Black Cherry	7.8			Fair		X			
3697	Prunus serotina	Black Cherry	6.8			Fair		X			
3698	Quercus bicolor	Swamp White Oak	5.8			Fair		X			
3699	Rhamnus cathartica	Common Buckthorn	4.1			Fair		X			
3700	Rhamnus cathartica	Common Buckthorn	4.1			Fair		X			
3701	Sassafras albidum	Sassafras	4.9			Fair		X			
3702	Sassafras albidum	Sassafras	4.2			Fair		X			
3703	Tilia americana	Basswood	7.9			Fair				X	
3704	Prunus serotina	Black Cherry	4.5			Fair				X	
3705	Sassafras albidum	Sassafras	5.2			Fair			X		
3706	Prunus serotina	Black Cherry	4.3			Fair			X		
3707	Prunus serotina	Black Cherry	5.6			Fair			X		
3708	Prunus serotina	Black Cherry	5.4			Fair			X		
3709	Sassafras albidum	Sassafras	7.3			Fair			X		
3710	Prunus serotina	Black Cherry	8.2			Fair			X		
3711	Prunus serotina	Black Cherry	5.8			Fair			X		
3712	Sassafras albidum	Sassafras	6.4			Fair			X		
3713	Sassafras albidum	Sassafras	4.7			Fair			X		
3714	Prunus serotina	Black Cherry	7			Fair			X		
3715	Sassafras albidum	Sassafras	4.7			Fair			X		
3716	Prunus avium	Sweet Cherry	4.1			Fair			X		
3717	Sassafras albidum	Sassafras	4.1			Fair			X		
3718	Acer rubrum	Red maple	7.8			Fair			X		
3719	Sassafras albidum	Sassafras	11			Fair				X	
3720	Acer rubrum	Red maple	7.7	6.8	6.5	Fair				X	
3721	Sassafras albidum	Sassafras	8.7			Fair				X	
3722	Prunus serotina	Black Cherry	5.9			Fair				X	
3723	Acer rubrum	Red maple	5.5			Fair				X	
3724	Prunus serotina	Black Cherry	6.1			Fair			X		
3725	Carya ovata	Shargbark Hickory	8.5			Fair			X		
3726	Quercus alba	White Oak	6.4			Fair				X	
3727	Acer rubrum	Red maple	5.6			Fair				X	
3728	Sassafras albidum	Sassafras	9.2			Fair			X		
3729	Sassafras albidum	Sassafras	4.1	4		Fair				X	
3730	Prunus serotina	Black Cherry	4			Poor				X	
3731	Sassafras albidum	Sassafras	4			Fair				X	
3732	Sassafras albidum	Sassafras	8.6			Fair			X		
3733	Quercus alba	White Oak	8.1			Fair			X		
3734	Sassafras albidum	Sassafras	11.7	6.4	5.7	Fair				X	
3735	Prunus serotina	Black Cherry	6.5			Fair			X		
3736	Sassafras albidum	Sassafras	8.3			Fair				X	
3737	Sassafras albidum	Sassafras	4.1			Fair				X	
3738	Sassafras albidum	Sassafras	4.8			Fair				X	
3739	Sassafras albidum	Sassafras	4			Fair				X	
3740	Acer rubrum	Red maple	5.2			Fair			X		
3741	Sassafras albidum	Sassafras	5.2			Fair			X		
3742	Sassafras albidum	Sassafras	6			Fair			X		
3743	Sassafras albidum	Sassafras	5.7			Fair			X		
3744	Sassafras albidum	Sassafras	5.7			Fair			X		
3745	Sassafras albidum	Sassafras	22			Fair	X				
3746	Sassafras albidum	Sassafras	6.2			Fair			X		
3747	Sassafras albidum	Sassafras	4.7			Fair			X		
3748	Sassafras albidum	Sassafras	4.4			Fair			X		
3749	Robinia pseudoacacia	Black Locust	5.4			Fair			X		
3750	Prunus serotina	Black Cherry	12			Fair			X		
3751	Sassafras albidum	Sassafras	15.5			Fair	X				
3752	Sassafras albidum	Sassafras	5			Fair			X		
3753	Prunus serotina	Black Cherry	6.5			Fair			X		
3754	Sassafras albidum	Sassafras	5.6			Fair				X	
3755	Sassafras albidum	Sassafras	13.3	7.8		Fair			X		
3756	Prunus serotina	Black Cherry	7.1			Fair			X		
3757	Sassafras albidum	Sassafras	5.7			Fair			X		
3758	Sassafras albidum	Sassafras	5.2			Fair			X		
3759	Sassafras albidum	Sassafras	4.2			Fair				X	
3760	Prunus serotina	Black Cherry	5.4			Fair				X	
3761	Prunus serotina	Black Cherry	8.4			Fair			X		
3762	Sassafras albidum	Sassafras	5			Fair			X		
3763	Sassafras albidum	Sassafras	6			Fair			X		
3764	Sassafras albidum	Sassafras	4.4			Fair			X		
3765	Sassafras albidum	Sassafras	4.8			Fair			X		
3766	Sassafras albidum	Sassafras	6			Fair			X		
3767	Carya glabra	Pignut Hickory	6.3			Fair				X	
3768	Sassafras albidum	Sassafras	5.9			Fair				X	
3769	Sassafras albidum	Sassafras	6.3			Fair			X		
3770	Sassafras albidum	Sassafras	5.3			Fair			X		
3771	Sassafras albidum	Sassafras	4.3			Fair			X		
3772	Sassafras albidum	Sassafras	7.1			Fair			X		
3773	Sassafras albidum	Sassafras	5.5			Fair			X		
3774	Prunus serotina	Black Cherry	4.7			Fair			X		
3775	Sassafras albidum	Sassafras	4.3			Fair			X		
3776	Sassafras albidum	Sassafras	4.2			Fair			X		
3777	Sassafras albidum	Sassafras	4.2			Fair				X	
3778	Prunus serotina	Black Cherry	5.8			Fair			X		
3779	Sassafras albidum	Sassafras	12.1			Fair				X	
3780	Sassafras albidum	Sassafras	9.7			Fair			X		
3781	Acer rubrum	Red Maple	5.8			Fair				X	
3782	Acer rubrum	Red Maple	4.5			Fair				X	
3783	Sassafras albidum	Sassafras	7.8			Fair				X	
3784	Acer rubrum	Red Maple	9.6			Fair				X	
3785	Ulmus americana	American Elm	6.1			Fair				X	
3786	Sassafras albidum	Sassafras	8.8			Poor				X	
3787	Sassafras albidum	Sassafras	10.6			Fair				X	
3788	Ulmus americana	American Elm	5.4			Fair				X	
3789	Sassafras albidum	Sassafras	7			Fair				X	
3790	Sassafras albidum	Sassafras	10			Fair				X	
3791	Sassafras albidum	Sassafras	4.9			Fair			X		
3792	Prunus serotina	Black Cherry	4.6			Fair				X	
3793	Sassafras albidum	Sassafras	5.3	4.5		Fair				X	
3794	Sassafras albidum	Sassafras	5.1			Fair			X		
3795	Sassafras albidum	Sassafras	5.1			Fair				X	
3796	Sassafras albidum	Sassafras	6			Fair				X	
3797	Sassafras albidum	Sassafras	4.9			Fair				X	
3798	Sassafras albidum	Sassafras	4.7			Fair			X		
3799	Prunus serotina	Black Cherry	5.6			Fair			X		
3800	Prunus serotina	Black Cherry	12.7			Fair			X		
3801	Sassafras albidum	Sassafras	5.4			Fair				X	
3802	Prunus serotina	Black Cherry	5			Fair				X	
3803	Sassafras albidum	Sassafras	5.3			Fair				X	
3804	Sassafras albidum	Sassafras	4.8			Fair				X	
3805	Sassafras albidum	Sassafras	10.8			Fair				X	
3806	Acer rubrum	Red Maple	7.3	6.3		Fair				X	
3807	Sassafras albidum	Sassafras	4.4			Fair				X	
3808	Sassafras albidum	Sassafras	5.7			Fair				X	
3809	Prunus serotina	Black Cherry	5.9	4.6		Fair				X	
3810	Sassafras albidum	Sassafras	6.4			Fair				X	
3811	Sassafras albidum	Sassafras	4.2			Fair				X	
3812	Sassafras albidum	Sassafras	4.8			Fair				X	
3813	Sassafras albidum	Sassafras	5.7			Fair				X	
3814	Sassafras albidum	Sassafras	6.5			Fair				X	
3815	Sassafras albidum	Sassafras	4.9			Fair				X	
3816	Sassafras albidum	Sassafras	4.1			Fair				X	
3817	Acer rubrum	Red Maple	6.6			Fair				X	
3818	Quercus velutina	Black Oak	19.2			Fair			X		
3819	Acer rubrum	Red Maple	25.7			Fair	X				
3820	Acer rubrum	Red Maple	5			Fair				X	
3821	Prunus serotina	Black Cherry	4.1			Fair				X	
3822	Acer rubrum	Red Maple	9.2			Fair				X	
3823	Prunus serotina	Black Cherry	5			Fair				X	
3824	Acer rubrum	Red Maple	6.2			Fair				X	
3825	Sassafras albidum	Sassafras	10.7			Fair				X	
3826	Prunus serotina	Black Cherry	4.6			Fair				X	
3827	Sassafras albidum	Sassafras	9			Fair				X	
3828	Sassafras albidum	Sassafras	9.7			Fair				X	
3829	Ulmus americana	American Elm	13.6			Fair				X	
3830	Acer rubrum	Red Maple	4.1			Fair				X	
3831	Sassafras albidum	Sassafras	4.6			Fair				X	
3832	Sassafras albidum	Sassafras	11.8			Fair				X	
3833	Sassafras albidum	Sassafras	4.7			Fair				X	
3834	Sassafras albidum	Sassafras	4.7			Fair				X	
3835	Sassafras albidum	Sassafras	4.8			Fair				X	
3836	Acer rubrum	Red Maple	7.1	4.9		Fair				X	
3837	Sassafras albidum	Sassafras	5.4			Fair				X	
3838	Sassafras albidum	Sassafras	4.1			Fair				X	
3839	Sassafras albidum	Sassafras	4.7			Fair				X	
3840	Prunus serotina	Black Cherry	5.1			Fair				X	
3841	Sassafras albidum	Sassafras	4.4			Fair				X	
3842	Sassafras albidum	Sassafras	4.9			Fair				X	
3843	Sassafras albidum	Sassafras	4.7			Fair				X	
3844	Sassafras albidum	Sassafras	4.5			Fair				X	
3845	Sassafras albidum	Sassafras	4.6			Fair				X	
3846	Acer rubrum	Red Maple	16.1			Fair				X	
3847	Ulmus americana	American Elm	4.7			Fair				X	
3848	Acer rubrum	Red Maple	14.6	5.7		Fair			X		
3849	Acer rubrum	Red Maple	10.8			Fair			X		
3850	Acer rubrum	Red Maple	10.4			Fair				X	
3851	Acer rubrum	Red Maple	6.6			Fair				X	
3852	Acer rubrum	Red Maple	4.3	4.1		Fair				X	
3853	Sassafras albidum	Sassafras	5.3			Fair				X	
3854	Acer rubrum	Red Maple	4			Fair				X	
3855	Acer rubrum	Red Maple	7.3			Poor				X	
3856	Fraxinus pennsylvanica	Green Ash	4.6			Fair				X	
3857	Quercus velutina	Black Oak	8.4			Fair				X	
3858	Acer rubrum	Red Maple	4.5	4.4		Fair				X	
3859	Prunus serotina	Black Cherry	5.4			Fair				X	
3860	Ulmus americana	American Elm	7.6			Fair			X		
3861	Acer rubrum	Red Maple	5			Fair			X		
3862	Prunus serotina	Black Cherry	18			Fair			X		
3863	Acer rubrum	Red Maple	16.1			Fair			X		
3864	Prunus serotina	Black Cherry	6.9			Fair			X		
3865	Prunus serotina	Black Cherry	4.8			Fair				X	
3866	Acer rubrum	Red Maple	10.7			Fair				X	
3867	Prunus serotina	Black Cherry	7.4			Fair			X		
3868	Acer rubrum	Red Maple	6.7			Fair				X	
3869	Prunus serotina	Black Cherry	5.8			Fair				X	
3870	Prunus serotina	Black Cherry	4.3			Fair			X		
3871	Acer rubrum	Red Maple	12.9	7.1		Fair			X		
3872	Prunus serotina	Black Cherry	5.1			Fair				X	
3873	Sassafras albidum	Sassafras	5			Fair				X	
3874	Acer rubrum	Red Maple	7.4			Fair				X	
3875	Prunus serotina	Black Cherry	6.2			Fair				X	
3876	Carya ovata	Shagbark Hickory	8.9			Fair				X	
3877	Prunus serotina	Black Cherry	9.1			Fair				X	
3878	Prunus serotina	Black Cherry	4.8			Fair				X	
3879	Sassafras albidum	Sassafras	8.6			Fair				X	
3880	Acer rubrum	Red Maple	8.2			Fair				X	
3881	Sassafras albidum	Sassafras	4.6			Fair				X	
3882	Ulmus americana	American Elm	4.2			Fair				X	
3883	Sassafras albidum	Sassafras	7.4			Fair				X	
3884	Sassafras albidum	Sassafras	4.2			Fair				X	
3885	Prunus serotina	Black Cherry	7.1			Fair				X	
3886	Sassafras albidum	Sassafras	9.6			Fair				X	
3887	Sassafras albidum	Sassafras	7			Fair				X	
3888	Sassafras albidum	Sassafras	10.6			Fair				X	
3889	Sassafras albidum	Sassafras	7.6			Fair				X	
3890	Sassafras albidum	Sassafras	5.9			Fair				X	
3891	Sassafras albidum	Sassafras	11.1			Fair				X	
3892	Robinia pseudoacacia	Black Locust	8			Fair				X	
3893	Sassafras albidum	Sassafras	12.6			Fair				X	
3894	Sassafras albidum	Sassafras	6.4			Fair				X	
3895	Acer rubrum	Red Maple	9.2			Fair			X		
3896	Acer rubrum	Red Maple	12.1	4.3		Fair				X	
3897	Quercus alba	White Oak	19.9			Fair				X	
3898	Sassafras albidum	Sassafras	6			Fair				X	
3899	Acer rubrum	Red Maple	5.7			Fair				X	
3900	Quercus alba	White Oak	12.1			Fair				X	
3901	Acer rubrum	Red Maple	15.9			Fair				X	
3902	Quercus alba	White Oak	7.1			Fair				X	
3903	Acer rubrum	Red Maple	5.2			Fair				X	
3904	Prunus serotina	Black Cherry	12.8			Fair				X	
3905	Sassafras albidum	Sassafras	11.7			Fair				X	
3906	Prunus serotina	Black Cherry	7.9			Fair				X	
3907	Sassafras albidum	Sassafras	5.3	4.3		Fair				X	
3908	Prunus serotina	Black cherry	4.1			Fair				X	
3909	Acer rubrum	Red maple	14.3			Fair				X	
3910	Acer rubrum	Red maple	21.7			Fair				X	
3911	Prunus serotina	Black cherry	4.8			Fair				X	
3912	Ulmus americana	American Elm	7.5			Fair				X	
3913	Acer rubrum	Red Maple	10.8			Fair				X	
3914	Sassafras albidum	Sassafras	5.1			Fair				X	
3915	Ulmus americana	American Elm	5.8			Fair				X	
3916	Prunus serotina	Black Cherry	5.7			Fair				X	
3917	Acer rubrum	Red Maple	9.2			Fair				X	
3918	Acer rubrum	Red Maple	11.8			Fair				X	
3919	Acer rubrum	Red Maple	16.6	8.2		Fair				X	
3920	Prunus serotina	Black Cherry	5.6			Fair				X	
3921	Sassafras albidum	Sassafras	5.9			Fair				X	
3922	Sassafras albidum	Sassafras	6.8			Fair				X	
3923	Prunus serotina	Black Cherry	7.4			Fair				X	
3924	Sassafras albidum	Sassafras	8.2			Fair				X	
3925	Prunus serotina	Black Cherry	7.5			Fair				X	
3926	Sassafras albidum	Sassafras	6.5			Fair				X	
3927	Ulmus americana	American Elm	14.4			Fair				X	
3928	Acer negundo	Boxelder	5.7	5.4		Fair				X	
3929	Acer rubrum	Red Maple	5			Fair			X		
3930	Prunus serotina	Black Cherry	7.5			Fair				X	
3931	Acer rubrum	Red Maple	6.6	5.7		Fair				X	
3932	Prunus serotina	Black Cherry	6.2			Fair			X		
3933	Acer rubrum	Red Maple	11.1			Fair				X	
3934	Acer rubrum	Red Maple	12.2			Fair				X	
3935	Acer rubrum	Red Maple	11.7			Fair				X	
3936	Tilia americana	Basswood	12.9			Fair				X	
3937	Prunus serotina	Black Cherry	6.7			Fair				X	
3938	Acer rubrum	Red Maple	9.4			Fair				X	
3939	Ulmus americana	American Elm	9			Fair				X	
3940	Prunus serotina	Black Cherry	10.5			Fair				X	
3941	Acer rubrum	Red Maple	6.4			Fair				X	
3942	Quercus velutina	Black Oak	12.3			Fair				X	
3943	Acer rubrum	Red Maple	6			Fair				X	
3944	Quercus alba	White Oak	4			Fair				X	
3945	Prunus serotina	Black Cherry	7.8			Fair				X	
3946	Acer rubrum	Red Maple	6.2			Fair				X	
3947	Prunus serotina	Black Cherry	5			Fair				X	
3948	Sassafras albidum	Sassafras	6.3			Fair			X		
3949	Acer rubrum	Red Maple	4			Fair			X		
3950	Sassafras albidum	Sassafras	4.7			Fair				X	
3951	Sassafras albidum	Sassafras	7.2			Fair			X		
3952	Sassafras albidum	Sassafras	4.3			Fair			X		
3953	Sassafras albidum	Sassafras	4.9			Fair			X		
3954	Sassafras albidum	Sassafras	5.6			Fair				X	
3955	Sassafras albidum	Sassafras	6.3			Fair			X		
3956	Sassafras albidum	Sassafras	5.8			Fair			X		
3957	Sassafras albidum	Sassafras	5.2			Fair			X		
3958	Sassafras albidum	Sassafras	5.9	5.2	5	Fair			X		
3959	Sassafras albidum	Sassafras	4.9			Fair			X		
3960	Sassafras albidum	Sassafras	4.3			Fair			X		
3961	Prunus serotina	Black Cherry	6.3	5.6	4	Fair			X		
3962	Acer rubrum	Red Maple	5.2			Fair				X	
3963	Prunus serotina	Black Cherry	12.5			Fair				X	
3964	Acer rubrum	Red Maple	4.1			Fair				X	
3965	Sassafras albidum	Sassafras	4.5			Fair				X	
3966	Sassafras albidum	Sassafras	5.4			Fair				X	
3967	Acer rubrum	Red Maple	14.6			Fair				X	
3968	Sassafras albidum	Sassafras	5.4			Fair				X	
3969	Sassafras albidum	Sassafras	5.1			Fair				X	
3970	Sassafras albidum	Sassafras	4.1			Fair				X	
3971	Sassafras albidum	Sassafras	4.6			Fair				X	
3972	Sassafras albidum	Sassafras	4.4			Fair				X	
3973	Sassafras albidum	Sassafras	4.9			Fair				X	
3974	Prunus serotina	Black Cherry	5.7			Fair			X		
3975	Sassafras albidum	Sassafras	12.6			Fair			X		
3976	Acer rubrum	Red Maple	5.4			Fair			X		
3977	Sassafras albidum	Sassafras	5.4			Fair			X		
3978	Sassafras albidum	Sassafras	4.4			Fair			X		
3979	Sassafras albidum	Sassafras	5			Fair			X		
3980	Sassafras albidum	Sassafras	4.8			Fair			X		
3981	Prunus serotina	Black Cherry	4.5			Fair			X		
3982	Sassafras albidum	Sassafras	4.2			Fair			X		
3983	Acer rubrum	Red Maple	17.7	5.5		Fair			X		
3984	Acer rubrum	Red Maple	5.4	4		Fair			X		
3985	Acer rubrum	Red Maple	5.2			Fair			X		
3986	Acer rubrum	Red Maple	6.4			Fair			X		
3987	Sassafras albidum	Sassafras	4.8			Fair			X		
3988	Prunus serotina	Black Cherry	4.6			Fair			X		
3989	Sassafras albidum	Sassafras	4.9			Fair			X		
3990	Sassafras albidum	Sassafras	5.5			Fair			X		
3991	Sassafras albidum	Sassafras	5.2			Fair				X	
3992	Sassafras albidum	Sassafras	5.9			Fair				X	
3993	Prunus avium	Sweet Cherry	4.9			Fair				X	
3994	Sassafras albidum	Sassafras	4.6			Fair				X	
3995	Sassafras albidum	Sassafras	4.6			Fair				X	
3996	Acer rubrum	Red Maple	6.5			Fair			X		
3997	Sassafras albidum	Sassafras	5			Fair			X		
3998	Prunus serotina	Black Cherry	5.1			Fair				X	
3999	Prunus serotina	Black Cherry	7.5			Fair				X	
4000	Acer rubrum	Red Maple	6.5	6.4		Fair				X	
4001	Sassafras albidum	Sassafras	5.2	5.3		Fair				X	
4002	Sassafras albidum	Sassafras	4.8	4.6		Fair				X	
4003	Prunus serotina	Black Cherry	5.7	5.3		Fair				X	
4004	Acer rubrum	Red Maple	4.5			Fair				X	
4005	Acer rubrum	Red Maple	13.2	8.8		Fair				X	
4006	Sassafras albidum	Sassafras	4.6			Fair				X	
4007	Sassafras albidum	Sassafras	5.3			Fair				X	
4008	Sassafras albidum	Sassafras	4.9			Fair				X	
4009	Sassafras albidum	Sassafras	5.4			Fair				X	
4010	Acer rubrum	Red Maple	5.7			Fair				X	
4011	Prunus serotina	Black Cherry	7.4			Fair				X	
4012	Acer rubrum	Red Maple	12.5			Fair			X		
4013	Acer rubrum	Red Maple	5.4			Fair				X	
4014	Sassafras albidum	Sassafras	6.1			Fair				X	
4015	Sassafras albidum	Sassafras	6			Fair				X	
4016	Prunus serotina	Black Cherry	4.5			Fair				X	
4017	Sassafras albidum	Sassafras	4.6			Fair				X	
4018	Sassafras albidum	Sassafras	4.7			Fair				X	
4019	Sassafras albidum	Sassafras	4.2			Fair				X	
4020	Acer rubrum	Red Maple	21.8			Poor			X		
4021	Acer rubrum	Red Maple	5.8	4.1		Fair			X		
4022	Acer rubrum	Red Maple	7.2			Fair				X	
4023	Prunus serotina	Black Cherry	4.7			Fair				X	
4024	Prunus serotina	Black Cherry	5.8			Fair			X		
4025	Sassafras albidum	Sassafras	5.5			Fair			X		
4026	Acer rubrum	Red Maple	19.8			Fair				X	
4027	Acer rubrum	Red Maple	7.7			Fair			X		
4028	Sassafras albidum	Sassafras	4.2			Fair				X	
4029	Prunus serotina	Black Cherry	10.7			Fair				X	
4030	Sassafras albidum	Sassafras	5.7			Fair				X	
4031	Sassafras albidum	Sassafras	4.2			Fair			X		
4032	Sassafras albidum	Sassafras	5.2			Fair				X	
4033	Prunus serotina	Black Cherry	5.3			Fair				X	
4034	Quercus velutina	Black Oak	6.8	5.2		Fair				X	
4035	Sassafras albidum	Sassafras	4.4			Fair				X	
4036	Prunus serotina	Black Cherry	7.9			Fair				X	
4037	Quercus alba	White Oak	9			Fair				X	
4038	Sassafras albidum	Sassafras	5.7			Poor				X	
4039	Prunus serotina	Black Cherry	4.2			Fair				X	
4040	Acer saccharinum	Silver Maple	5.5			Fair				X	
4041	Prunus serotina	Black Cherry	5			Poor				X	
4042	Prunus serotina	Black Cherry	5.9			Fair				X	
4043	Prunus serotina	Black Cherry	4			Fair				X	
4044	Quercus velutina	Black Oak	6.5			Fair				X	
4045	Prunus serotina	Black Cherry	6.7	5.5		Fair				X	
4046	Quercus alba	White Oak	5			Fair				X	
4047	Sassafras albidum	Sassafras	5.5			Fair				X	
4048	Prunus serotina	Black Cherry	5.5	4.2		Fair				X	
4049	Prunus serotina	Black Cherry	7			Fair				X	
4050	Prunus serotina	Black Cherry	4.3			Fair				X	
4051	Sassafras albidum	Sassafras	5.3			Fair				X	
4052	Acer rubrum	Red Maple	4			Fair				X	
4053	Acer rubrum	Red Maple	4.9	4.4		Fair			X		
4054	Sassafras albidum	Sassafras	4.8			Fair				X	
4055	Sassafras albidum	Sassafras	4			Fair				X	
4056	Acer rubrum	Red Maple	5.1	4.4		Fair			X		
4057	Acer rubrum	Red Maple	4.1			Very Poor				X	
4058	Acer rubrum	Red Maple	4.3			Fair				X	
4059	Sassafras albidum	Sassafras	5.4			Fair			X		
4060	Prunus serotina	Black Cherry	7			Fair				X	
4061	Prunus serotina	Black Cherry	5.9			Fair				X	
4062	Prunus serotina	Black Cherry	5.2			Fair				X	
4063	Acer rubrum	Red Maple	5.3			Fair				X	
4064	Sassafras albidum	Sassafras	6			Fair			X		
4065	Sassafras albidum	Sassafras	5.5			Fair				X	
4066	Acer rubrum	Red Maple	5.3	4.2		Fair				X	
4067	Sassafras albidum	Sassafras	5.7			Fair				X	
4068	Acer rubrum	Red Maple	5.9			Fair				X	
4069	Acer rubrum	Red Maple	6.2			Fair				X	
4070	Sassafras albidum	Sassafras	5.2			Fair				X	
4071	Sassafras albidum	Sassafras	5.1			Fair				X	
4072	Acer rubrum	Red Maple	13.2			Fair				X	
4073	Prunus serotina	Black Cherry	5.3			Fair				X	
4074	Prunus serotina	Black Cherry	5.4			Fair				X	
4075	Sassafras albidum	Sassafras	5.5	4.9		Fair				X	
4076	Sassafras albidum	Sassafras	5.2			Fair				X	
4077	Prunus serotina	Black Cherry	4.5			Fair				X	
4078	Prunus serotina	Black Cherry	7.3			Fair				X	
4079	Sassafras albidum	Sassafras	4.4			Fair				X	
4080	Acer rubrum	Red Maple	6.5			Fair				X	
4081	Prunus serotina	Black Cherry	7.1			Fair				X	
4082	Prunus serotina	Black Cherry	4.8			Fair				X	
4083	Prunus serotina	Black Cherry	4.8			Fair				X	
4084	Sassafras albidum	Sassafras	5			Fair				X	
4085	Prunus serotina	Black Cherry	6.2	5		Fair				X	
4086	Sassafras albidum	Sassafras	4			Fair				X	
4087	Sassafras albidum	Sassafras	4.4			Fair				X	
4088	Prunus serotina	Black Cherry	7.4			Fair				X	
4089	Sassafras albidum	Sassafras	4.6			Fair				X	
4090	Prunus serotina	Black Cherry	4.7			Fair				X	
4091	Prunus serotina	Black Cherry	7.3			Fair				X	
4092	Sassafras albidum	Sassafras	4.5			Fair				X	
4093	Prunus serotina	Black Cherry	6.8	4.6		Fair			X		
4094	Prunus serotina	Black Cherry	5.1	5.5		Fair			X		
4095	Sassafras albidum	Sassafras	5.4	4.9		Fair				X	
4096	Sassafras albidum	Sassafras	4.8			Fair				X	
4097	Sassafras albidum	Sassafras	4.9			Fair				X	
4098	Prunus serotina	Black Cherry	10.3			Fair				X	
4099	Acer rubrum	Red Maple	10.4			Fair				X	
4100	Sassafras albidum	Sassafras	4.5			Fair				X	
4101	Sassafras albidum	Sassafras	5			Fair				X	
4102	Acer rubrum	Red Maple	17.6	5.4		Fair				X	
4103	Fraxinus americana	White Ash	6.6			Fair				X	
4104	Sassafras albidum	Sassafras	5.6			Fair				X	
4105	Quercus alba	White Oak	14.5			Fair				X	
4106	Quercus velutina	Black Oak	10.2			Fair				X	
4107	Quercus alba	White Oak	10.2			Fair				X	
4108	Acer rubrum	Red Maple	20.7			Fair				X	
4109	Prunus serotina	Black Cherry	4.6			Fair				X	
4110	Prunus serotina	Black Cherry	5.2			Fair				X	
4111	Acer rubrum	Red Maple	9.3			Fair				X	
4112	Acer rubrum	Red Maple	11.7			Fair				X	
4113	Sassafras albidum	Sassafras	5			Fair				X	
4114	Prunus serotina	Black Cherry	5.9			Fair				X	
4115	Prunus serotina	Black Cherry	9.7	5.1		Fair				X	
4116	Acer rubrum	Red Maple	9.3			Fair				X	
4117	Sassafras albidum	Sassafras	6.7			Fair			X		
4118	Sassafras albidum	Sassafras	5.7			Fair				X	
4119	Sassafras albidum	Sassafras	6.2			Fair			X		
4120	Sassafras albidum	Sassafras	6.7			Fair			X		
4121	Prunus serotina	Black Cherry	6.8			Fair			X		
4122	Sassafras albidum	Sassafras	4.3			Fair				X	
4123	Sassafras albidum	Sassafras	4.4			Fair			X		
4124	Prunus serotina	Black Cherry	5			Fair			X		
4125	Sassafras albidum	Sassafras	4.3			Fair			X		
4126	Sassafras albidum	Sassafras	8.1			Fair			X		
4127	Prunus serotina	Black Cherry	4.5			Fair			X		
4128	Acer rubrum	Red Maple	9			Fair			X		
4129	Acer rubrum	Red Maple	8.3	7.6	7.2	Fair			X		
4130	Acer rubrum	Red Maple	14.2			Fair			X		
4131	Acer rubrum	Red Maple	4.6			Fair				X	
4132	Acer rubrum	Red Maple	5.4			Fair				X	
4133	Acer rubrum	Red Maple	4.3			Fair				X	
4134	Acer rubrum	Red Maple	12.4			Fair				X	
4135	Prunus serotina	Black Cherry	6			Fair				X	
4136	Acer rubrum	Red Maple	4.3			Fair				X	
4137	Prunus serotina	Black Cherry	6.3			Fair				X	
4138	Acer rubrum	Red Maple	9.4			Fair				X	
4139	Prunus serotina	Black Cherry	4.6			Fair				X	
4140	Acer rubrum	Red Maple	6			Fair				X	
4141	Prunus serotina	Black Cherry	4.4	4.4		Fair				X	
4142	Acer rubrum	Red Maple	4.5			Fair				X	
4143	Acer rubrum	Red Maple	4.7			Fair				X	
4144	Acer rubrum	Red Maple	18.1	10.3		Fair				X	
4145	Ulmus americana	American Elm	9.8			Fair				X	
4146	Prunus avium	Sweet Cherry	7.4			Fair				X	
4147	Sassafras albidum	Sassafras	4.4			Fair			X		
4148	Prunus serotina	Black Cherry	4.3			Fair				X	
4149	Sassafras albidum	Sassafras	4.3			Fair				X	
4150	Acer rubrum	Red Maple	5			Fair				X	
4151	Sassafras albidum	Sassafras	4			Fair				X	
4152	Sassafras albidum	Sassafras	4.2			Fair				X	
4153	Prunus serotina	Black Cherry	6	5.6		Fair				X	
4154	Acer rubrum	Red Maple	5			Fair				X	
4155	Prunus serotina	Black Cherry	6.3			Fair				X	
4156	Prunus serotina	Black Cherry	7.7			Fair				X	
4157	Prunus serotina	Black Cherry	7.4	6.9		Fair				X	
4158	Prunus serotina	Black Cherry	7.6			Fair			X		
4159	Acer rubrum	Red Maple	13			Fair				X	
4160	Acer rubrum	Red Maple	12.9			Fair				X	
4161	Acer rubrum	Red Maple	12.9			Fair			X		
4162	Acer rubrum	Red Maple	8.5			Fair			X		
4163	Populus tremuloides	Quaking Aspen	5.6	5.5	5.5	Fair			X		
4164	Acer rubrum	Red Maple	5.9			Fair			X		
4165	Acer rubrum	Red Maple	7.5			Fair				X	
4166	Acer rubrum	Red Maple	8.4			Fair			X		
4167	Prunus serotina	Black Cherry	8.2			Fair				X	
4168	Acer rubrum	Red Maple	4.4			Fair				X	
4169	Acer rubrum	Red Maple	7			Fair			X		
4170	Prunus serotina	Black Cherry	6.8			Fair			X		
4171	Acer rubrum	Red Maple	9.7			Fair			X		
4172	Sassafras albidum	Sassafras	9.5			Fair			X		
4173	Prunus serotina	Black Cherry	6.2			Fair				X	
4174	Acer rubrum	Red Maple	8.5			Fair			X		
4175	Prunus serotina	Black Cherry	4.2			Fair			X		
4176	Prunus serotina	Black Cherry	4.3			Fair			X		
4177	Prunus serotina	Black Cherry	8.1			Fair				X	
4178	Prunus serotina	Black Cherry	5.2			Fair				X	
4179	Acer rubrum	Red Maple	9.9			Fair				X	
4180	Prunus serotina	Black Cherry	9.4			Fair				X	
4181	Acer rubrum	Red Maple	7.1			Fair			X		
4182	Prunus serotina	Black Cherry	6.5			Fair				X	
4183	Prunus serotina	Black Cherry	5.4			Fair				X	
4184	Sassafras albidum	Sassafras	4.8			Fair			X		
4185	Prunus serotina	Black Cherry	4.5			Fair				X	
4186	Sassafras albidum	Sassafras	4.8			Fair			X		
4187	Acer rubrum	Red Maple	7	6		Fair				X	
4188	Acer rubrum	Red Maple	7.7	7.3	6.5	Fair				X	
4189	Prunus serotina	Black Cherry	9.8			Fair				X	
4190	Acer rubrum	Red Maple	9			Fair				X	
4191	Prunus serotina	Black Cherry	4.2			Fair				X	
4192	Prunus serotina	Black Cherry	4.5			Fair				X	
4193	Acer rubrum	Red Maple	8.9	4.2		Fair				X	
4194	Ailanthus altissima	Tree of Heaven	8.3			Fair				X	
4195	Sassafras albidum	Sassafras	4.4			Fair				X	
4196	Sassafras albidum	Sassafras	4.5			Fair				X	
4197	Sassafras albidum	Sassafras	4			Fair			X		
4198	Sassafras albidum	Sassafras	8.4			Fair				X	
4199	Prunus serotina	Black Cherry	7.4			Fair			X		
4200	Prunus serotina	Black Cherry	6.2			Fair				X	
4201	Sassafras albidum	Sassafras	5.7			Fair				X	
4202	Prunus serotina	Black Cherry	11.8			Fair				X	
4203	Prunus serotina	Black Cherry	8.8			Fair				X	
4204	Tilia americana	Basswood	4.5			Fair				X	
4205	Acer rubrum	Red Maple	7.1			Fair				X	
4206	Acer rubrum	Red Maple	11.4			Fair				X	
4207	Ulmus americana	American Elm	4.9			Fair				X	
4208	Acer rubrum	Red Maple	13.2			Fair				X	
4209	Prunus serotina	Black Cherry	5.7			Fair				X	
4210	Prunus serotina	Black Cherry	5.5	4.4		Fair				X	
4211	Populus grandidentata	Bigtooth Aspen	4.7			Fair				X	
4212	Acer rubrum	Red Maple	9.4			Fair				X	
4213	Populus grandidentata	Bigtooth Aspen	8.1			Fair				X	
4214	Sassafras albidum	Sassafras	4.7			Fair				X	
4215	Prunus serotina	Black Cherry	5.3			Fair			X		
4216	Sassafras albidum	Sassafras	9.3			Fair			X		
4217	Sassafras albidum	Sassafras	6.5			Fair			X		
4218	Sassafras albidum	Sassafras	10.8			Fair			X		
4219	Prunus serotina	Black Cherry	4.4			Fair			X		
4220	Sassafras albidum	Sassafras	6.8			Fair			X		
4221	Prunus serotina	Black Cherry	4.1			Fair			X		
4222	Prunus serotina	Black Cherry	5.3			Fair			X		
4223	Acer rubrum	Red Maple	15.2			Fair			X		
4224	Acer rubrum	Red Maple	12.5			Fair			X		
4225	Acer rubrum	Red Maple	4.1			Fair			X		
4226	Acer rubrum	Red Maple	13.6			Fair			X		
4227	Acer rubrum	Red Maple	12.1	8.1		Fair			X		
4228	Prunus avium	Sweet Cherry	9.9			Fair			X		
4229	Prunus serotina	Black Cherry	6.4			Fair			X		
4230	Prunus avium	Sweet Cherry	7.4	6.4		Fair			X		
4231	Prunus serotina	Black Cherry	9.3			Fair			X		
4232	Sassafras albidum	Sassafras	6.4			Fair			X		
4233	Acer rubrum	Red Maple	10.8			Fair				X	
4234	Acer rubrum	Red Maple	15.8			Fair			X		
4235	Acer rubrum	Red Maple	4.3			Fair				X	
4236	Prunus serotina	Black Cherry	4.2	4.1		Fair			X		
4237	Acer rubrum	Red Maple	4.6	4.1		Fair			X		
4238	Prunus serotina	Black Cherry	4.3			Fair			X		
4239	Prunus serotina	Black Cherry	5.3			Fair				X	
4240	Sassafras albidum	Sassafras	4.8			Fair				X	
4241	Quercus rubra	Red Oak	5.7			Fair			X		
4242	Acer rubrum	Red Maple	7.2			Fair			X		
4243	Prunus serotina	Black Cherry	6.6			Fair			X		
4244	Prunus serotina	Black Cherry	5.3			Fair			X		
4245	Prunus serotina	Black Cherry	4.6			Fair			X		
4246	Prunus serotina	Black Cherry	6.4			Fair			X		
4247	Prunus serotina	Black Cherry	4.4			Fair			X		
4248	Acer rubrum	Red Maple	5.9			Fair			X		
4249	Prunus serotina	Black Cherry	4.7			Fair			X		
4250	Prunus serotina	Black Cherry	4.5	4		Fair			X		
4251	Prunus serotina	Black Cherry	7.6			Fair			X		
4252	Acer rubrum	Red Maple	4.7			Fair			X		
4253	Prunus serotina	Black Cherry	4.5			Fair			X		
4254	Sassafras albidum	Sassafras	4.6			Fair			X		
4255	Acer rubrum	Red Maple	6			Fair			X		
4256	Acer rubrum	Red Maple	14.3			Fair			X		
4257	Prunus serotina	Black Cherry	5.1			Fair			X		
4258	Acer rubrum	Red Maple	6.4			Fair				X	
4259	Acer rubrum	Red Maple	4.3			Fair				X	
4260	Acer rubrum	Red Maple	7.3			Fair				X	
4261	Prunus serotina	Black Cherry	10.4			Fair				X	
4262	Acer rubrum	Red Maple	9.3			Fair				X	
4263	Prunus serotina	Black Cherry	8.8			Fair			X		
4264	Prunus serotina	Black Cherry	5.6			Fair				X	
4265	Acer rubrum	Red Maple	4.2			Fair				X	
4266	Prunus serotina	Black Cherry	8.8			Fair				X	
4267	Prunus serotina	Black Cherry	4.6	4.6		Fair				X	
4268	Acer rubrum	Red Maple	5.8	4.5		Fair				X	
4269	Prunus serotina	Black Cherry	5.2			Fair				X	
4270	Prunus serotina	Black Cherry	4.5			Fair				X	
4271	Prunus serotina	Black Cherry	5.6			Fair				X	
4272	Acer rubrum	Red Maple	4.3			Fair				X	
4273	Prunus serotina	Black Cherry	7.9			Fair			X		
4274	Prunus serotina	Black Cherry	5.8			Fair			X		
4275	Acer rubrum	Red Maple	4.8			Fair			X		
4276	Prunus serotina	Black Cherry	5.9			Fair			X		
4277	Prunus serotina	Black Cherry	6.8			Fair			X		
4278	Prunus serotina	Black Cherry	5.6			Fair			X		
4279	Prunus serotina	Black Cherry	4.6			Fair			X		
4280	Acer rubrum	Red Maple	7.2			Fair			X		
4281	Acer rubrum	Red Maple	5.1			Fair			X		
4282	Acer rubrum	Red Maple	5.9			Fair			X		
4283	Prunus serotina	Black Cherry	4.5			Fair			X		
4284	Quercus alba	White Oak	8.9			Fair			X		
4285	Prunus avium	Sweet Cherry	5.1			Fair			X		
4286	Prunus serotina	Black Cherry	6.9			Fair			X		
4287	Acer rubrum	Red Maple	5.5			Fair			X		
4288	Acer rubrum	Red Maple	12.6	7		Fair				X	
4289	Prunus avium	Sweet Cherry	12.3			Fair				X	
4290	Prunus avium	Sweet Cherry	8.8			Fair				X	
4291	Acer rubrum	Red Maple	9.1			Fair			X		
4292	Prunus serotina	Black Cherry	6			Fair			X		
4293	Prunus serotina	Black Cherry	7.5			Fair				X	
4294	Prunus serotina	Black Cherry	4.6			Fair				X	
4295	Prunus serotina	Black Cherry	5.1			Fair				X	
4296	Acer rubrum	Red Maple	11.3			Fair				X	
4297	Prunus serotina	Black Cherry	4.9			Fair				X	
4298	Acer rubrum	Red Maple	5.3			Fair				X	
4299	DROPPED								X		
4300	Prunus serotina	Black Cherry	4.2			Fair			X		
4301	Prunus serotina	Black Cherry	5.2			Fair			X		
4302	Acer rubrum	Red Maple	4.6			Fair			X		
4303	Acer rubrum	Red Maple	4			Fair			X		
4304	Acer rubrum	Red Maple	5.7	4.6		Fair			X		
4305	Acer rubrum	Red Maple	8			Fair			X		
4306	Prunus serotina	Black Cherry	4.2			Fair			X		
4307	Acer rubrum	Red Maple	8.3			Fair				X	
4308	Acer rubrum	Red Maple	9.4	5.7		Fair				X	
4309	Acer rubrum	Red Maple	5.4			Fair				X	
4310	Acer rubrum	Red Maple	16.4			Fair				X	
4311	Acer rubrum	Red Maple	16.6			Fair				X	
4312	Acer rubrum	Red Maple	13.6			Fair				X	
4313	Acer rubrum	Red Maple	5.7			Fair			X		
4314	Sassafras albidum	Sassafras	5.1			Fair			X		
4315	Acer rubrum	Red Maple	16.6			Fair				X	
4316	Sassafras albidum	Sassafras	5			Fair				X	
4317	Sassafras albidum	Sassafras	4.2			Fair				X	
4318	Sassafras albidum	Sassafras	5.4			Fair				X	
4319	Sassafras albidum	Sassafras	5.2			Fair				X	
4320	Prunus serotina	Black Cherry	10.6			Fair				X	
4321	Sassafras albidum	Sassafras	6.2			Fair				X	
4322	Sassafras albidum	Sassafras	6.3			Fair				X	
4323	Prunus serotina	Black Cherry	6			Fair			X		
4324	Sassafras albidum	Sassafras	5.1			Fair				X	
4325	Ulmus americana	American Elm	7.3			Fair				X	
4326	Sassafras albidum	Sassafras	17.7			Fair	X				
4327	Prunus serotina	Black Cherry	8.5			Fair				X	
4328	Tilia americana	Basswood	7.5	4.8		Fair				X	
4329	Sassafras albidum	Sassafras	6			Fair				X	
4330	Acer rubrum	Red Maple	8.9			Fair				X	
4331	Acer rubrum	Red Maple	11.4			Fair			X		
4332	Acer rubrum	Red Maple	11.4	7		Fair			X		
4333	Prunus serotina	Black Cherry	5.3			Fair				X	
4334	Acer rubrum	Red Maple	5.2			Fair				X	
4335	Acer rubrum	Red Maple	10.2			Fair				X	
4336	Acer rubrum	Red Maple	9.8			Fair				X	
4337	Sassafras albidum	Sassafras	7.1			Fair				X	
4338	Acer rubrum	Red Maple	14.1			Fair				X	
4339	Ulmus americana	American Elm	4.3			Fair				X	
4340	Acer rubrum	Red Maple	4.1			Fair				X	
4341	Populus grandidentata	Bigtooth Aspen	9.8			Fair			X		
4342	Acer rubrum	Red Maple	5.5	5.3		Fair				X	
4343	Acer rubrum	Red Maple	6.4			Fair				X	
4344	Sassafras albidum	Sassafras	5.8			Fair				X	
4345	Sassafras albidum	Sassafras	4.6			Fair				X	
4346	Prunus serotina	Black Cherry	5.4	4.4		Fair				X	
4347	Sassafras albidum	Sassafras	5.2			Fair			X		
4348	Sassafras albidum	Sassafras	5			Fair				X	
4349	Prunus serotina	Black Cherry	5.3			Fair				X	
4350	Prunus serotina	Black Cherry	5.5			Fair				X	
4351	Sassafras albidum	Sassafras	7.4			Fair				X	
4352	Sassafras albidum	Sassafras	6.6			Fair				X	
4353	Sassafras albidum	Sassafras	6.9			Fair				X	
4354	Acer rubrum	Red Maple	5.7	5.2		Fair				X	

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 539

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:
JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE: NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
09_Tree--12/16/2022 8:14:32 AM

SHEET NO.
9

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
4355	Sassafras albidum	Sassafras	10.9			Fair				X	
4356	Acer rubrum	Red Maple	4			Fair				X	
4357	Acer rubrum	Red Maple	13.9			Fair				X	
4358	Sassafras albidum	Sassafras	4.2			Fair				X	
4359	Quercus alba	White Oak	11.3			Fair				X	
4360	Acer rubrum	Red Maple	7.3			Fair				X	
4361	Acer rubrum	Red Maple	4.1			Fair				X	
4362	Acer rubrum	Red Maple	4.1			Fair				X	
4363	Sassafras albidum	Sassafras	12			Fair				X	
4364	Acer rubrum	Red Maple	11.6	10.9		Fair				X	
4365	Sassafras albidum	Sassafras	5.3			Fair				X	
4366	Sassafras albidum	Sassafras	4.6			Fair				X	
4367	Acer rubrum	Red Maple	7			Fair				X	
4368	Acer rubrum	Red Maple	7.2			Fair				X	
4369	Prunus serotina	Black Cherry	8.5			Fair				X	
4370	Acer rubrum	Red Maple	10.5			Fair				X	
4371	Prunus serotina	Black Cherry	5.6			Fair				X	
4373	Acer platanoides	Norway Maple	11.2			Fair			X		
4374	Acer platanoides	Norway Maple	15.4			Fair			X		
4375	Acer rubrum	Red Maple	12.6			Fair				X	
4376	Prunus serotina	Black Cherry	6.8			Fair				X	
4377	Acer negundo	Boxelder	5.3			Fair				X	
4378	Acer negundo	Boxelder	6.3			Fair				X	
4379	Prunus serotina	Black Cherry	4.6			Fair				X	
4380	Acer rubrum	Red Maple	7.9			Fair				X	
4381	Prunus serotina	Black Cherry	4.9			Fair				X	
4382	Prunus serotina	Black Cherry	8.5			Fair				X	
4383	Prunus serotina	Black Cherry	5.8			Fair				X	
4384	Acer negundo	Boxelder	4.8			Fair				X	
4385	Prunus serotina	Black Cherry	9.2			Fair				X	
4386	Acer negundo	Boxelder	4.7			Fair				X	
4387	Pyrus communis	Common Pear	8.9			Fair				X	
4388	Acer rubrum	Red Maple	5.4			Fair				X	
4389	Ulmus americana	American Elm	12.7			Fair				X	
4390	Prunus serotina	Black Cherry	6.3			Fair				X	
4391	Acer platanoides	Norway Maple	15.9			Fair				X	
4392	Prunus serotina	Black Cherry	4.1			Fair				X	
4393	Acer negundo	Boxelder	4.2			Fair				X	
4394	Acer rubrum	Red Maple	5.9			Fair				X	
4395	Prunus serotina	Black Cherry	5.5			Fair				X	
4396	Acer rubrum	Red Maple	4			Fair				X	
4397	Acer rubrum	Red Maple	8.7			Fair				X	
4398	Prunus serotina	Black Cherry	7.2			Fair				X	
4399	Acer rubrum	Red Maple	6.3			Fair				X	
4400	Acer negundo	Boxelder	4.8			Fair				X	
4401	Prunus serotina	Black Cherry	4.7			Fair				X	
4402	Prunus serotina	Black Cherry	4.8			Fair				X	
4403	Carya ovata	Shagbark Hickory	7.4			Fair				X	
4404	Sassafras albidum	Sassafras	4.4			Fair				X	
4405	Acer rubrum	Red Maple	4.9			Fair				X	
4406	Prunus serotina	Black Cherry	6.1			Fair				X	
4407	Prunus serotina	Black Cherry	9.3	5		Fair				X	
4408	Acer rubrum	Red Maple	4.3			Fair				X	
4409	Prunus serotina	Black Cherry	5.2			Fair				X	
4410	Acer rubrum	Red Maple	5.2			Fair				X	
4411	Fraxinus americana	White Ash	8.6			Fair				X	
4412	Sassafras albidum	Sassafras	4.4			Fair			X		
4413	Acer rubrum	Red Maple	6	6.2		Fair				X	
4414	Prunus serotina	Black Cherry	4.3			Fair				X	
4415	Acer rubrum	Red Maple	6.8			Fair				X	
4416	Acer rubrum	Red Maple	6.1			Fair				X	
4417	Prunus serotina	Black Cherry	5.1			Fair				X	
4418	Sassafras albidum	Sassafras	7.9			Fair				X	
4419	Sassafras albidum	Sassafras	5.3			Fair				X	
4420	Sassafras albidum	Sassafras	4.9	4.8	4.3	Fair				X	
4421	Sassafras albidum	Sassafras	6.6			Fair				X	
4422	Sassafras albidum	Sassafras	4.1			Fair				X	
4423	Sassafras albidum	Sassafras	4.3			Fair				X	
4424	Sassafras albidum	Sassafras	5			Fair				X	
4425	Prunus serotina	Black Cherry	5.9			Fair				X	
4426	Sassafras albidum	Sassafras	12.7			Fair				X	
4427	Acer rubrum	Red Maple	17.1	9.1		Fair				X	
4428	Quercus alba	White Oak	12.2			Fair				X	
4429	Acer rubrum	Red Maple	5.5			Fair				X	
4430	Sassafras albidum	Sassafras	4.1			Fair			X		
4431	Juglans nigra	Black Walnut	6.7			Fair			X		
4432	Sassafras albidum	Sassafras	6.5			Fair				X	
4433	Sassafras albidum	Sassafras	4.5			Fair			X		
4434	Prunus serotina	Black Cherry	4.3			Fair				X	
4435	Acer rubrum	Red Maple	4.5			Fair			X		
4436	Prunus serotina	Black Cherry	5.9			Fair			X		
4437	Acer rubrum	Red Maple	5.7	5		Fair				X	
4438	Acer rubrum	Red Maple	7.4			Fair				X	
4439	Prunus serotina	Black Cherry	4.9	4.5		Fair			X		
4440	Sassafras albidum	Sassafras	4.3			Fair			X		
4441	Sassafras albidum	Sassafras	5.1			Fair				X	
4442	Sassafras albidum	Sassafras	4.5			Fair			X		
4443	Sassafras albidum	Sassafras	5.4	5.2		Fair				X	
4444	Sassafras albidum	Sassafras	4.3			Fair				X	
4445	Sassafras albidum	Sassafras	4.5			Fair				X	
4446	Sassafras albidum	Sassafras	6.1			Fair				X	
4447	Prunus serotina	Black Cherry	13.9			Fair			X		
4448	Acer rubrum	Red Maple	5			Fair			X		
4449	Prunus serotina	Black Cherry	6			Fair			X		
4450	Acer rubrum	Red Maple	4.4			Fair			X		
4451	Prunus serotina	Black Cherry	5.6			Fair				X	
4452	Prunus serotina	Black Cherry	9.9			Fair			X		
4453	Acer rubrum	Red Maple	4.1			Fair				X	
4454	Prunus serotina	Black Cherry	8.3			Fair				X	
4455	Acer rubrum	Red Maple	5.3			Fair			X		
4456	Sassafras albidum	Sassafras	5.9			Fair			X		
4457	Sassafras albidum	Sassafras	7.5			Fair				X	
4458	Prunus serotina	Black Cherry	7.3			Fair				X	
4459	Sassafras albidum	Sassafras	6.5			Fair				X	
4460	Sassafras albidum	Sassafras	5.2			Fair				X	
4461	Prunus serotina	Black Cherry	12.9			Fair				X	
4462	Sassafras albidum	Sassafras	8			Fair				X	
4463	Sassafras albidum	Sassafras	11.5			Fair				X	
4464	Sassafras albidum	Sassafras	6.3			Fair				X	
4465	Acer rubrum	Red Maple	21.8			Fair				X	
4466	Sassafras albidum	Sassafras	6.1	4.8	4.8	Fair				X	
4467	Sassafras albidum	Sassafras	6			Fair				X	
4468	Sassafras albidum	Sassafras	5.1	4.7		Fair				X	
4469	Sassafras albidum	Sassafras	6.8			Fair				X	
4470	Prunus serotina	Black Cherry	7.5	7.5	6.6	Fair				X	
4471	Sassafras albidum	Sassafras	4.4			Fair				X	
4472	Sassafras albidum	Sassafras	5.3			Fair				X	
4473	Sassafras albidum	Sassafras	5.2	4.6	4.1	Fair			X		
4474	Prunus serotina	Black Cherry	4.4			Fair			X		
4475	Fraxinus americana	White Ash	6.9			Poor			X		
4476	Sassafras albidum	Sassafras	4.4			Fair			X		
4477	Prunus serotina	Black Cherry	4			Fair				X	
4478	Sassafras albidum	Sassafras	11.8			Fair				X	
4479	Prunus serotina	Black Cherry	8.7			Fair				X	
4480	Acer rubrum	Red Maple	4.3			Fair				X	
4481	Sassafras albidum	Sassafras	6.3			Poor				X	
4482	Sassafras albidum	Sassafras	5.2			Fair				X	
4483	Sassafras albidum	Sassafras	6			Fair				X	
4484	Sassafras albidum	Sassafras	4.4			Fair				X	
4485	Sassafras albidum	Sassafras	14.5			Fair				X	
4486	Prunus serotina	Black Cherry	10.1			Fair				X	
4487	Sassafras albidum	Sassafras	6.3			Poor				X	
4488	Sassafras albidum	Sassafras	6.1			Fair				X	
4489	Prunus serotina	Black Cherry	13.4			Fair				X	
4490	Sassafras albidum	Sassafras	5.1			Fair				X	
4491	Acer rubrum	Red Maple	12.2			Fair				X	
4492	Prunus serotina	Black Cherry	5.7			Fair				X	
4493	Sassafras albidum	Sassafras	15.1			Fair	X				
4494	Sassafras albidum	Sassafras	14.1			Fair				X	
4495	Prunus serotina	Black Cherry	5.9			Fair				X	
4496	Sassafras albidum	Sassafras	5.5			Fair				X	
4497	Sassafras albidum	Sassafras	5.2			Fair				X	
4498	Sassafras albidum	Sassafras	6.5			Fair			X		
4499	Sassafras albidum	Sassafras	8.2			Fair				X	
4500	Sassafras albidum	Sassafras	5.6			Fair				X	
4501	Prunus serotina	Black Cherry	11.1			Fair				X	
4502	Acer rubrum	Red Maple	15			Fair				X	
4503	Prunus serotina	Black Cherry	6.7			Fair			X		
4504	Prunus serotina	Black Cherry	7.7			Fair				X	
4505	Acer rubrum	Red Maple	14.4			Fair				X	
4506	Acer rubrum	Red Maple	5.3			Fair				X	
4507	Acer rubrum	Red Maple	10.7			Fair				X	
4508	Acer rubrum	Red Maple	5.5			Poor				X	
4509	Acer rubrum	Red Maple	5.3			Fair				X	
4510	Prunus serotina	Black Cherry	4.7			Fair				X	
4511	Prunus serotina	Black Cherry	11			Fair				X	
4512	Prunus serotina	Black Cherry	7.7			Fair				X	
4513	Acer rubrum	Red Maple	9			Fair				X	
4514	Prunus serotina	Black Cherry	6.9			Fair				X	
4515	Acer rubrum	Red Maple	4.3			Fair				X	
4516	Acer rubrum	Red Maple	5.3			Fair				X	
4517	Acer rubrum	Red Maple	5.7			Fair				X	
4518	Acer rubrum	Red Maple	16.4			Fair				X	
4519	Prunus serotina	Black Cherry	10.3			Fair				X	
4520	Prunus serotina	Black Cherry	9.8			Fair				X	
4521	Acer rubrum	Red Maple	6.6			Fair				X	
4522	Acer rubrum	Red Maple	4.4			Fair				X	
4523	Acer rubrum	Red Maple	6.7			Fair				X	
4524	Acer negundo	Boxelder	4.8			Fair				X	
4525	Acer rubrum	Red Maple	5.9			Fair				X	
4526	Sassafras albidum	Sassafras	5.3			Fair				X	
4527	Acer rubrum	Red Maple	5.1	4.3		Fair			X		
4528	Prunus serotina	Black Cherry	5.8			Fair				X	
4529	Acer rubrum	Red Maple	7	4.6	4.1	Fair				X	
4530	Ulmus americana	American Elm	7.1			Fair			X		
4531	Prunus serotina	Black Cherry	6.4	5.9		Fair				X	
4532	Acer negundo	Boxelder	6.2			Fair				X	
4533	Prunus serotina	Black Cherry	5.1			Fair				X	
4534	Acer rubrum	Red Maple	5.1			Fair				X	
4535	Acer negundo	Boxelder	5.1			Fair				X	
4536	Prunus serotina	Black Cherry	8.5			Fair				X	
4537	Prunus serotina	Black Cherry	6.2			Fair				X	
4538	Acer rubrum	Red Maple	5.2			Fair				X	
4539	Acer rubrum	Red Maple	16.5	9.4		Fair				X	
4540	Prunus serotina	Black Cherry	10.5			Fair				X	
4541	Prunus serotina	Black Cherry	9.3			Fair				X	
4542	Prunus serotina	Black Cherry	8.3			Fair				X	
4543	Prunus serotina	Black Cherry	5.6			Fair				X	
4544	Ulmus americana	American Elm	12.3			Fair				X	
4545	Prunus serotina	Black Cherry	8.4			Fair				X	
4546	Acer rubrum	Red Maple	12.3			Fair				X	
4547	Acer rubrum	Red Maple	12.5			Fair				X	
4548	Acer rubrum	Red Maple	14			Fair			X		
4549	Acer rubrum	Red Maple	11.6			Fair			X		
4550	Acer rubrum	Red Maple	14.8			Fair				X	
4551	Acer rubrum	Red Maple	13.4			Fair				X	
4552	Acer rubrum	Red Maple	7.1			Fair				X	
4553	Acer rubrum	Red Maple	11.1			Fair				X	
4554	Sassafras albidum	Sassafras	5.2			Fair				X	
4555	Sassafras albidum	Sassafras	5.6			Fair				X	
4556	Sassafras albidum	Sassafras	4.6			Fair				X	
4557	Acer rubrum	Red Maple	5.2			Fair			X		
4558	Prunus serotina	Black Cherry	7.8			Fair				X	
4559	Acer rubrum	Red Maple	18			Fair				X	
4560	Acer rubrum	Red Maple	8.2			Fair				X	
4561	Acer rubrum	Red Maple	9			Fair				X	
4562	Acer rubrum	Red Maple	7.5			Fair				X	
4563	Acer rubrum	Red Maple	16.5			Fair				X	
4564	Acer rubrum	Red Maple	9.1			Fair				X	
4565	Acer rubrum	Red Maple	7.4			Fair				X	
4566	Acer rubrum	Red Maple	7.8			Fair				X	
4567	Ailanthus altissima	Tree of Heaven	6.6			Fair				X	
4568	Acer rubrum	Red Maple	12.9			Fair				X	
4569	Acer rubrum	Red Maple	15.5			Fair				X	
4570	Prunus serotina	Black Cherry	4.8			Fair				X	
4571	Quercus alba	White Oak	15.1			Fair				X	
4572	Acer rubrum	Red Maple	9.5			Fair				X	
4573	Acer rubrum	Red Maple	4.4			Fair				X	
4574	Prunus serotina	Black Cherry	8.3	7.1		Fair				X	
4575	Acer rubrum	Red Maple	15.6			Fair				X	
4576	Prunus serotina	Black Cherry	9.3			Fair				X	
4577	Prunus serotina	Black Cherry	4.5			Fair				X	
4578	Sassafras albidum	Sassafras	9.3			Fair				X	
4579	Acer rubrum	Red Maple	6			Fair				X	
4580	Prunus serotina	Black Cherry	9			Fair				X	
4581	Sassafras albidum	Sassafras	6.2			Fair				X	
4582	Sassafras albidum	Sassafras	5.4			Fair				X	
4583	Prunus serotina	Black Cherry	4.5			Fair				X	
4584	Prunus serotina	Black Cherry	4.4			Fair			X		
4585	Acer rubrum	Red Maple	7.4			Fair				X	
4586	Acer rubrum	Red Maple	6.7			Fair				X	
4587	Sassafras albidum	Sassafras	5.6			Fair				X	
4588	Sassafras albidum	Sassafras	5.6			Fair				X	
4589	Sassafras albidum	Sassafras	4.1			Fair				X	
4590	Sassafras albidum	Sassafras	4.1			Poor				X	
4591	Sassafras albidum	Sassafras	4.1			Fair				X	
4592	Sassafras albidum	Sassafras	5.6			Fair				X	
4593	Acer rubrum	Red Maple	13.9	7.7	5.6	Fair				X	
4594	Prunus serotina	Black Cherry	8.2			Fair				X	
4595	Acer rubrum	Red Maple	8.3			Fair				X	
4596	Prunus serotina	Black Cherry	7.6			Fair				X	
4597	Acer rubrum	Red Maple	4.2	4.2		Fair				X	
4598	Acer rubrum	Red Maple	5.9			Fair			X		
4599	Acer rubrum	Red Maple	5.7			Fair			X		
4600	Acer rubrum	Red Maple	7.8			Fair				X	
4601	Acer rubrum	Red Maple	6.5			Fair			X		
4602	Sassafras albidum	Sassafras	4			Fair				X	
4603	Sassafras albidum	Sassafras	6.8			Fair				X	
4604	Acer rubrum	Red Maple	5.5			Fair				X	
4605	Acer rubrum	Red Maple	5.5			Fair				X	
4606	Acer rubrum	Red Maple	5.4			Fair				X	
4607	Sassafras albidum	Sassafras	5			Fair				X	
4608	Sassafras albidum	Sassafras	5.1			Fair				X	
4609	Sassafras albidum	Sassafras	6.1			Poor				X	
4610	Prunus serotina	Black Cherry	4.7			Fair			X		
4611	Prunus serotina	Black Cherry	5.3			Fair				X	
4612	Prunus serotina	Black Cherry	7.5			Fair				X	
4613	Acer rubrum	Red Maple	12			Fair				X	
4614	Prunus serotina	Black Cherry	9.7			Fair				X	
4615	Acer rubrum	Red Maple	4.9			Fair				X	
4616	Prunus serotina	Black Cherry	7.3			Fair				X	
4617	Acer rubrum	Red Maple	17.2			Fair				X	
4618	Prunus serotina	Black Cherry	6.7			Fair				X	
4619	Prunus serotina	Black Cherry	5			Fair				X	
4620	Acer rubrum	Red Maple	15.7	4.5	4	Fair				X	
4621	Acer rubrum	Red Maple	5.6			Fair				X	
4622	Acer rubrum	Red Maple	5.7	4		Fair				X	
4623	Acer rubrum	Red Maple	6	5		Fair				X	
4624	Acer rubrum	Red Maple	7.7			Fair				X	
4625	Prunus serotina	Black Cherry	6.9			Fair				X	
4626	Prunus serotina	Black Cherry	4.8			Fair				X	
4627	Prunus serotina	Black Cherry	5.1			Fair				X	
4628	Prunus serotina	Black Cherry	4.1			Fair				X	
4629	Acer rubrum	Red Maple	8.9			Fair				X	
4630	Prunus serotina	Black Cherry	6.1	4.7		Fair				X	
4631	Acer rubrum	Red Maple	4.4			Fair				X	
4632	Prunus serotina	Black Cherry	6.8	6.3		Fair				X	
4633	Prunus serotina	Black Cherry	7	4.7		Fair				X	
4634	Acer rubrum	Red Maple	6.2	6.2		Fair				X	
4635	Acer rubrum	Red Maple	4.7			Fair				X	
4636	Prunus serotina	Black Cherry	5			Fair				X	
4637	Sassafras albidum	Sassafras	5.5	4.5		Fair				X	
4638	Prunus serotina	Black Cherry	4.9			Fair				X	
4639	Sassafras albidum	Sassafras	4.9			Fair				X	
4640	Sassafras albidum	Sassafras	4.6			Fair				X	
4641	Sassafras albidum	Sassafras	4.8			Fair				X	
4642	Sassafras albidum	Sassafras	5			Fair			X		
4643	Prunus serotina	Black Cherry	7.3			Fair				X	
4644	Prunus serotina	Black Cherry	6.9			Fair				X	
4645	Acer rubrum	Red Maple	8.6			Fair				X	
4646	Prunus serotina	Black Cherry	7.8			Fair				X	
4647	Sassafras albidum	Sassafras	4			Fair				X	
4648	Sassafras albidum	Sassafras	4.6			Poor				X	
4649	Sassafras albidum	Sassafras	4.5			Fair				X	
4650	Sassafras albidum	Sassafras	6.3			Fair			X		
4651	Acer rubrum	Red Maple	4.8			Fair				X	
4652	Acer rubrum	Red Maple	6.5			Fair				X	
4653	Sassafras albidum	Sassafras	6.2			Fair			X		
4654	Prunus serotina	Black Cherry	10.9			Fair				X	
4655	Acer rubrum	Red Maple	6.8	5.8	4.3	Fair				X	
4656	Prunus serotina	Black Cherry	5.5	5.2		Fair			X		
4657	Sassafras albidum	Sassafras	4.3			Fair			X		
4658	Acer rubrum	Red Maple	7.8			Fair			X		
4659	Sassafras albidum	Sassafras	5.1			Fair				X	
4660	Acer rubrum	Red Maple	11			Fair			X		
4661	Acer rubrum	Red Maple	9.5			Fair			X		
4662	Amelanchier arborea	Serviceberry	4.1			Fair				X	
4663	Prunus serotina	Black Cherry	4.8			Fair			X		
4664	Acer rubrum	Red Maple	4.7			Fair				X	
4665	Sassafras albidum	Sassafras	6.1			Fair			X		
4666	Sassafras albidum	Sassafras	5.3			Fair			X		
4667	Prunus serotina	Black Cherry	4.5			Fair			X		
4668	Sassafras albidum	Sassafras	5.1			Fair				X	
4669	Prunus serotina	Black Cherry	5.5			Fair				X	
4670	Prunus serotina	Black Cherry	5			Fair				X	
4671	Fraxinus americana	White Ash	4.9			Poor			X		
4672	Acer rubrum	Red Maple	4.9			Fair			X		
4673	Sassafras albidum	Sassafras	5.8			Fair				X	
4674	Sassafras albidum	Sassafras	4.3			Fair			X		
4675	Ulmus americana	American Elm	11.7			Fair				X	
4676	Sassafras albidum	Sassafras	4.3			Fair			X		
4677	Acer rubrum	Red Maple	7.4			Fair				X	
4678	Sassafras albidum	Sassafras	5.1	4		Fair				X	
4679	Sassafras albidum	Sassafras	5.1			Fair				X	
4680	Sassafras albidum	Sassafras	5			Fair				X	
4681	Sassafras albidum	Sassafras	5.7			Fair				X	
4682	Sassafras albidum	Sassafras	5.2			Fair				X	
4683	Sassafras albidum	Sassafras	4.5			Fair				X	
4684	Sassafras albidum	Sassafras	5.1			Fair				X	
4685	Sassafras albidum	Sassafras	5.5			Fair				X	
4686	Sassafras albidum	Sassafras	4.8			Fair				X	
4687	Prunus serotina	Black Cherry	4.5			Fair				X	
4688	Sassafras albidum	Sassafras	5			Fair				X	
4689	Sassafras albidum	Sassafras	5.6			Fair				X	
4690	Sassafras albidum	Sassafras	5.8	5.3		Fair				X	
4691	Sassafras albidum	Sassafras	5.7	5.1		Poor				X	
4692	Sassafras albidum	Sassafras	5.9			Fair				X	
4693	Prunus serotina	Black Cherry	11.8			Fair				X	
4694	Prunus serotina	Black Cherry	6.5			Fair				X	
4695	Acer rubrum	Red Maple	5.7	4		Fair				X	
4696	Sassafras albidum	Sassafras	4.5			Fair				X	
4697	Sassafras albidum	Sassafras	6.4			Fair				X	
4698	Prunus serotina	Black Cherry	10.1	6.7		Fair				X	
4699	Acer rubrum	Red Maple	6.1			Fair			X		
4700	Sassafras albidum	Sassafras	5.6			Fair			X		
4701	Prunus serotina	Black Cherry	7			Fair			X		
4702	Acer negundo	Boxelder	4.8			Fair				X	
4703	Prunus serotina	Black Cherry	7.6			Fair				X	
4704	Acer negundo	Boxelder	5.1			Fair				X	
4705	Prunus serotina	Black Cherry	6.4			Fair				X	
4706	Acer rubrum	Red Maple	4.4			Fair			X		
4707	Acer rubrum	Red Maple	4.7			Fair				X	
4708	Acer rubrum	Red Maple	6.6	5.2	4	Fair				X	
4709	Robinia pseudoacacia	Black Locust	6.3			Fair				X	
4710	Prunus serotina	Black Cherry	4			Poor				X	
4711	Acer negundo	Boxelder	5.7			Fair				X	
4712	Prunus serotina	Black Cherry	6.3			Fair				X	
4713	Prunus serotina	Black Cherry	7.8			Fair				X	
4714	Prunus serotina	Black Cherry	6.3			Fair				X	
4715	Prunus serotina	Black Cherry	4.6			Fair				X	
4716	Prunus serotina	Black Cherry	8			Fair				X	
4717	Acer rubrum	Red Maple	6.8			Fair				X	
4718	Acer rubrum	Red Maple	5.1			Fair				X	
4719	Acer rubrum	Red Maple	8.3			Fair				X	
4720	Prunus serotina	Black Cherry	7.3			Fair				X	
4721	Prunus serotina	Black Cherry	5.8			Fair				X	
4722	Acer negundo	Boxelder	7.8	5.4		Fair				X	
4723	Acer negundo	Boxelder	5.7			Fair			X		
4724	Prunus serotina	Black Cherry	4.3			Fair				X	
4725	Acer rubrum	Red Maple	8.7			Fair				X	
4726	Prunus serotina	Black Cherry	5			Fair				X	
4727	Prunus serotina	Black Cherry	4.4			Fair				X	
4728	Prunus serotina	Black Cherry	5.6			Fair				X	
4729	Prunus serotina	Black Cherry	5.4			Fair			X		
4730	Acer negundo	Boxelder	5.8			Fair				X	
4731	Prunus serotina	Black Cherry	4.5			Fair				X	
4732	Acer negundo	Boxelder	5.2	4.1		Fair				X	
4733	Acer rubrum	Red Maple	5.7			Fair				X	
4734	Acer rubrum	Red Maple	14.6			Fair				X	
4735	Acer negundo	Boxelder	4.7			Fair				X	
4736	Prunus serotina	Black Cherry	12.7			Fair				X	
4737	Prunus serotina	Black Cherry	6.4			Fair				X	
4738	Acer negundo	Boxelder	4.6			Fair				X	
4739	Prunus serotina	Black Cherry	8.9			Fair				X	
4740	Acer rubrum	Red Maple	7			Fair				X	
4741	Acer negundo	Boxelder	6.6	4.9		Fair				X	
4742	Acer rubrum	Red Maple	5.1			Fair				X	
4743	Acer rubrum	Red Maple	4.6			Fair				X	
4744	Acer negundo	Boxelder	4.2			Fair				X	
4745	Acer negundo	Boxelder	9.4	4.4		Fair				X	
4746	Acer rubrum	Red Maple	5.7			Fair				X	
4747	Acer rubrum	Red Maple	25.4			Fair	X				
4748	Acer rubrum	Red Maple	9.8			Fair				X	
4749	Acer rubrum	Red Maple	7.3	4.1		Fair				X	
4750	Ulmus americana	American Elm	7.7			Fair				X	
4751	Acer rubrum	Red Maple	14.3			Fair				X	
4752	Acer rubrum	Red Maple	5.9	5		Fair				X	
4753	Acer rubrum	Red Maple	4.1			Fair				X	
4754	Robinia pseudoacacia	Black Locust	4.5			Fair				X	
4755	Prunus serotina	Black Cherry	4.7			Fair				X	
4756	Prunus serotina	Black Cherry	5.4			Fair				X	
4757	Ailanthus altissima	Tree of Heaven	6.6			Fair				X	
4758	Acer rubrum	Red Maple	9.2			Fair				X	
4759	Prunus serotina	Black Cherry	7.3			Fair				X	
4760	Prunus serotina	Black Cherry	6.1			Fair				X	
4761	Prunus serotina	Black Cherry	5.7			Fair			X		
4762	Prunus serotina	Black Cherry	5.8			Fair				X	
4763	Prunus serotina	Black Cherry	8.9			Fair				X	
4764	Sassafras albidum	Sassafras	9.5			Fair				X	
4765	Prunus serotina	Black Cherry	5.6			Fair				X	
4766	Acer rubrum	Red Maple	6.6			Fair				X	
4767	Prunus avium	Sweet Cherry	4.8			Fair				X	
4768	Acer rubrum	Red Maple	7.6			Fair				X	
4769	Acer rubrum	Red Maple	4.2	4		Fair				X	
4770	Acer rubrum	Red Maple	5.5			Fair				X	
4771	Sassafras albidum	Sassafras	5.4			Fair				X	
4772	Prunus serotina	Black Cherry	6			Fair				X	
4773	Prunus serotina	Black Cherry	6.4			Fair				X	
4774	Prunus serotina	Black Cherry	5			Fair				X	
4775	Acer rubrum	Red Maple	4.8	4.8	4.3	Fair				X	
4776	Acer rubrum	Red Maple	6.6			Fair				X	
4777	Acer rubrum	Red Maple	4.7			Fair				X	
4778	Acer rubrum	Red Maple	13.9	7.9		Poor				X	
4779	Sassafras albidum	Sassafras	5.3			Fair				X	
4780	Ulmus americana	American Elm	17.7			Fair				X	
4781	Prunus serotina	Black Cherry	8.3			Poor				X	
4782	Sassafras albidum	Sassafras	5.2			Fair			X		
4783	Sassafras albidum	Sassafras	4.3			Fair				X	
4784	Sassafras albidum	Sassafras	4.2			Fair			X		
4785	Acer rubrum	Red Maple	7.8			Fair				X	
4786	Acer rubrum	Red Maple	12.9			Fair				X	
4787	Prunus serotina	Black Cherry	4.4			Fair				X	
4788	Sassafras albidum	Sassafras	4.8			Fair				X	
4789	Sassafras albidum	Sassafras	11.4			Fair				X	
4790	Sassafras albidum	Sassafras	6.7			Fair			X		
4791	Prunus serotina	Black Cherry	5			Fair			X		
4792	Acer rubrum	Red Maple	5.1	4.5	4.4	Fair			X		
4793	Acer rubrum	Red Maple	5.8	5.7		Fair				X	
4794	Populus grandidentata	Bigtooth Aspen	7.1			Fair				X	
4795	Prunus serotina	Black Cherry	6.3			Fair				X	
4796	Sassafras albidum	Sassafras	4.4			Fair			X		
4797	Acer rubrum	Red Maple	15.8			Fair				X	
4798	Prunus serotina	Black Cherry	9.1			Fair			X		
4799	Sassafras albidum	Sassafras	5.7			Fair			X		
4800	Sassafras albidum	Sassafras	5.5			Fair				X	
4801	Sassafras albidum	Sassafras	7			Fair			X		
4802	Prunus serotina	Black Cherry	8			Fair			X		
4803	Acer rubrum	Red Maple	4.5			Fair			X		
4804	Sassafras albidum	Sassafras	6.8			Fair			X		
4805	Acer rubrum	Red Maple	1.3	4		Fair			X		
4806	Sassafras albidum	Sassafras	5.2			Fair			X		
4807	Sassafras albidum	Sassafras	5.3			Fair			X		
4808	Sassafras albidum	Sassafras	5.2	4		Fair			X		
4809	Ulmus americana	American Elm	12.9			Fair			X		
4810	Sassafras albidum	Sassafras	9.5			Poor			X		
4811	Sassafras albidum	Sassafras	5.1			Fair				X	
4812	Sassafras albidum	Sassafras	4.4			Fair				X	
4813	Prunus serotina	Black Cherry	6.2			Fair				X	
4814	Acer rubrum	Red Maple	13.3			Fair				X	
4815	Acer rubrum	Red Maple	4.9			Fair				X	
4816	Prunus serotina	Black Cherry	5	5		Fair				X	
4817	Acer rubrum	Red Maple	4.3			Fair				X	
4818	Acer rubrum	Red Maple	13.8	4.8		Fair				X	
4819	Sassafras albidum	Sassafras	5.7			Fair				X	
4820	Acer rubrum	Red Maple	4			Fair			X		
4821	Acer rubrum	Red Maple	8.4			Fair			X		
4822	Acer rubrum	Red Maple	5.3			Fair				X	
4823	Acer rubrum	Red Maple	6.3			Fair			X		
4824	Sassafras albidum	Sassafras	5.2			Fair			X		
4825	Acer rubrum	Red Maple	9.4	6.2		Fair			X		
4826	Acer rubrum	Red Maple	21.3	16.6	5.4	Fair			X		
4827	Acer rubrum	Red Maple	6.3			Fair				X	
4828	Prunus serotina	Black Cherry	4.3			Fair				X	
4829	Acer rubrum	Red Maple	9.3			Fair				X	
4830	Prunus serotina	Black Cherry	4.8			Fair			X		
4831	Prunus serotina	Black Cherry	4.3			Fair			X		
4832	Sassafras albidum	Sassafras	4.4			Fair				X	
4833	Sassafras albidum	Sassafras	5.1			Fair			X		
4834	Sassafras albidum	Sassafras	4.4			Fair			X		
4835	Sassafras albidum	Sassafras	4.9			Fair			X		
4836	Sassafras albidum	Sassafras	4.8			Fair			X		
4837	Sassafras albidum	Sassafras	5.8			Fair			X		
4838	Sassafras albidum	Sassafras	4.4			Fair			X		
4839	Sassafras albidum	Sassafras	7.9	9.6		Fair			X		
4840	Acer rubrum	Red Maple	13.5			Fair			X		
4841	Sassafras albidum	Sassafras	10.5			Fair				X	
4842	Acer rubrum	Red Maple	18.1	7.1		Fair				X	
4843	Acer rubrum	Red Maple	15.6			Fair				X	
4844	Fraxinus pennsylvanica	Green Ash	6.3			Fair				X	
4845	Acer rubrum	Red Maple	6.8			Poor			X		
4846	Prunus serotina	Black Cherry	8.8			Fair			X		
4847	Sassafras albidum	Sassafras	7.9			Fair				X	
4848	Acer rubrum	Red Maple	5.4			Fair				X	
4849	Sassafras albidum	Sassafras	5			Fair				X	
4850	Prunus serotina	Black Cherry	6.6			Fair			X		
4851	Morus alba	Common Mulberry	11.8			Fair			X		
4852	Prunus serotina	Black Cherry	6			Fair			X		
4853	Acer rubrum	Red Maple	5.3			Fair			X		
4854	Sassafras albidum	Sassafras	4.1			Fair			X		
4855	Prunus serotina	Black Cherry	9.2			Fair				X	
4856	Acer rubrum	Red Maple	5			Fair			X		
4857	Sassafras albidum	Sassafras	14.1			Fair				X	
4858	Prunus serotina	Black Cherry	5.8			Fair				X	
4859	Prunus serotina	Black Cherry	6.6			Fair				X	
4860	Acer negundo	Boxelder	5.1			Fair				X	
4861	Sassafras albidum	Sassafras	5.4			Fair				X	
4862	Sassafras albidum	Sassafras	5.3			Poor				X	
4863	Acer rubrum	Red Maple	8.1			Fair				X	
4864	Sassafras albidum	Sassafras	9			Fair				X	
4865	Sassafras albidum	Sassafras	4.6			Fair				X	
4866	Sassafras albidum	Sassafras	9			Fair				X	
4867	Sassafras albidum	Sassafras	4.5			Fair				X	
4868	Prunus serotina	Black Cherry	8.3			Fair				X	
4869	Acer rubrum	Red Maple	10.6			Fair				X	
4870	Acer rubrum	Red Maple	12.7	10.8		Fair				X	
4871	Acer rubrum	Red Maple	8.7			Fair				X	
4872	Acer rubrum	Red Maple	6.3			Fair				X	
4873	Prunus serotina	Black Cherry	4.7			Fair			X		
4874	Prunus serotina	Black Cherry	5.9			Fair				X	
4875	Prunus serotina	Black Cherry	5			Fair				X	
4876	Prunus serotina	Black Cherry	4.6			Fair				X	
4877	Sassafras albidum	Sassafras	8.7			Fair			X		
4878	Prunus serotina	Black Cherry	4.3			Fair				X	
4879	Prunus serotina	Black Cherry	4.4			Fair			X		
4880	Sassafras albidum	Sassafras	4.7			Fair				X	
4881	Sassafras albidum	Sassafras	6.1			Fair			X		
4882	Prunus serotina	Black Cherry	5.8			Fair			X		
4883	Sassafras albidum	Sassafras	6.2			Fair			X		
4884	Prunus serotina	Black Cherry	8			Fair				X	
4885	Acer rubrum	Red Maple	4.4			Fair				X	
4886	Acer rubrum	Red Maple	6.7			Fair				X	
4887	Prunus serotina	Black Cherry	4.3			Fair				X	
4888	Sassafras albidum	Sassafras	14.4			Fair				X	
4889	Sassafras albidum	Sassafras	6.6			Fair			X		
4890	Prunus serotina	Black Cherry	6.1			Fair			X		
4891	Acer rubrum	Red Maple	6.1	6	5.5	Fair				X	
4892	Acer rubrum	Red Maple	6.6			Fair				X	
4893	Acer rubrum	Red Maple	4.3			Fair				X	
4894	Sassafras albidum	Sassafras	6.8			Fair			X		
4895	Acer rubrum	Red Maple	4.8			Fair			X		
4896	Prunus serotina	Black Cherry	6.3	4.7		Fair				X	
4897	Sassafras albidum	Sassafras	6.2			Fair			X		
4898	Sassafras albidum	Sassafras	4.6			Fair				X	
4899	Sassafras albidum	Sassafras	4.9			Fair				X	
4900	Prunus serotina	Black Cherry	4.2			Fair			X		
4901	Sassafras albidum	Sassafras	4.4			Fair				X	
4902	Prunus serotina	Black Cherry	6.6			Fair				X	
4903	Prunus serotina	Black Cherry	5.3	4.3		Fair				X	
4904	Sassafras albidum	Sassafras	6.2			Fair				X	
4905	Sassafras albidum	Sassafras	4.9			Fair				X	
4906	Prunus serotina	Black Cherry	5.4			Fair				X	
4907	Sassafras albidum	Sassafras	5.6			Fair				X	
4908	Prunus serotina	Black Cherry	8.6			Fair				X	
4909	Sassafras albidum	Sassafras	4.9			Fair				X	
4910	Acer rubrum	Red Maple	9.1			Fair				X	
4911	Quercus alba	White Oak	13.5			Fair				X	
4912	Acer rubrum	Red Maple	5.9			Fair				X	
4913	Sassafras albidum	Sassafras	5.2	4.7		Fair				X	
4914	Rhamnus cathartica	European Buckthorn	4.5			Fair				X	
4915	Quercus velutina	Black Oak	18.2			Fair				X	
4916	Acer rubrum	Red Maple	4.3			Fair				X	
4917	Prunus serotina	Black Cherry	7.6			Very Poor				X	
4918	Prunus serotina	Black Cherry	5.6	5.1	4.4	Fair				X	
4919	Acer rubrum	Red Maple	6.3			Fair				X	
4920	Prunus avium	Sweet Cherry	8.1			Fair				X	
4921	Prunus serotina	Black Cherry	6.8			Fair				X	
4922	Prunus avium	Sweet Cherry	14.7			Fair				X	
4923	Acer rubrum	Red Maple	5.1			Fair				X	
4924	Sassafras albidum	Sassafras	5.1			Fair				X	
4925	Sassafras albidum	Sassafras	4.3			Fair			X		
4926	Sassafras albidum	Sassafras	5.2			Fair				X	
4927	Acer rubrum	Red Maple	4.2			Fair				X	
4928	Prunus serotina	Black Cherry	5.2			Fair				X	
4929	Sassafras albidum	Sassafras	7.9			Fair				X	
4930	Sassafras albidum	Sassafras	4.9			Fair			X		
4931	Prunus avium	Sweet Cherry	5.7			Fair				X	
4932	Prunus serotina	Black Cherry	11.8			Fair			X		
4933	Prunus serotina	Black Cherry	6.4			Fair			X		
4934	Prunus serotina	Black Cherry	7.4			Fair			X		
4935	Prunus avium	Sweet Cherry	5.4			Fair				X	
4936	Prunus serotina	Black Cherry	5.5			Fair				X	
4937	Acer rubrum	Red Maple	7.7			Fair			X		
4938	Ulmus americana	American Elm	5.9			Fair			X		
4939	Prunus serotina	Black Cherry	5			Fair			X		
4940	Prunus serotina	Black Cherry	5.5			Fair			X		
4941	Prunus serotina	Black Cherry	5.5			Fair			X		
4942	Sassafras albidum	Sassafras	5.7			Fair				X	
4943	Acer rubrum	Red Maple	5.5	4.5	4	Fair				X	
4944	Prunus serotina	Black Cherry	4.4	4.9		Fair			X		
4945	Prunus serotina	Black Cherry	5.3			Fair				X	
4946	Acer rubrum	Red Maple	5.8			Fair			X		
4947	Prunus serotina	Black Cherry	7.2			Fair				X	
4948	Acer rubrum	Red Maple	8.1			Fair			X		
4949	Prunus avium	Sweet Cherry	10			Poor			X		
4950	Prunus serotina	Black Cherry	5.8			Fair			X		
4951	Prunus avium	Sweet Cherry	12.5			Fair			X		
4952	Prunus serotina	Black Cherry	8.6			Fair				X	
4953	Acer rubrum	Red Maple	7.2			Fair				X	
4954	Prunus serotina	Black Cherry	6.6			Fair				X	
4955	Prunus serotina	Black Cherry	5.7	5.1		Fair				X	
4956	Acer rubrum	Red Maple	4.7			Fair				X	
4957	Prunus serotina	Black Cherry	6.4			Fair				X	
4958	Prunus serotina	Black Cherry	6.2			Fair				X	
4959	Prunus serotina	Black Cherry	6			Fair				X	
4960	Prunus serotina	Black Cherry	8.1			Fair			X		
4961	Prunus avium	Sweet Cherry	6.1			Fair				X	
4962	Sassafras albidum	Sassafras	4.3			Fair				X	
4963	Acer rubrum	Red Maple	5.2			Fair				X	
4964	Acer negundo	Boxelder	4			Fair				X	
4965	Quercus velutina	Black Oak	7.1	6.7	4.7	Fair				X	
4966	Prunus serotina	Black Cherry	4.9			Fair				X	
4967	Sassafras albidum	Sassafras	4.2			Fair				X	
4968	Prunus serotina	Black Cherry	4.1			Fair				X	
4969	Acer rubrum	Red Maple	6.9			Fair				X	
4970	Acer rubrum	Red Maple	5.6	5.4		Fair				X	
4971	Prunus serotina	Black Cherry	10			Fair				X	
4972	Acer rubrum	Red Maple	4.9			Fair				X	
4973	Acer rubrum	Red Maple	6.7			Fair				X	
4974	Sassafras albidum	Sassafras	5.4			Fair			X		
4975	Acer rubrum	Red Maple	13.1			Fair				X	
4976	Sassafras albidum	Sassafras	4.4			Fair				X	
4977	Acer rubrum	Red Maple	9.8			Fair				X	
4978	Acer rubrum	Red Maple	10.7			Fair				X	
4979	Acer rubrum	Red Maple	11.4			Fair				X	
4980	Prunus serotina	Black Cherry	6.8			Fair				X	
4981	Acer rubrum	Red Maple	4.3			Fair				X	
4982	Acer rubrum	Red Maple	9.1			Fair				X	
4983	Prunus serotina	Black Cherry	5.8			Fair				X	
4984	Acer rubrum	Red Maple	4.7			Fair				X	
4985	Prunus serotina	Black Cherry	7.9			Fair				X	
4986	Prunus serotina	Black Cherry	8.6			Fair				X	
4987	Prunus serotina	Black Cherry	7.1			Fair				X	
4988	Acer rubrum	Red Maple	7	5.4	5.1	Fair				X	
4989	Prunus serotina	Black Cherry	4.1			Fair				X	
4990	Prunus serotina	Black Cherry	4.1			Fair				X	
4991	Acer rubrum	Red Maple	9.7			Fair				X	
4992	Acer rubrum	Red Maple	10.6	8.4	4.1	Fair				X	
4993	Acer rubrum	Red Maple	4			Fair				X	
4994	Ulmus americana	American Elm	8.6			Fair				X	
4995	Prunus serotina	Black Cherry	4.4			Fair				X	
4996	Acer rubrum	Red Maple	6.4	5.3	5.1	Fair				X	
4997	Acer rubrum	Red Maple	6.2	4.4		Fair				X	
4998	Prunus serotina	Black Cherry	4.7			Fair				X	
4999	Prunus serotina	Black Cherry	5.7			Fair				X	
5000	Acer rubrum	Red Maple	9	6.8	5.1	Fair				X	
5001	Acer rubrum	Red Maple	6.4			Fair				X	
5002	Sassafras albidum	Sassafras	5.4			Fair				X	
5003	Prunus serotina	Black Cherry	5.9			Fair				X	
5004	Prunus serotina	Black Cherry	6.4			Fair				X	
5005	Sassafras albidum	Sassafras	4.2	4		Fair				X	
5006	Acer rubrum	Red Maple	10.7			Fair				X	
5007	Acer rubrum	Red Maple	7.3			Fair				X	
5008	Sassafras albidum	Sassafras	5.1			Fair				X	
5009	Sassafras albidum	Sassafras	4.9			Fair				X	
5010	Prunus avium	Sweet Cherry	9.5			Fair				X	
5011	Prunus serotina	Black Cherry	6.9			Fair				X	
5012	Sassafras albidum	Sassafras	8.5			Fair				X	
5013	Sassafras albidum	Sassafras	5.3			Fair				X	
5014	Acer rubrum	Red maple	12.6	7.5	4.3	Fair				X	
5015	Sassafras albidum	Sassafras	5.4			Fair				X	
5016	Sassafras albidum	Sassafras	7.7			Fair				X	
5017	Prunus serotina	Black Cherry	5.4			Fair				X	
5018	Sassafras albidum	Sassafras	6			Fair				X	
5019	Ulmus americana	American Elm	9	8.2		Fair				X	
5020	Acer rubrum	Red Maple	4.3			Fair				X	
5021	Prunus serotina	Black Cherry	6.9			Fair				X	
5022	Prunus serotina	Black Cherry	5.2			Fair				X	
5023	Ulmus americana	American Elm	6.9			Fair				X	
5024	Acer rubrum	Red Maple	6.6			Fair				X	
5025	Prunus serotina	Black Cherry	5.4			Fair				X	
5026	Sassafras albidum	Sassafras	4.7			Fair				X	
5027	Prunus serotina	Black Cherry	6.1			Fair				X	
5028	Quercus rubra	Red Oak	12.7			Fair				X	
5029	Prunus serotina	Black Cherry	4.9			Fair				X	
5030	Acer saccharum	Sugar Maple	4.7			Fair				X	
5031	Sassafras albidum	Sassafras	14.1			Fair				X	
5032	Sassafras albidum	Sassafras	12.3			Fair				X	
5033	Prunus serotina	Black Cherry	6.5			Fair				X	
5034	Ulmus americana	American Elm	13.4	4.4		Fair				X	
5035	Sassafras albidum	Sassafras	4.3			Fair			X		
5036	Sassafras albidum	Sassafras	5.4			Fair				X	
5037	Prunus serotina	Black Cherry	4.3			Fair				X	
5038	Sassafras albidum	Sassafras	7.1			Fair			X		
5039	Sassafras albidum	Sassafras	8.8			Fair			X		
5040	Acer rubrum	Red Maple	7.8			Fair			X		
5041	Quercus macrocarpa	Burr Oak	22.8	11.2		Fair			X		
5042	Prunus serotina	Black Cherry	4.4			Fair			X		
5043	Prunus serotina	Black Cherry	6.8			Fair			X		
5044	Prunus serotina	Black Cherry	4.6			Fair				X	
5045	Sassafras albidum	Sassafras	4.3			Fair			X		
5046	Acer rubrum	Red Maple	4.2			Fair			X		
5047	Acer rubrum	Red Maple	9.6			Fair			X		
5048	Sassafras albidum	Sassafras	5.3			Fair				X	
5049	Acer rubrum	Red Maple	6.9			Fair			X		
5050	Acer rubrum	Red Maple	7.8			Fair			X		
5051	Acer rubrum	Red Maple	4.6			Fair				X	
5052	Acer rubrum	Red Maple	8.4			Fair				X	
5053	Acer platanoides	Norway Maple	4.3			Fair				X	
5054	Acer rubrum	Red Maple	4.4			Fair				X	
5055	Acer platanoides	Norway Maple	5.9			Fair				X	
5056	Acer rubrum	Red Maple	14.1			Fair				X	
5057	Sassafras albidum	Sassafras	5.1			Fair				X	
5058	Prunus serotina	Black Cherry	5.1			Fair			X		
5059	Sassafras albidum	Sassafras	12.1			Fair				X	
5060	Sassafras albidum	Sassafras	8.3			Fair				X	
5061	Prunus serotina	Black Cherry	5.8			Fair				X	
5062	Sassafras albidum	Sassafras	6.2			Fair				X	
5063	Acer rubrum	Red Maple	12.1			Fair				X	
5064	Acer rubrum	Red Maple	5.4			Fair				X	
5065	Prunus serotina	Black Cherry	5.1			Fair				X	
5066	Acer rubrum	Red Maple	6.8			Fair				X	
5067	Sassafras albidum	Sassafras	8.4			Fair				X	
5068	Acer rubrum	Red Maple	10.4			Fair				X	
5069	Prunus serotina	Black Cherry	7.4			Poor				X	
5070	Sassafras albidum	Sassafras	5.7			Fair				X	
5071	Prunus serotina	Black Cherry	5.6			Fair				X	
5072	Prunus serotina	Black Cherry	5.5			Fair				X	
5073	Ulmus americana	American Elm	9.4			Fair				X	
5074	Sassafras albidum	Sassafras	8.3			Poor				X	
5075	Sassafras albidum	Sassafras	7.1			Fair				X	
5076	Prunus serotina	Black Cherry	4.3			Fair				X	
5077	Sassafras albidum	Sassafras	4.4			Fair				X	
5078	Sassafras albidum	Sassafras	9.2			Fair				X	
5079	Sassafras albidum	Sassafras	6.3			Fair				X	
5080	Acer rubrum	Red Maple	8.4			Fair				X	
5081	Prunus serotina	Black Cherry	7.7			Fair				X	
5082	Sassafras albidum	Sassafras	4.4			Fair				X	
5083	Prunus serotina	Black Cherry	8.6			Fair				X	
5084	Acer rubrum	Red Maple	8.1			Fair				X	
5085	Sassafras albidum	Sassafras	4.5			Fair				X	
5086	Sassafras albidum	Sassafras	4.6			Fair				X	
5087	Acer rubrum	Red Maple	11.3			Fair				X	
5088	Quercus velutina	Black Oak	6.7			Fair				X	
5089	Prunus avium	Sweet Cherry	8			Fair				X	
5090	Prunus avium	Sweet Cherry	6.4			Fair				X	
5091	Acer rubrum	Red Maple	12.9			Fair				X	
5092	Quercus rubra	Red Oak	28.9			Fair	X				
5093	Acer rubrum	Red Maple	7.1			Fair				X	
5094	Acer rubrum	Red Maple	10.6	6.5	5.5	Fair				X	
5095	Sassafras albidum	Sassafras	4.5			Fair				X	
5096	Acer rubrum	Red Maple	4			Fair				X	
5097	Acer rubrum	Red Maple	7.8			Fair				X	
5098	Sassafras albidum	Sassafras	4.5			Fair				X	
5099	Sassafras albidum	Sassafras	4.8			Fair				X	
5100	Sassafras albidum	Sassafras	5.8			Fair				X	
5101	Sassafras albidum	Sassafras	7.2	6.7	5.7	Fair				X	
5102	Acer platanoides	Norway Maple	11.4			Fair				X	
5103	Acer negundo	Boxelder	5.1	4.1		Fair				X	
5104	Sassafras albidum	Sassafras	5.2			Fair				X	
5105	Sassafras albidum	Sassafras	4.3			Fair				X	
5106	Acer rubrum	Red Maple	11.3	9		Fair				X	
5107	Sassafras albidum	Sassafras	4.9			Fair				X	
5108	Sassafras albidum	Sassafras	6			Fair				X	
5109	Sassafras albidum	Sassafras	6.3			Fair				X	
5110	Sassafras albidum	Sassafras	4.6			Fair				X	
5111	Sassafras albidum	Sassafras	4.7	4.4		Fair				X	
5112	Sassafras albidum	Sassafras	5.1			Fair				X	
5113	Prunus serotina	Black Cherry	9.7			Fair				X	
5114	Sassafras albidum	Sassafras	4.8			Fair				X	
5115	Sassafras albidum	Sassafras	5.6			Fair				X	

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 540

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE:

NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
10_Tree--12/16/2022 8:16:53 AM

SHEET NO.

10

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
5116	Sassafras albidum	Sassafras	4.5			Fair				X	
5117	Acer rubrum	Red Maple	6			Fair				X	
5118	Acer rubrum	Red Maple	4.3	4.2		Fair				X	
5119	Sassafras albidum	Sassafras	5.6			Fair				X	
5120	Prunus avium	Sweet Cherry	9.2			Fair				X	
5121	Ulmus americana	American Elm	15.8			Fair				X	
5122	Acer rubrum	Red Maple	6.9			Fair				X	
5123	Acer rubrum	Red Maple	6.8	4		Fair				X	
5124	Prunus serotina	Black Cherry	7.2			Fair				X	
5125	Sassafras albidum	Sassafras	6.2			Fair				X	
5126	Sassafras albidum	Sassafras	5.3			Fair				X	
5127	Sassafras albidum	Sassafras	5.7			Fair				X	
5128	Sassafras albidum	Sassafras	4.5			Fair				X	
5129	Sassafras albidum	Sassafras	6.1			Fair				X	
5130	Acer rubrum	Red Maple	6.6	5.4		Fair				X	
5131	Acer rubrum	Red Maple	4			Fair				X	
5132	Prunus avium	Sweet Cherry	14.9			Fair				X	
5133	Sassafras albidum	Sassafras	5			Fair				X	
5134	Sassafras albidum	Sassafras	5.2			Fair				X	
5135	Acer rubrum	Red Maple	5.9			Fair			X		
5136	Acer rubrum	Red Maple	4.5			Fair			X		
5137	Acer rubrum	Red Maple	5			Fair				X	
5138	Prunus serotina	Black Cherry	7.7			Fair				X	
5139	Prunus serotina	Black Cherry	8			Fair				X	
5140	Prunus serotina	Black Cherry	9.1	6		Poor				X	
5141	Prunus serotina	Black Cherry	8.4			Fair				X	
5142	Acer rubrum	Red Maple	5.1			Fair				X	
5143	Prunus avium	Sweet Cherry	13			Poor			X		
5144	Ulmus americana	American Elm	6.7			Fair				X	
5145	Acer rubrum	Red Maple	6.2			Fair				X	
5146	Acer rubrum	Red Maple	6.2			Fair				X	
5147	Acer rubrum	Red Maple	4			Fair				X	
5148	Acer rubrum	Red Maple	4.9			Fair				X	
5149	Prunus serotina	Black Cherry	6.4			Fair				X	
5150	Sassafras albidum	Sassafras	7.4			Fair				X	
5151	Sassafras albidum	Sassafras	4.9			Fair				X	
5152	Sassafras albidum	Sassafras	4.5			Fair			X		
5153	Sassafras albidum	Sassafras	5.3			Fair				X	
5154	Prunus serotina	Black Cherry	4.4			Fair				X	
5155	Sassafras albidum	Sassafras	4.6			Fair				X	
5156	Acer rubrum	Red Maple	4.4			Fair				X	
5157	Sassafras albidum	Sassafras	5.9			Fair				X	
5158	Acer rubrum	Red Maple	6.1			Fair				X	
5159	Prunus serotina	Black Cherry	4.2			Fair				X	
5160	Acer rubrum	Red Maple	4.3			Fair				X	
5161	Acer rubrum	Red Maple	4.3			Fair				X	
5162	Acer rubrum	Red Maple	4.3			Fair				X	
5163	Acer rubrum	Red Maple	4.7			Fair				X	
5164	Prunus serotina	Black Cherry	4.2			Fair				X	
5165	Acer rubrum	Red Maple	6.8			Fair				X	
5166	Prunus avium	Sweet Cherry	7.2			Fair				X	
5167	Sassafras albidum	Sassafras	5			Fair				X	
5168	Sassafras albidum	Sassafras	4.9			Fair				X	
5169	Sassafras albidum	Sassafras	5.4			Fair				X	
5170	Sassafras albidum	Sassafras	5.2			Fair				X	
5171	Prunus serotina	Black Cherry	4.3			Fair				X	
5172	Acer rubrum	Red Maple	4.7			Fair				X	
5173	Prunus avium	Sweet Cherry	8.6			Fair				X	
5174	Sassafras albidum	Sassafras	9.9			Fair				X	
5175	Prunus serotina	Black Cherry	5.4			Fair			X		
5176	Acer rubrum	Red Maple	5.8			Fair			X		
5177	Prunus serotina	Black Cherry	5.8	4.4		Fair				X	
5178	Quercus rubra	Red Oak	9.9			Fair				X	
5179	Prunus serotina	Black Cherry	5.2			Fair			X		
5180	Sassafras albidum	Sassafras	5.8			Fair			X		
5181	Sassafras albidum	Sassafras	4.5			Fair				X	
5182	Acer rubrum	Red Maple	7.3			Fair				X	
5183	Acer rubrum	Red Maple	5.4	5.4	5	Fair				X	
5184	Prunus serotina	Black Cherry	5.3			Fair				X	
5185	Prunus serotina	Black Cherry	8.3			Fair				X	
5186	Acer rubrum	Red Maple	4.1			Fair				X	
5187	Acer rubrum	Red Maple	4.7			Fair				X	
5188	Sassafras albidum	Sassafras	12.8			Fair				X	
5189	Acer rubrum	Red Maple	6.3	5.1	4	Fair				X	
5190	Sassafras albidum	Sassafras	5.4			Fair				X	
5191	Sassafras albidum	Sassafras	8			Fair				X	
5192	Prunus serotina	Black Cherry	5.5			Fair			X		
5193	Acer rubrum	Red Maple	4.8			Fair				X	
5194	Sassafras albidum	Sassafras	4.8			Fair				X	
5195	Sassafras albidum	Sassafras	5.4			Fair				X	
5196	Acer rubrum	Red Maple	4.9			Fair				X	
5197	Prunus serotina	Black Cherry	4.3			Fair				X	
5198	Prunus serotina	Black Cherry	9.8			Fair				X	
5199	Acer rubrum	Red Maple	9.9	5	4.7	Fair				X	
5200	Prunus serotina	Black Cherry	7.7			Fair			X		
5201	Acer rubrum	Red Maple	4.1			Fair				X	
5202	Prunus serotina	Black Cherry	6.8			Fair			X		
5203	Prunus serotina	Black Cherry	5.1			Fair				X	
5204	Prunus serotina	Black Cherry	6.7			Fair				X	
5205	Acer negundo	Boxelder	5.7			Fair				X	
5206	Acer rubrum	Red Maple	4			Fair				X	
5207	Prunus avium	Sweet Cherry	12.7			Fair			X		
5208	Acer rubrum	Red Maple	13.7			Poor			X		
5209	Acer rubrum	Red Maple	13.1			Fair				X	
5210	Prunus serotina	Black Cherry	4.7			Fair				X	
5211	Acer rubrum	Red Maple	5.1			Fair				X	
5212	Prunus serotina	Black Cherry	6.7	4.8	4.6	Fair				X	
5213	Sassafras albidum	Sassafras	14.1			Fair				X	
5214	Acer rubrum	Red Maple	19.8			Fair				X	
5215	Acer rubrum	Red Maple	4.5			Fair				X	
5216	Acer rubrum	Red Maple	5.2			Fair				X	
5217	Acer rubrum	Red Maple	5.1			Fair				X	
5218	Sassafras albidum	Sassafras	5.9			Fair				X	
5219	Prunus serotina	Black Cherry	4.2			Fair				X	
5220	Acer rubrum	Red Maple	12			Fair				X	
5221	Acer rubrum	Red Maple	8.8			Fair				X	
5222	Prunus serotina	Black Cherry	6.5			Fair				X	
5223	Acer rubrum	Red Maple	8.4			Fair				X	
5224	Prunus serotina	Black Cherry	5.1			Fair				X	
5225	Prunus serotina	Black Cherry	5.5			Fair				X	
5226	Acer rubrum	Red Maple	6.3			Fair				X	
5227	Prunus serotina	Black Cherry	10.8			Fair				X	
5228	Prunus serotina	Black Cherry	8.8			Fair				X	
5229	Prunus serotina	Black Cherry	8.1			Fair				X	
5230	Prunus serotina	Black Cherry	8.6			Fair				X	
5231	Quercus rubra	Red Oak	5.7			Fair				X	
5232	Prunus serotina	Black Cherry	9.9			Fair				X	
5233	Prunus serotina	Black Cherry	5.1			Fair				X	
5234	Prunus serotina	Black Cherry	4.7			Fair				X	
5235	Prunus serotina	Black Cherry	7.1			Fair				X	
5236	Acer rubrum	Red Maple	10.6			Fair				X	
5237	Acer rubrum	Red Maple	7.9			Fair			X		
5238	Acer rubrum	Red Maple	7			Fair				X	
5239	Prunus serotina	Black Cherry	5.7	4		Fair				X	
5240	Prunus serotina	Black Cherry	4.6			Fair				X	
5241	Prunus serotina	Black Cherry	4.8			Fair				X	
5242	Acer rubrum	Red Maple	5.2			Fair				X	
5243	Prunus serotina	Black Cherry	6.1			Fair				X	
5244	Prunus serotina	Black Cherry	51.4			Fair	X				
5245	Prunus serotina	Black Cherry	6			Fair				X	
5246	Acer rubrum	Red Maple	5	4.1	4	Fair				X	
5247	Prunus serotina	Black Cherry	4.7			Fair				X	
5248	Prunus serotina	Black Cherry	5.7			Fair				X	
5249	Populus grandidentata	Bigtooth Aspen	5.7			Fair				X	
5250	Prunus serotina	Black Cherry	6.7			Fair				X	
5251	Ulmus americana	American Elm	9.6			Fair				X	
5252	Acer rubrum	Red Maple	8.3			Fair			X		
5253	Acer rubrum	Red Maple	4.6			Fair			X		
5254	Acer rubrum	Red Maple	8.4			Fair			X		
5255	Acer rubrum	Red Maple	4			Fair			X		
5256	Ulmus americana	American Elm	8.1			Fair			X		
5257	Prunus serotina	Black Cherry	5.9			Fair			X		
5258	Acer rubrum	Red Maple	4.7			Fair			X		
5259	Prunus serotina	Black Cherry	5.9			Fair				X	
5260	Prunus serotina	Black Cherry	4.9			Fair			X		
5261	Acer rubrum	Red Maple	6.6			Fair				X	
5262	Prunus serotina	Black Cherry	5			Fair				X	
5263	Prunus serotina	Black Cherry	4.4	4.8		Fair				X	
5264	Ulmus americana	American Elm	5.4			Fair			X		
5265	Prunus serotina	Black Cherry	4.3			Fair				X	
5266	Acer rubrum	Red Maple	6.4			Fair			X		
5267	Prunus serotina	Black Cherry	5.4			Fair			X		
5268	Prunus serotina	Black Cherry	8.4			Fair			X		
5269	Prunus serotina	Black Cherry	5.8			Fair			X		
5270	Quercus velutina	Black Oak	12.8			Fair			X		
5271	Acer rubrum	Red Maple	8.6			Fair			X		
5272	Acer rubrum	Red Maple	5			Fair			X		
5273	Acer rubrum	Red Maple	4.7			Fair			X		
5274	Prunus serotina	Black Cherry	4.5			Fair			X		
5275	Acer rubrum	Red Maple	5.9			Fair			X		
5276	Prunus serotina	Black Cherry	5.4			Fair			X		
5277	Ulmus americana	American Elm	8.1			Fair			X		
5278	Acer rubrum	Red Maple	7.5			Fair				X	
5279	Prunus serotina	Black Cherry	5			Fair				X	
5280	Prunus serotina	Black Cherry	7.1			Fair			X		
5281	Prunus serotina	Black Cherry	6.6			Fair			X		
5282	Prunus serotina	Black Cherry	7.5			Fair			X		
5283	Prunus serotina	Black Cherry	11.1			Fair				X	
5284	Prunus serotina	Black Cherry	8.9			Fair				X	
5285	Prunus serotina	Black Cherry	8.7			Fair				X	
5286	Sassafras albidum	Sassafras	4.1			Fair				X	
5287	Sassafras albidum	Sassafras	4.6			Fair				X	
5288	Sassafras albidum	Sassafras	4.5			Fair				X	
5289	Sassafras albidum	Sassafras	5.8			Fair				X	
5290	Sassafras albidum	Sassafras	6			Fair			X		
5291	Prunus serotina	Black Cherry	7.4	4.4		Fair				X	
5292	Sassafras albidum	Sassafras	4.7			Fair				X	
5293	Sassafras albidum	Sassafras	4.5			Fair				X	
5294	Sassafras albidum	Sassafras	4.7			Fair				X	
5295	Acer rubrum	Red Maple	5.4			Fair				X	
5296	Acer rubrum	Red Maple	6.3			Fair				X	
5297	Acer rubrum	Red Maple	11.1			Fair				X	
5298	Prunus serotina	Black Cherry	4.4			Fair				X	
5299	Acer rubrum	Red Maple	5.5			Fair				X	
5300	Acer rubrum	Red Maple	6.2			Fair				X	
5301	Sassafras albidum	Sassafras	5.4			Fair			X		
5302	Sassafras albidum	Sassafras	4.5			Fair			X		
5303	Prunus serotina	Black Cherry	4.4			Fair			X		
5304	Prunus serotina	Black Cherry	5.2			Fair				X	
5305	Sassafras albidum	Sassafras	7			Fair			X		
5306	Sassafras albidum	Sassafras	4.7			Fair			X		
5307	Prunus serotina	Black Cherry	6.7	5.2		Fair				X	
5308	Acer rubrum	Red Maple	17.7			Fair				X	
5309	Prunus serotina	Black Cherry	9.7			Fair				X	
5310	Prunus serotina	Black Cherry	6			Fair				X	
5311	Sassafras albidum	Sassafras	7.3			Fair				X	
5312	Prunus serotina	Black Cherry	5.1	4.9		Fair				X	
5313	Acer rubrum	Red Maple	12.1	7.9		Fair				X	
5314	Prunus serotina	Black Cherry	4.7	4.1		Fair				X	
5315	Prunus serotina	Black Cherry	4.2			Fair				X	
5316	Acer rubrum	Red Maple	4.4			Fair				X	
5317	Sassafras albidum	Sassafras	11.7	7.8		Fair				X	
5318	Acer rubrum	Red Maple	12			Fair				X	
5319	Acer rubrum	Red Maple	9.1	8.2		Fair				X	
5320	Acer rubrum	Red Maple	10.4			Fair				X	
5321	Prunus serotina	Black Cherry	7.2			Fair				X	
5322	Acer rubrum	Red Maple	9.4	4.7		Fair				X	
5323	Prunus serotina	Black Cherry	4.4			Fair				X	
5324	Prunus serotina	Black Cherry	5.5			Fair				X	
5325	Prunus serotina	Black Cherry	5.8			Fair				X	
5326	Acer rubrum	Red Maple	5.6			Fair				X	
5327	Sassafras albidum	Sassafras	4.6			Fair				X	
5328	Sassafras albidum	Sassafras	9.6			Fair				X	
5329	Prunus serotina	Black Cherry	8.1			Fair				X	
5330	Sassafras albidum	Sassafras	4.9			Fair				X	
5331	Sassafras albidum	Sassafras	6.3			Fair				X	
5332	Ulmus americana	American Elm	10.1			Fair				X	
5333	Prunus serotina	Black Cherry	6.5			Fair				X	
5334	Acer rubrum	Red Maple	4.9			Fair				X	
5335	Acer rubrum	Red Maple	11.2			Fair				X	
5336	Acer rubrum	Red Maple	13.8			Fair				X	
5337	Prunus serotina	Black Cherry	4.7			Fair				X	
5338	Prunus serotina	Black Cherry	6			Fair				X	
5339	Acer rubrum	Red Maple	5.5	4.4		Fair			X		
5340	Prunus serotina	Black Cherry	8.8			Very Poor				X	
5341	Acer rubrum	Red Maple	9.6			Fair				X	
5342	Acer rubrum	Red Maple	6.6			Fair				X	
5343	Acer rubrum	Red Maple	8.5			Fair				X	
5344	Acer rubrum	Red Maple	6.8			Fair				X	
5345	Acer rubrum	Red Maple	8.7	4.1		Fair				X	
5346	Prunus serotina	Black Cherry	4.5			Fair				X	
5347	Acer rubrum	Red Maple	6			Poor				X	
5348	Prunus serotina	Black Cherry	8			Fair			X		
5349	Prunus serotina	Black Cherry	6			Fair			X		
5350	Acer rubrum	Red Maple	5.4			Fair				X	
5351	Acer rubrum	Red Maple	5.6			Fair				X	
5352	Prunus serotina	Black Cherry	7.1			Fair				X	
5353	Sassafras albidum	Sassafras	4.7			Fair				X	
5354	Sassafras albidum	Sassafras	4			Fair			X		
5355	Acer rubrum	Red Maple	7.8			Poor			X		
5356	Prunus serotina	Black Cherry	4	4.5		Fair				X	
5357	Acer rubrum	Red Maple	12.2	7		Fair				X	
5358	Sassafras albidum	Sassafras	5.9			Fair				X	
5359	Fraxinus americana	White Ash	5.3	4.1		Fair				X	
5360	Sassafras albidum	Sassafras	4			Fair				X	
5361	Sassafras albidum	Sassafras	4.3			Fair				X	
5362	Sassafras albidum	Sassafras	4.1			Fair			X		
5363	Prunus serotina	Black Cherry	5.3	4.2		Fair				X	
5364	Prunus serotina	Black Cherry	4.2			Fair				X	
5365	Prunus serotina	Black Cherry	4.4			Fair				X	
5366	Prunus serotina	Black Cherry	6.9			Poor				X	
5367	Acer rubrum	Red Maple	5.1			Fair				X	
5368	Acer rubrum	Red Maple	6.6			Fair				X	
5369	Acer rubrum	Red Maple	4.3			Fair				X	
5370	Prunus serotina	Black Cherry	7.3			Fair				X	
5371	Sassafras albidum	Sassafras	4.7			Fair				X	
5372	Sassafras albidum	Sassafras	4.9			Fair				X	
5373	Fraxinus americana	White Ash	7.5			Poor			X		
5374	Prunus serotina	Black Cherry	7.3			Fair				X	
5375	Acer rubrum	Red Maple	4.3			Fair				X	
5376	Acer rubrum	Red Maple	6.2	4.3		Fair				X	
5377	Acer rubrum	Red Maple	6			Fair			X		
5378	Prunus serotina	Black Cherry	5.2			Fair			X		
5379	Quercus velutina	Black Oak	5.1			Fair				X	
5380	Prunus serotina	Black Cherry	6.1			Fair				X	
5381	Acer rubrum	Red Maple	8.4			Fair				X	
5382	Prunus serotina	Black Cherry	6.6			Fair				X	
5383	Acer rubrum	Red Maple	6.1			Fair				X	
5384	Acer rubrum	Red Maple	9.7			Fair				X	
5385	Acer rubrum	Red Maple	5.3			Fair				X	
5386	Acer rubrum	Red Maple	4.1			Fair				X	
5387	Acer rubrum	Red Maple	5.7			Fair				X	
5388	Acer rubrum	Red Maple	4.3			Fair				X	
5389	Sassafras albidum	Sassafras	7.9			Fair				X	
5390	Sassafras albidum	Sassafras	4.9			Fair				X	
5391	Acer rubrum	Red Maple	7			Fair				X	
5392	Acer rubrum	Red Maple	10.8			Fair				X	
5393	Fraxinus americana	White Ash	5.7			Fair				X	
5394	Acer rubrum	Red Maple	7.3	6.2		Fair				X	
5395	Prunus serotina	Black Cherry	4.2			Fair			X		
5396	Prunus serotina	Black Cherry	8.6			Fair				X	
5397	Acer rubrum	Red Maple	4.2			Fair				X	
5398	Acer rubrum	Red Maple	5.6	4.5		Fair				X	
5399	Sassafras albidum	Sassafras	4.4			Fair			X		
5400	Sassafras albidum	Sassafras	7.2			Fair				X	
5401	Sassafras albidum	Sassafras	4.5			Fair				X	
5402	Acer rubrum	Red Maple	13.8			Fair				X	
5403	Sassafras albidum	Sassafras	4.2			Fair				X	
5404	Prunus serotina	Black Cherry	4.7			Fair			X		
5405	Prunus serotina	Black Cherry	8.1	6		Fair			X		
5406	Acer rubrum	Red Maple	6.1			Fair			X		
5407	Acer rubrum	Red Maple	6.2			Fair				X	
5408	Acer rubrum	Red Maple	5.8			Fair				X	
5409	Sassafras albidum	Sassafras	7			Fair				X	
5410	Acer rubrum	Red Maple	5.1			Fair				X	
5411	Sassafras albidum	Sassafras	5.4	4.8		Fair				X	
5412	Acer rubrum	Red Maple	6.8	5.2		Poor				X	
5413	Sassafras albidum	Sassafras	4.8			Fair				X	
5414	Fraxinus americana	White Ash	12			Good				X	
5415	Acer rubrum	Red Maple	4.8			Fair				X	
5416	Acer rubrum	Red Maple	6.6			Fair				X	
5417	Sassafras albidum	Sassafras	5			Poor				X	
5418	Prunus avium	Sweet Cherry	8.5			Fair				X	
5419	Sassafras albidum	Sassafras	5			Fair				X	
5420	Sassafras albidum	Sassafras	4.6			Fair				X	
5421	Sassafras albidum	Sassafras	8.8			Fair				X	
5422	Sassafras albidum	Sassafras	4.5			Fair				X	
5423	Acer rubrum	Red Maple	5.3			Fair				X	
5424	Acer rubrum	Red Maple	6.4	4.9		Fair				X	
5425	Sassafras albidum	Sassafras	5			Fair			X		
5426	Prunus serotina	Black Cherry	5.5	4.7		Fair				X	
5427	Sassafras albidum	Sassafras	6.6			Fair				X	
5428	Prunus serotina	Black Cherry	8.2			Fair				X	
5429	Acer rubrum	Red Maple	8.6			Fair				X	
5430	Acer rubrum	Red Maple	11.4			Poor				X	
5431	Sassafras albidum	Sassafras	6.2			Fair				X	
5432	Acer rubrum	Red Maple	4.6			Fair				X	
5433	Sassafras albidum	Sassafras	4.7			Fair				X	
5434	Prunus serotina	Black Cherry	6.4			Fair				X	
5435	Sassafras albidum	Sassafras	5.5			Fair			X		
5436	Prunus serotina	Black Cherry	4.5			Fair			X		
5437	Acer rubrum	Red Maple	4.5			Fair			X		
5438	Acer rubrum	Red Maple	5.5			Fair				X	
5439	Prunus serotina	Black Cherry	5.6	4.8		Fair				X	
5440	Prunus serotina	Black Cherry	5.7			Fair				X	
5441	Sassafras albidum	Sassafras	4.7			Poor				X	
5442	Acer rubrum	Red Maple	5.4			Fair				X	
5443	Prunus serotina	Black Cherry	5.2			Fair				X	
5444	Acer rubrum	Red Maple	5.6			Fair				X	
5445	Prunus serotina	Black Cherry	7.5			Fair				X	
5446	Acer rubrum	Red Maple	4.4			Fair				X	
5447	Acer rubrum	Red Maple	4.8			Fair				X	
5448	Acer rubrum	Red Maple	11.1			Fair				X	
5449	Acer rubrum	Red Maple	6.1			Fair			X		
5450	Prunus serotina	Black Cherry	7.6			Fair				X	
5451	Prunus serotina	Black Cherry	7.8			Fair				X	
5452	Amelanchier arborea	Serviceberry	4.9			Fair				X	
5453	Acer rubrum	Red Maple	11.7			Fair				X	
5454	Acer rubrum	Red Maple	5			Fair				X	
5455	Sassafras albidum	Sassafras	6.4			Fair				X	
5456	Acer rubrum	Red Maple	7			Fair				X	
5457	Sassafras albidum	Sassafras	10.7			Fair				X	
5458	Acer rubrum	Red Maple	6.5			Fair				X	
5459	Sassafras albidum	Sassafras	7.6			Fair				X	
5460	Sassafras albidum	Sassafras	5.5			Fair				X	
5461	Prunus serotina	Black Cherry	6.6			Fair				X	
5462	Sassafras albidum	Sassafras	4			Fair				X	
5463	Sassafras albidum	Sassafras	4.6			Fair				X	
5464	Acer rubrum	Red Maple	5.1			Fair			X		
5465	Acer rubrum	Red Maple	5.9			Fair				X	
5466	Acer rubrum	Red Maple	13.8			Fair				X	
5467	Acer rubrum	Red Maple	5.6			Fair				X	
5468	Sassafras albidum	Sassafras	7.6			Fair				X	
5469	Sassafras albidum	Sassafras	7.8			Fair				X	
5470	Acer rubrum	Red Maple	9.5			Fair				X	
5471	Acer rubrum	Red Maple	6.1			Fair				X	
5472	Sassafras albidum	Sassafras	7.9			Fair			X		
5473	Sassafras albidum	Sassafras	8.2			Fair				X	
5474	Acer rubrum	Red Maple	4			Fair				X	
5475	Acer rubrum	Red Maple	16.1			Fair				X	
5476	Acer rubrum	Red Maple	8			Fair				X	
5477	Acer rubrum	Red Maple	10.2			Fair				X	
5478	Acer rubrum	Red Maple	6.3			Fair				X	
5479	Acer rubrum	Red Maple	6.8			Fair				X	
5480	Acer rubrum	Red Maple	5.3			Fair				X	
5481	Prunus serotina	Black Cherry	4.7			Fair				X	
5482	Quercus alba	White Oak	4			Fair				X	
5483	Acer rubrum	Red Maple	12.7			Fair				X	
5484	Acer rubrum	Red Maple	4.5			Fair				X	
5485	Sassafras albidum	Sassafras	6.3			Fair				X	
5486	Sassafras albidum	Sassafras	5.5			Fair				X	
5487	Acer rubrum	Red Maple	11.2			Fair				X	
5488	Acer rubrum	Red Maple	16.2			Fair				X	
5489	Acer rubrum	Red Maple	6.1			Fair				X	
5490	Sassafras albidum	Sassafras	7.4			Fair				X	
5491	Acer rubrum	Red Maple	4.9			Fair				X	
5492	Fraxinus americana	White Ash	7.8			Fair				X	
5493	Quercus velutina	Black Oak	22.7			Fair				X	
5494	Acer rubrum	Red Maple	5.2			Fair				X	
5495	Prunus serotina	Black Cherry	6			Fair			X		
5496	Quercus velutina	Black Oak	23.4			Fair				X	
5497	Prunus serotina	Black Cherry	5.9			Fair				X	
5498	Acer rubrum	Red Maple	6.8			Fair				X	
5499	Prunus serotina	Black Cherry	11.4			Fair				X	
5500	Prunus avium	Sweet Cherry	4.6			Fair				X	
5501	Prunus serotina	Black Cherry	6.2			Fair				X	
5502	Acer rubrum	Red Maple	7.4			Fair				X	
5503	Acer rubrum	Red Maple	5			Fair				X	
5504	Prunus serotina	Black Cherry	4.5			Fair				X	
5505	Prunus serotina	Black Cherry	4.7			Fair				X	
5506	Rhamnus cathartica	European Buckthorn	5			Fair				X	
5507	Quercus velutina	Black Oak	18.3			Fair			X		
5508	Acer rubrum	Red Maple	6			Fair				X	
5509	Carya ovata	Shagbark Hickory	5.8			Fair				X	
5510	Rhamnus cathartica	European Buckthorn	7.9			Fair				X	
5511	Quercus alba	White Oak	15.7			Fair				X	
5512	Acer rubrum	Red Maple	5.8			Fair				X	
5513	Prunus serotina	Black Cherry	5.3			Fair				X	
5514	Ulmus americana	American Elm	8			Fair				X	
5515	Rhamnus cathartica	European Buckthorn	7.7			Fair				X	
5516	Prunus serotina	Black Cherry	4.8			Fair				X	
5517	Acer rubrum	Red Maple	4			Fair				X	
5518	Acer rubrum	Red Maple	7.3			Fair				X	
5519	Prunus serotina	Black Cherry	4.4			Fair			X		
5520	Prunus serotina	Black Cherry	4.9			Fair			X		
5521	Acer rubrum	Red Maple	7.3			Fair			X		
5522	Acer rubrum	Red Maple	4.3			Fair			X		
5523	Acer rubrum	Red Maple	7.5			Fair			X		
5524	Cornus florida	Flowering Dogwood	5			Fair			X		
5525	Quercus alba	White Oak	18.6			Fair				X	
5526	Acer rubrum	Red Maple	6.9			Fair				X	
5527	Prunus serotina	Black Cherry	9.7			Fair				X	
5528	Sassafras albidum	Sassafras	9			Fair				X	
5529	Acer rubrum	Red Maple	9.9			Fair				X	
5530	Prunus serotina	Black Cherry	9			Fair				X	
5531	Prunus serotina	Black Cherry	11.6			Fair				X	
5532	Acer rubrum	Red Maple	16.7			Fair				X	
5533	Sassafras albidum	Sassafras	4.6			Fair				X	
5534	Sassafras albidum	Sassafras	5.1			Fair				X	
5535	Sassafras albidum	Sassafras	4.1			Fair				X	
5536	Acer rubrum	Red Maple	6.6	5.9		Fair				X	
5537	Acer rubrum	Red Maple	9.7			Fair				X	
5538	Sassafras albidum	Sassafras	6			Fair				X	
5539	Sassafras albidum	Sassafras	6			Fair				X	
5540	Sassafras albidum	Sassafras	5.1			Fair				X	
5541	Sassafras albidum	Sassafras	4.4			Fair				X	
5542	Acer rubrum	Red Maple	12.5			Fair				X	
5543	Acer rubrum	Red Maple	16.1			Fair				X	
5544	Prunus serotina	Black Cherry	9			Fair				X	
5545	Sassafras albidum	Sassafras	11.5			Fair			X		
5546	Sassafras albidum	Sassafras	8.3			Fair				X	
5547	Acer rubrum	Red Maple	7.3			Fair				X	
5548	Acer rubrum	Red Maple	5.5			Fair				X	
5549	Sassafras albidum	Sassafras	8.9			Fair				X	
5550	Sassafras albidum	Sassafras	10.2			Poor				X	
5551	Acer rubrum	Red Maple	11.7			Fair				X	
5552	Sassafras albidum	Sassafras	9.1			Fair			X		
5553	Acer rubrum	Red Maple	7			Fair			X		
5554	Prunus serotina	Black Cherry	16.3			Fair				X	
5555	Acer saccharinum	Silver Maple	8.3			Fair			X		
5556	Prunus serotina	Black Cherry	5.5			Fair			X		
5557	Rhamnus cathartica	European Buckthorn	4			Fair			X		
5558	Amelanchier arborea	Serviceberry	5.4			Fair			X		
5559	Prunus serotina	Black Cherry	4.4			Fair			X		
5560	Acer rubrum	Red Maple	10.8			Fair			X		
5561	Acer rubrum	Red Maple	13	4.2	4.1	Poor			X		
5562	Acer rubrum	Red Maple	4.5			Fair			X		
5563	Quercus alba	White Oak	12.9			Fair			X		
5564	Acer rubrum	Red Maple	9.6			Fair			X		
5565	Acer rubrum	Red Maple	16.6			Fair			X		
5566	Ulmus americana	American Elm	5.9			Fair				X	
5567	Acer rubrum	Red Maple	5.1			Fair			X		
5568	Sassafras albidum	Sassafras	5.3			Fair			X		
5569	Acer rubrum	Red Maple	6.5			Fair			X		
5570	Acer rubrum	Red Maple	5.1			Fair			X		
5571	Acer rubrum	Red Maple	9.4			Fair			X		
5572	Acer rubrum	Red Maple	4.1			Fair			X		
5573	Acer rubrum	Red Maple	9.5			Fair				X	
5574	Acer rubrum	Red Maple	9.5			Fair				X	
5575	Acer rubrum	Red Maple	9.1			Fair				X	
5576	Acer rubrum	Red Maple	14.6			Fair				X	
5577	Liriodendron tulipifera	Tulip Tree	10.5			Fair			X		
5578	Tilia americana	Basswood	9			Fair			X		
5579	Acer rubrum	Red Maple	13.3			Poor				X	
5580	Acer rubrum	Red Maple	4.4			Fair				X	
5581	Prunus serotina	Black Cherry	6.8			Fair				X	
5582	Acer rubrum	Red Maple	11.8			Fair			X		
5583	Prunus serotina	Black Cherry	5.8			Fair				X	
5584	Acer rubrum	Red Maple	7.1			Fair			X		
5585	Prunus serotina	Black Cherry	4			Fair				X	
5586	Acer rubrum	Red Maple	13.9			Poor			X		
5587	Acer rubrum	Red Maple	5.3			Fair				X	
5588	Acer rubrum	Red Maple	9.7			Fair				X	
5589	Acer rubrum	Red Maple	9.6			Fair			X		
5590	Acer rubrum	Red Maple	12.3			Fair				X	
5591	Prunus serotina	Black Cherry	7.7			Fair				X	
5592	Acer rubrum	Red Maple	17.4			Fair				X	
5593	Carya glabra	Pignut Hickory	6.4			Fair				X	
5594	Acer rubrum	Red Maple	12.2			Fair				X	
5595	Acer rubrum	Red Maple	5.4			Fair			X		
5596	Acer rubrum	Red Maple	7.5			Fair				X	
5597	Acer rubrum	Red Maple	12.8			Fair				X	
5598	Sassafras albidum	Sassafras	7			Poor				X	
5599	Prunus serotina	Black Cherry	5			Fair				X	
5600	Acer rubrum	Red Maple	7.5			Fair				X	
5601	Acer rubrum	Red Maple	5.7	4.4		Fair				X	
5602	Prunus serotina	Black Cherry	4.6			Fair				X	
5603	Prunus serotina	Black Cherry	4.7			Fair				X	
5604	Acer rubrum	Red Maple	7.8	4.6		Fair				X	
5605	Acer rubrum	Red Maple	12.2			Fair				X	
5606	Acer rubrum	Red Maple	11.8			Fair				X	
5607	Acer rubrum	Red Maple	4.9			Fair				X	
5608	Acer rubrum	Red Maple	21.4	5.3		Fair				X	
5609	Acer rubrum	Red Maple	7.1			Fair				X	
5610	Sassafras albidum	Sassafras	7.9			Fair				X	
5611	Sassafras albidum	Sassafras	5.5			Poor				X	
5612	Sassafras albidum	Sassafras	8.5			Fair				X	
5613	Acer rubrum	Red Maple	5.2			Fair			X		
5614	Acer rubrum	Red Maple	12.6			Fair			X		
5615	Acer rubrum	Red Maple	9.4			Poor			X		
5616	Acer rubrum	Red Maple	7.4			Fair			X		
5617	Prunus serotina	Black Cherry	7			Fair			X		
5618	Acer rubrum	Red Maple	4.7			Fair			X		
5619	Sassafras albidum	Sassafras	12.3			Fair			X		
5620	Acer rubrum	Red Maple	5.4			Fair			X		
5621	Acer rubrum	Red Maple	5.4			Fair			X		
5622	Prunus serotina	Black Cherry	7.4			Fair			X		
5623	Acer rubrum	Red Maple	10.2			Poor			X		
5624	Sassafras albidum	Sassafras	5.2			Fair				X	
5625	Sassafras albidum	Sassafras	4.1			Fair				X	
5626	Sassafras albidum	Sassafras	4.1			Fair				X	
5627	Acer rubrum	Red Maple	5			Fair				X	
5628	Acer rubrum	Red Maple	5.8			Fair				X	
5629	Acer rubrum	Red Maple	13.6			Fair				X	
5630	Acer rubrum	Red Maple	10.7			Poor				X	
5631	Acer rubrum	Red Maple	16.9			Fair				X	
5632	Acer rubrum	Red Maple	7.7			Fair				X	
5633	Acer rubrum	Red Maple	5.2			Fair				X	
5634	Acer rubrum	Red Maple	18.4			Fair				X	
5635	Acer rubrum	Red Maple	5.2			Fair			X		
5636	Acer rubrum	Red Maple	10			Fair				X	
5637	Prunus serotina	Black Cherry	6.5			Fair				X	
5638	Acer rubrum	Red Maple	18.8			Fair			X		
5639	Acer rubrum	Red Maple	4.5			Fair				X	
5640	Acer rubrum	Red Maple	14.1			Fair				X	
5641	Prunus serotina	Black Cherry	4.4			Fair				X	
5642	Sassafras albidum	Sassafras	4.5			Fair				X	
5643	Sassafras albidum	Sassafras	4.4			Fair				X	
5644	Acer rubrum	Red Maple	6.2			Fair				X	
5645	Acer negundo	Boxelder	6.4			Fair				X	
5646	Acer rubrum	Red Maple	4.9	4.1		Fair				X	
5647	Prunus serotina	Black Cherry	9.9			Fair				X	
5648	Acer negundo	Boxelder	5.9	4.7		Fair				X	
5649	Acer negundo	Boxelder	4.6	4.2		Fair				X	
5650	Prunus serotina	Black Cherry	4.1	4		Fair				X	
5651	Acer negundo	Boxelder	5.4	5.3		Fair				X	
5652	Acer rubrum	Red Maple	14.8	4.5		Fair				X	
5653	Prunus serotina	Black Cherry	6.9			Poor				X	
5654	Acer rubrum	Red Maple	5.2			Very Poor				X	
5655	Prunus serotina	Black Cherry	5.8			Fair				X	
5656	Acer rubrum	Red Maple	5.4			Fair				X	
5657	Prunus serotina	Black Cherry	6			Fair				X	
5658	Acer rubrum	Red Maple	4.3			Fair				X	
5659	Acer rubrum	Red Maple	5.4			Fair				X	
5660	Acer rubrum	Red Maple	4.5			Fair				X	
5661	Prunus serotina	Black Cherry	5.4			Fair				X	
5662	Prunus serotina	Black Cherry	8.8	5.6		Fair				X	
5663	Acer rubrum	Red Maple	4.8			Fair				X	
5664	Acer rubrum	Red Maple	4.3			Fair			X		
5665	Acer rubrum	Red Maple	5.7			Poor				X	
5666	Acer rubrum	Red Maple	6.1			Fair				X	
5667	Prunus serotina	Black Cherry	4.7			Very Poor				X	
5668	Prunus serotina	Black Cherry	7.2			Very Poor			X		
5669	Acer rubrum	Red Maple	8.5	5.2	4.8	Fair				X	
5670	Acer rubrum	Red Maple	5.3			Fair				X	
5671	Acer rubrum	Red Maple	4.8			Fair			X		
5672	Acer rubrum	Red Maple	5.8			Fair			X		
5673	Acer rubrum	Red Maple	6.1			Fair			X		
5674	Prunus serotina	Black Cherry	9.6			Fair			X		
5675	Ulmus americana	American Elm	10.2			Very Poor			X		
5676	Prunus serotina	Black Cherry	9.2			Fair			X		
5677	Prunus serotina	Black Cherry	10.6			Fair				X	
5678	Acer rubrum	Red Maple	5.6			Fair				X	
5679	Acer negundo	Boxelder	5.5			Fair				X	
5680	Acer negundo	Boxelder	4.4			Fair				X	
5681	Prunus serotina	Black Cherry	5.5	4.7		Fair				X	
5682	Ulmus americana	American Elm	10.4	5.9		Fair				X	
5683	Acer rubrum	Red Maple	5	4.2		Fair				X	
5684	Prunus serotina	Black Cherry	4.3	4		Fair				X	
5685	Sassafras albidum	Sassafras	9.3			Fair				X	
5686	Prunus serotina	Black Cherry	5			Fair				X	
5687	Sassafras albidum	Sassafras	4.8			Fair				X	
5688	Acer rubrum	Red Maple	4.9			Fair			X		
5689	Acer rubrum	Red Maple	17			Fair				X	
5690	Acer rubrum	Red Maple	11.8			Fair				X	
5691	Acer rubrum	Red Maple	8.3			Fair				X	
5692	Acer negundo	Boxelder	7.1			Fair				X	
5693	Acer rubrum	Red Maple	6			Fair				X	
5694	Prunus serotina	Black Cherry	9.2			Fair				X	
5695	Prunus serotina	Black Cherry	8.9			Fair				X	
5696	Prunus serotina	Black Cherry	5.3			Poor				X	
5697	Prunus serotina	Black Cherry	7.1			Fair				X	
5698	Acer rubrum	Red Maple	8.5			Fair				X	
5699	Prunus serotina	Black Cherry	8	5.3	4.8	Fair				X	
5700	Acer negundo	Boxelder	10.1			Fair				X	
5701	Prunus serotina	Black Cherry	8.1			Fair				X	
5702	Prunus serotina	Black Cherry	4.3			Fair				X	
5703	Prunus serotina	Black Cherry	7.2			Fair				X	
5704	Prunus serotina	Black Cherry	8.6			Fair				X	
5705	Ulmus americana	American Elm	4.3			Fair				X	
5706	Prunus serotina	Black Cherry	12.1			Fair			X		
5707	Acer rubrum	Red Maple	5.7			Fair				X	
5708	Prunus serotina	Black Cherry	9.1			Fair			X		
5709	Sassafras albidum	Sassafras	5.7			Fair				X	
5710	Prunus serotina	Black Cherry	11.4			Fair				X	
5711	Acer rubrum	Red Maple	5.2	4.4		Fair			X		
5712	Sassafras albidum	Sassafras	6			Fair			X		
5713	Sassafras albidum	Sassafras	4.6			Fair				X	
5714	Prunus serotina	Black Cherry	7.5			Fair				X	
5715	Acer rubrum	Red Maple	6.6	5.2		Fair				X	
5716	Prunus serotina	Black Cherry	6.2			Fair				X	
5717	Acer rubrum	Red Maple	5.3			Fair				X	
5718	Prunus serotina	Black Cherry	11.3	8.8	8.5	Fair				X	
5719	Acer rubrum	Red Maple	8.3			Fair				X	
5720	Acer rubrum	Red Maple	8.2	6.7	5.6	Fair				X	
5721	Acer rubrum	Red Maple	7.7			Fair				X	
5722	Acer rubrum	Red Maple	6.8			Fair				X	
5723	Prunus serotina	Black Cherry	9.1			Fair				X	
5724	Prunus serotina	Black Cherry	9.5			Fair				X	
5725	Acer rubrum	Red Maple	14.7			Fair				X	
5726	Sassafras albidum	Sassafras	4.5			Fair				X	
5727	Prunus serotina	Black Cherry	7.1			Fair				X	
5728	Acer rubrum	Red Maple	8.5			Fair				X	
5729	Acer rubrum	Red Maple	5.2			Fair				X	
5730	Prunus serotina	Black Cherry	8.2			Fair				X	
5731	Acer rubrum	Red Maple	7.7			Fair				X	
5732	Prunus serotina	Black Cherry	7.4			Fair				X	
5733	Acer rubrum	Red Maple	5.4			Fair				X	
5734	Acer rubrum	Red Maple	6.9			Fair				X	
5735	Prunus serotina	Black Cherry	4.2			Fair				X	
5736	Acer rubrum	Red Maple	6.8			Fair				X	
5737	Sassafras albidum	Sassafras	11.2			Fair				X	
5738	Sassafras albidum	Sassafras	8.2			Fair				X	
5739	Prunus serotina	Black Cherry	8.6			Fair				X	
5740	Acer rubrum	Red Maple	6.2	4.8		Fair				X	
5741	Prunus serotina	Black Cherry	4.5			Fair				X	
5742	Prunus serotina	Black Cherry	14.9			Fair				X	
5743	Sassafras albidum	Sassafras	7.2			Fair				X	
5744	Acer rubrum	Red Maple	8			Fair				X	
5745	Prunus serotina	Black Cherry	5.5			Fair				X	
5746	Acer rubrum	Red Maple	13.3			Fair				X	
5747	Acer rubrum	Red Maple	5			Fair				X	
5748	Prunus serotina	Black Cherry	10.9			Fair			X		
5749	Sassafras albidum	Sassafras	7.4			Fair				X	
5750	Acer rubrum	Red Maple	6			Fair				X	
5751	Acer rubrum	Red Maple	4.6	4		Fair				X	
5752	Sassafras albidum	Sassafras	5.2			Fair				X	
5753	Sassafras albidum	Sassafras	5.5			Fair				X	
5754	Acer rubrum	Red Maple	5.4	4.6		Fair				X	
5755	Acer rubrum	Red Maple	4.5			Fair				X	
5756	Acer rubrum	Red Maple	5.2			Fair				X	
5757	Prunus serotina	Black Cherry	5.5			Fair				X	
5758	Prunus serotina	Black Cherry	8.8			Fair			X		
5759	Prunus serotina	Black Cherry	7.1	6.2	5.3	Fair			X		
5760	Prunus serotina	Black Cherry	7.5			Fair				X	
5761	Acer rubrum	Red Maple	5.4			Fair				X	
5762	Prunus serotina	Black Cherry	5.8			Fair				X	
5763	Prunus serotina	Black Cherry	8.9			Fair			X		
5764	Prunus serotina	Black Cherry	9.3			Fair				X	
5765	Acer rubrum	Red Maple	11.4	8.3	7.3	Fair				X	
5766	Prunus serotina	Black Cherry	5.6	4.3		Fair				X	
5767	Acer rubrum	Red Maple	8.5			Fair				X	
5768	Prunus serotina	Black Cherry	10.6			Fair				X	
5769	Quercus alba	White Oak	13.4			Fair				X	
5770	Quercus alba	White Oak	12.7			Fair				X	
5771	Sassafras albidum	Sassafras	13.4			Fair				X	
5772	Acer rubrum	Red Maple	4			Fair			X		
5773	Sassafras albidum	Sassafras	6.3			Fair			X		
5774	Sassafras albidum	Sassafras	5.4			Fair				X	
5775	Sassafras albidum	Sassafras	5.7			Fair				X	
5776	Sassafras albidum	Sassafras	5.6			Fair				X	
5777	Acer rubrum	Red Maple	12.4			Fair				X	
5778	Prunus serotina	Black Cherry	5.6			Fair				X	
5779	Acer rubrum	Red Maple	8.5			Fair				X	
5780	Acer rubrum	Red Maple	6.5	5.2		Fair				X	
5781	Acer rubrum	Red Maple	9			Fair				X	
5782	Acer rubrum	Red Maple	13	10.6		Fair				X	
5783	Prunus avium	Sweet Cherry	4.5			Fair				X	
5784	Acer rubrum	Red Maple	5.2			Fair				X	
5785	Fraxinus pennsylvanica	Green Ash	4.5			Fair				X	
5786	Acer rubrum	Red Maple	22.6			Fair				X	
5787	Prunus serotina	Black Cherry	5			Fair				X	
5788	Prunus serotina	Black Cherry	15			Fair				X	
5789	Prunus serotina	Black Cherry	12.1	9.8		Fair				X	
5790	Prunus serotina	Black Cherry	5			Fair				X	
5791	Fraxinus pennsylvanica	Green Ash	5.8			Fair				X	
5792	Prunus serotina	Black Cherry	8.2			Fair				X	
5793	Prunus serotina	Black Cherry	6.8			Fair				X	
5794	Ostrya virginiana	Hop Hornbeam	5.2	4		Fair				X	
5795	Ostrya virginiana	Hop Hornbeam	6.9			Fair				X	
5796	Prunus serotina	Black Cherry	4.2			Fair				X	
5797	Prunus serotina	Black Cherry	7.3			Fair				X	
5798	Prunus serotina	Black Cherry	9.4			Fair				X	
5799	Sassafras albidum	Sassafras	9.9			Fair				X	
5800	Sassafras albidum	Sassafras	5			Fair				X	
5801	Acer rubrum	Red Maple	4.8			Fair			X		
5802	Acer rubrum	Red Maple	4.6			Fair				X	
5803	Populus grandidentata	Bigtooth Aspen	10.8			Fair				X	
5804	Acer rubrum	Red Maple	12.7			Poor				X	
5805	Acer rubrum	Red Maple	5			Fair				X	
5806	Prunus serotina	Black Cherry	4.4			Fair				X	
5807	Prunus serotina	Black Cherry	4.5			Fair			X		
5808	Prunus serotina	Black Cherry	4.7			Fair			X		
5809	Prunus serotina	Black Cherry	8.2			Fair				X	
5810	Sassafras albidum	Sassafras	4.7			Fair				X	
5811	Sassafras albidum	Sassafras	5.9	4.8		Fair				X	
5812	Sassafras albidum	Sassafras	5.5			Fair				X	
5813	Acer rubrum	Red Maple	12.3			Fair				X	
5814	Sassafras albidum	Sassafras	4.6			Fair				X	
5815	Prunus serotina	Black Cherry	8.5			Fair				X	
5816	Sassafras albidum	Sassafras	4.5			Fair				X	
5817	Prunus serotina	Black Cherry	6.7			Fair				X	
5818	Prunus serotina	Black Cherry	5.2			Fair				X	
5819	Acer rubrum	Red Maple	6.6			Fair				X	
5820	Prunus serotina	Black Cherry	6			Fair				X	
5821	Acer rubrum	Red Maple	7.2			Fair				X	
5822	Acer rubrum	Red Maple	9.2			Fair				X	
5823	Prunus serotina	Black Cherry	6.2			Fair				X	
5824	Prunus serotina	Black Cherry	5			Fair				X	
5825	Prunus serotina	Black Cherry	5			Fair				X	
5826	Sassafras albidum	Sassafras	4.1			Fair			X		
5827	Acer rubrum	Red Maple	8.1			Fair				X	
5828	Acer rubrum	Red Maple	11.7			Fair				X	
5829	Prunus serotina	Black Cherry	4.5	4.6		Fair				X	
5830	Acer rubrum	Red Maple	4			Fair			X		
5831	Prunus serotina	Black Cherry	4.5			Fair				X	
5832	Sassafras albidum	Sassafras	7			Fair			X		
5833	Acer rubrum	Red Maple	5.8			Fair				X	
5834	Prunus serotina	Black Cherry	4.4			Fair				X	
5835	Prunus serotina	Black Cherry	5.7			Fair				X	
5836	Acer rubrum	Red Maple	5.5			Fair				X	
5837	Acer rubrum	Red Maple	5.2			Fair				X	
5838	Sassafras albidum	Sassafras	4.1			Fair				X	
5839	Populus grandidentata	Bigtooth Aspen	14.9			Fair				X	
5840	Prunus serotina	Black Cherry	4.6			Fair				X	
5841	Prunus serotina	Black Cherry	4			Fair				X	
5842	Acer rubrum	Red Maple	5.3			Fair			X		
5843	Acer rubrum	Red Maple	4.6			Fair				X	
5844	Acer rubrum	Red Maple	9.5			Fair				X	
5845	Acer rubrum	Red Maple	10.2			Fair				X	
5846	Acer rubrum	Red Maple	14.2	6.5	5.4	Fair			X		
5847	Sassafras albidum	Sassafras	4.3			Fair				X	
5848	Acer rubrum	Red Maple	17.2			Fair				X	
5849	Acer rubrum	Red Maple	5.1			Fair				X	
5850	Prunus serotina	Black Cherry	9.5			Fair				X	
5851	Acer rubrum	Red Maple	9.5			Fair				X	
5852	Quercus rubra	Red Oak	5.8			Fair				X	
5853	Acer rubrum	Red Maple	9.8	8.6		Fair			X		
5854	Prunus serotina	Black Cherry	4.6			Fair				X	
5855	Prunus serotina	Black Cherry	10.8			Fair				X	
5856	Prunus serotina	Black Cherry	8.5			Fair				X	
5857	Ailanthus altissima	Tree of Heaven	14.9			Poor				X	
5858	Ailanthus altissima	Tree of Heaven	5.6			Fair				X	
5859	Sassafras albidum	Sassafras	8.3			Fair				X	
5860	Prunus serotina	Black Cherry	7.8			Fair				X	
5861	Prunus serotina	Black Cherry	6.3	5.3		Fair				X	
5862	Sassafras albidum	Sassafras	6.9			Fair				X	
5863	Sassafras albidum	Sassafras	6.4			Fair				X	
5864	Sassafras albidum	Sassafras	6.3			Fair				X	
5865	Prunus serotina	Black Cherry	5.7			Fair				X	
5866	Sassafras albidum	Sassafras	4.8			Fair				X	
5867	Sassafras albidum	Sassafras	6.8			Fair				X	
5868	Acer rubrum	Red Maple	5.1			Fair				X	
5869	Sassafras albidum	Sassafras	5.3			Fair				X	
5870	Acer rubrum	Red Maple	10.5			Fair				X	
5871	Sassafras albidum	Sassafras	5.7	4.6		Fair				X	
5872	Acer rubrum	Red Maple	9.7			Fair				X	
5873	Acer rubrum	Red Maple	9.8			Poor				X	
5874	Sassafras albidum	Sassafras	8.3			Fair				X	
5875	Sassafras albidum	Sassafras	5.3			Fair				X	

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME:

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

JACOBSON MOCERI ORION, LLC

PRELIMINARY / CONSTRUCTION / RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE:

NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
11_Tree--12/6/2022 8:18:40 AM

SHEET NO.

11

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
5876	Sassafras albidum	Sassafras	4.9			Fair				X	
5877	Prunus serotina	Black Cherry	12.4			Fair				X	
5878	Acer rubrum	Red Maple	9.9			Fair				X	
5879	Acer rubrum	Red Maple	15.6			Fair				X	
5880	Acer rubrum	Red Maple	15.6			Fair				X	
5881	Acer rubrum	Red Maple	15.4			Fair				X	
5882	Acer rubrum	Red Maple	5.2			Fair				X	
5883	Acer rubrum	Red Maple	7.2			Fair				X	
5884	Ailanthus altissima	Tree of Heaven	7.9			Fair				X	
5885	Sassafras albidum	Sassafras	4.7			Fair				X	
5886	Acer rubrum	Red Maple	4.9			Fair			X		
5887	Acer rubrum	Red Maple	9.5	7.6		Fair				X	
5888	Acer rubrum	Red Maple	7.4			Fair			X		
5889	Sassafras albidum	Sassafras	4.7			Fair				X	
5890	Acer rubrum	Red Maple	12			Fair				X	
5891	Prunus serotina	Black Cherry	5.1			Fair				X	
5892	Acer rubrum	Red Maple	6.7			Fair			X		
5893	Acer rubrum	Red Maple	20.7			Fair				X	
5894	Acer rubrum	Red Maple	4.9			Fair				X	
5895	Acer rubrum	Red Maple	5.6			Fair				X	
5896	Sassafras albidum	Sassafras	5			Fair				X	
5897	Sassafras albidum	Sassafras	4			Fair				X	
5898	Acer rubrum	Red Maple	14.9			Fair				X	
5899	Acer rubrum	Red Maple	9.4			Fair				X	
5900	Prunus serotina	Black Cherry	5.2			Fair			X		
5901	Acer rubrum	Red Maple	10.3			Fair				X	
5902	Sassafras albidum	Sassafras	5.4			Fair				X	
5903	Prunus serotina	Black Cherry	8.1	6.1		Fair				X	
5904	Sassafras albidum	Sassafras	8.4			Poor				X	
5905	Acer rubrum	Red Maple	5.6			Fair				X	
5906	Acer rubrum	Red Maple	10.3			Fair				X	
5907	Acer rubrum	Red Maple	6.5			Fair			X		
5908	Acer rubrum	Red Maple	4.3			Fair			X		
5909	Sassafras albidum	Sassafras	12.6			Fair			X		
5910	Acer rubrum	Red Maple	18.8			Fair				X	
5911	Acer rubrum	Red Maple	14.9			Fair				X	
5912	Acer rubrum	Red Maple	17.7			Fair				X	
5913	Acer rubrum	Red Maple	5.2			Fair				X	
5914	Prunus serotina	Black Cherry	4.6			Fair				X	
5915	Prunus serotina	Black Cherry	4.1			Fair			X		
5916	Sassafras albidum	Sassafras	5.2			Fair				X	
5917	Prunus avium	Sweet Cherry	6.6			Fair				X	
5918	Acer rubrum	Red Maple	5.5			Fair				X	
5919	Prunus serotina	Black Cherry	4.9			Fair				X	
5920	Prunus serotina	Black Cherry	9.5			Fair				X	
5921	Ulmus americana	American Elm	5.6			Fair				X	
5922	Ulmus americana	American Elm	6.3			Fair				X	
5923	Acer rubrum	Red Maple	5.2			Fair				X	
5924	Prunus serotina	Black Cherry	5	4.2		Fair				X	
5925	Prunus serotina	Black Cherry	8.9			Fair				X	
5926	Ulmus americana	American Elm	8.3			Fair				X	
5927	Prunus serotina	Black Cherry	7.9			Fair				X	
5928	Prunus serotina	Black Cherry	8.9			Fair				X	
5929	Prunus serotina	Black Cherry	8.5			Fair				X	
5930	Acer saccharum	Sugar Maple	9.1			Fair				X	
5931	Prunus serotina	Black Cherry	10.5			Fair				X	
5932	Prunus serotina	Black Cherry	7.3			Poor				X	
5933	Acer rubrum	Red Maple	8.2			Fair				X	
5934	Prunus serotina	Black Cherry	6.2			Fair				X	
5935	Prunus avium	Sweet Cherry	5.8			Fair				X	
5936	Prunus avium	Sweet Cherry	14.6			Fair				X	
5937	Acer rubrum	Red Maple	10.5			Fair				X	
5938	Prunus serotina	Black Cherry	10.8			Fair				X	
5939	Sassafras albidum	Sassafras	9	6		Fair				X	
5940	Acer rubrum	Red Maple	4.5			Fair				X	
5941	Prunus serotina	Black Cherry	6.7			Fair				X	
5942	Quercus alba	White Oak	12.4			Fair				X	
5943	Prunus serotina	Black Cherry	5.2			Fair				X	
5944	Prunus serotina	Black Cherry	10.3			Fair				X	
5945	Acer rubrum	Red Maple	5.7			Fair				X	
5946	Prunus serotina	Black Cherry	4.8			Fair				X	
5947	Sassafras albidum	Sassafras	4.4			Fair			X		
5948	Prunus serotina	Black Cherry	9			Fair			X		
5949	Acer rubrum	Red Maple	5.9			Fair				X	
5950	Prunus serotina	Black Cherry	3			Fair				X	
5951	Prunus serotina	Black Cherry	6.1			Fair				X	
5952	Acer rubrum	Red Maple	5.7			Fair			X		
5953	Prunus serotina	Black Cherry	4.3			Fair			X		
5954	Acer rubrum	Red Maple	4.7			Fair			X		
5955	Acer rubrum	Red Maple	8.5			Fair			X		
5956	Prunus serotina	Black Cherry	7.2			Fair			X		
5957	Sassafras albidum	Sassafras	5			Fair			X		
5958	Sassafras albidum	Sassafras	5.6			Fair			X		
5959	Sassafras albidum	Sassafras	4.6			Fair			X		
5960	Sassafras albidum	Sassafras	5.3			Fair			X		
5961	Sassafras albidum	Sassafras	5			Fair				X	
5962	Prunus serotina	Black Cherry	10.7			Fair				X	
5963	Quercus rubra	Red Oak	4.2			Fair				X	
5964	Sassafras albidum	Sassafras	4.2			Fair			X		
5965	Sassafras albidum	Sassafras	5.8			Fair				X	
5966	Prunus serotina	Black Cherry	4.9			Fair				X	
5967	Acer rubrum	Red Maple	5			Fair				X	
5968	Quercus rubra	Red Oak	6			Fair				X	
5969	Acer rubrum	Red Maple	4.5			Fair				X	
5970	Acer rubrum	Red Maple	8.4	5.4		Fair				X	
5971	Acer rubrum	Red Maple	9.1			Fair				X	
5972	Acer rubrum	Red Maple	7.2			Fair				X	
5973	Prunus serotina	Black Cherry	12.2			Fair				X	
5974	Sassafras albidum	Sassafras	5.4			Fair			X		
5975	Sassafras albidum	Sassafras	4.8			Fair				X	
5976	Acer rubrum	Red Maple	7.1			Fair				X	
5977	Prunus serotina	Black Cherry	5.4			Fair				X	
5978	Prunus serotina	Black Cherry	4.5			Fair				X	
5979	Prunus avium	Sweet Cherry	4.5			Fair				X	
5980	Acer rubrum	Red Maple	5			Fair				X	
5981	Prunus serotina	Black Cherry	8.4			Fair				X	
5982	Acer rubrum	Red Maple	10.2			Fair				X	
5983	Sassafras albidum	Sassafras	5.1			Fair				X	
5984	Sassafras albidum	Sassafras	5.3			Fair				X	
5985	Sassafras albidum	Sassafras	4.2			Fair				X	
5986	Ulmus americana	American Elm	5.7			Fair				X	
5987	Ulmus americana	American Elm	9.3	5.7		Fair				X	
5988	Acer rubrum	Red Maple	5.9			Fair				X	
5989	Ulmus americana	American Elm	13.7			Fair				X	
5990	Prunus avium	Sweet Cherry	7.2			Fair				X	
5991	Acer saccharinum	Silver Maple	7.4			Fair				X	
5992	Acer negundo	Boxelder	6.8	5.1		Fair				X	
5993	Acer negundo	Boxelder	6.6			Fair			X		
5994	Sassafras albidum	Sassafras	6.4			Fair			X		
5995	Sassafras albidum	Sassafras	5.6			Fair				X	
5996	Acer rubrum	Red Maple	5.6			Fair				X	
5997	Sassafras albidum	Sassafras	4.9			Fair				X	
5998	Sassafras albidum	Sassafras	6.6			Fair				X	
5999	Sassafras albidum	Sassafras	8.6			Fair				X	
6000	Prunus serotina	Black Cherry	7.2			Fair				X	
6001	Prunus serotina	Black Cherry	7			Fair				X	
6002	Acer platanoides	Norway Maple	15.5			Fair				X	
6003	Acer platanoides	Norway Maple	11			Fair				X	
6004	Prunus serotina	Black Cherry	10			Fair			X		
6005	Acer rubrum	Red Maple	4.8			Fair			X		
6006	Prunus serotina	Black Cherry	6.1			Fair			X		
6007	Prunus serotina	Black Cherry	9.5			Fair			X		
6008	Acer rubrum	Red Maple	4.2			Fair			X		
6009	Acer rubrum	Red Maple	6.4			Fair			X		
6010	Prunus serotina	Black Cherry	9			Fair			X		
6011	Acer rubrum	Red Maple	5.8			Fair				X	
6012	Acer rubrum	Red Maple	4.6			Fair				X	
6013	Acer rubrum	Red Maple	6.4			Fair				X	
6014	Prunus serotina	Black Cherry	6.2			Fair				X	
6015	Acer rubrum	Red Maple	5.6			Fair				X	
6016	Acer rubrum	Red Maple	24.9			Fair	X				
6017	Acer rubrum	Red Maple	9.6	7.6		Fair				X	
6018	Acer negundo	Boxelder	5.1			Fair				X	
6019	Acer rubrum	Red Maple	6.1			Fair				X	
6020	Prunus serotina	Black Cherry	11.6			Fair				X	
6021	Acer rubrum	Red Maple	6.5			Fair			X		
6022	Prunus avium	Sweet Cherry	11.2			Fair			X		
6023	Acer rubrum	Red Maple	4.2			Fair				X	
6024	Prunus serotina	Black Cherry	7			Fair				X	
6025	Acer negundo	Boxelder	4.5			Fair				X	
6026	Prunus serotina	Black Cherry	7.1			Fair				X	
6027	Acer rubrum	Red Maple	11.4			Fair				X	

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
6028	Prunus serotina	Black Cherry	8.4			Fair				X	
6029	Acer rubrum	Red Maple	5.7			Fair				X	
6030	Prunus serotina	Black Cherry	5.8	5.7	5.6	Fair				X	
6031	Sassafras albidum	Sassafras	8.4			Fair				X	
6032	Acer rubrum	Red Maple	17.6			Fair				X	
6033	Prunus serotina	Black Cherry	9.1			Fair				X	
6034	Prunus avium	Sweet Cherry	8.2			Fair			X		
6035	Acer rubrum	Red Maple	4.5			Fair				X	
6036	Prunus serotina	Black Cherry	6.6			Fair				X	
6037	Acer rubrum	Red Maple	10.1			Fair				X	
6038	Acer rubrum	Red Maple	12.4			Fair				X	
6039	Prunus serotina	Black Cherry	8.7			Fair				X	
6040	Prunus serotina	Black Cherry	7.8			Fair				X	
6041	Prunus serotina	Black Cherry	6.3			Fair				X	
6042	Prunus serotina	Black Cherry	7.3			Fair				X	
6043	Prunus serotina	Black Cherry	5.5			Fair				X	
6044	Prunus serotina	Black Cherry	5.8			Fair				X	
6045	Prunus serotina	Black Cherry	8	6.1		Fair				X	
6046	Prunus serotina	Black Cherry	5.8			Fair				X	
6047	Acer rubrum	Red Maple	8.1			Fair				X	
6048	Sassafras albidum	Sassafras	6.1			Fair				X	
6049	Acer rubrum	Red Maple	6.9			Fair			X		
6050	Prunus serotina	Black Cherry	10.3			Fair				X	
6051	Quercus velutina	Black Oak	20			Fair				X	
6052	Acer rubrum	Red Maple	8.1	5.6		Fair				X	
6053	Prunus serotina	Black Cherry	6.1			Fair				X	
6054	Acer rubrum	Red Maple	5.9	5.2	5.1	Fair				X	
6055	Acer rubrum	Red Maple	4.5			Fair				X	
6056	Acer rubrum	Red Maple	6.5			Fair				X	
6057	Acer rubrum	Red Maple	6.7			Fair				X	
6058	Prunus serotina	Black Cherry	4.9			Fair				X	
6059	Ulmus americana	American Elm	10			Fair				X	
6060	Prunus serotina	Black Cherry	4.9			Fair				X	
6061	Acer rubrum	Red Maple	11.4			Fair				X	
6062	Prunus serotina	Black Cherry	5.9			Fair				X	
6063	Acer rubrum	Red Maple	4.8			Poor				X	
6064	Acer rubrum	Red Maple	6.7			Fair				X	
6065	Acer rubrum	Red Maple	9			Fair				X	
6066	Prunus serotina	Black Cherry	11.3			Fair				X	
6067	Acer rubrum	Red Maple	21.8			Fair			X		
6068	Acer rubrum	Red Maple	4.3			Fair				X	
6069	Prunus serotina	Black Cherry	9.1			Fair				X	
6070	Acer rubrum	Red Maple	4.6			Poor				X	
6071	Prunus serotina	Black Cherry	4.6			Fair				X	
6072	Prunus serotina	Black Cherry	10.6	5		Fair			X		
6073	Acer rubrum	Red Maple	9.4			Fair			X		
6074	Prunus serotina	Black Cherry	5.6			Fair				X	
6075	Prunus serotina	Black Cherry	5.8			Fair				X	
6076	Acer rubrum	Red Maple	7.7			Fair				X	
6077	Prunus serotina	Black Cherry	6			Fair				X	
6078	Sassafras albidum	Sassafras	6			Fair				X	
6079	Sassafras albidum	Sassafras	5.3			Fair				X	
6080	Prunus serotina	Black Cherry	6.4			Fair			X		
6081	Acer rubrum	Red Maple	15.4			Fair				X	
6082	Acer rubrum	Red Maple	4.4			Fair				X	
6083	Sassafras albidum	Sassafras	5.7			Fair				X	
6084	Prunus serotina	Black Cherry	5.1			Fair				X	
6085	Prunus serotina	Black Cherry	8.7	7.8		Fair				X	
6086	Prunus serotina	Black Cherry	7.8	6.7	5.3	Fair				X	
6087	Sassafras albidum	Sassafras	10.6			Poor				X	
6088	Sassafras albidum	Sassafras	6.8			Fair				X	
6089	Sassafras albidum	Sassafras	6			Fair				X	
6090	Sassafras albidum	Sassafras	4.2			Fair				X	
6091	Prunus serotina	Black Cherry	9.2	7.8		Fair				X	
6092	Prunus serotina	Black Cherry	13.4			Fair				X	
6093	Acer rubrum	Red Maple	5.2			Fair				X	
6094	Prunus serotina	Black Cherry	9.5			Fair				X	
6095	Acer rubrum	Red Maple	7			Fair				X	
6096	Prunus serotina	Black Cherry	6.7			Fair				X	
6097	Prunus serotina	Black Cherry	10.8	6.4		Fair				X	
6098	Acer rubrum	Red Maple	5.2			Fair				X	
6099	Acer rubrum	Red Maple	4.6			Fair				X	
6100	Prunus serotina	Black Cherry	9.2	8	6.6	Fair				X	
6101	Acer rubrum	Red Maple	5			Fair				X	
6102	Prunus serotina	Black Cherry	5.8			Fair				X	
6103	Prunus serotina	Black Cherry	8.4			Fair				X	
6104	Sassafras albidum	Sassafras	4.9			Fair				X	
6105	Sassafras albidum	Sassafras	6.1			Fair				X	
6106	Acer rubrum	Red Maple	5.8			Fair				X	
6107	Prunus serotina	Black Cherry	7.4	6.6		Fair				X	
6108	Acer rubrum	Red Maple	5.6			Fair				X	
6109	Prunus serotina	Black Cherry	6.9			Fair				X	
6110	Prunus serotina	Black Cherry	8.4			Fair				X	
6111	Acer rubrum	Red Maple	4.8			Fair				X	
6112	Acer rubrum	Red Maple	15.9			Fair				X	
6113	Acer rubrum	Red Maple	6.1	5.1	4.3	Fair				X	
6114	Sassafras albidum	Sassafras	4.2			Fair				X	
6115	Acer rubrum	Red Maple	7.6			Fair			X		
6116	Acer rubrum	Red Maple	4.2			Poor				X	
6117	Prunus serotina	Black Cherry	6.2			Fair				X	
6118	Prunus serotina	Black Cherry	6.3			Fair				X	
6119	Acer rubrum	Red Maple	6.1			Fair				X	
6120	Prunus serotina	Black Cherry	5			Fair				X	
6121	Prunus serotina	Black Cherry	10.5			Fair				X	
6122	Acer negundo	Boxelder	4.6	4.5		Fair				X	
6123	Acer rubrum	Red Maple	4			Fair				X	
6124	Prunus serotina	Black Cherry	6.3			Fair				X	
6125	Sassafras albidum	Sassafras	7			Fair				X	
6126	Sassafras albidum	Sassafras	5.6			Fair				X	
6127	Acer rubrum	Red Maple	12.2			Fair				X	
6128	Prunus serotina	Black Cherry	5.8			Fair				X	
6129	Sassafras albidum	Sassafras	4.9			Fair				X	
6130	Acer rubrum	Red Maple	4.9			Fair				X	
6131	Acer rubrum	Red Maple	15.3	6.9	4.1	Fair				X	
6132	Sassafras albidum	Sassafras	6.8	5.1	5.3	Fair				X	
6133	Acer rubrum	Red Maple	5.4			Fair			X		
6134	Sassafras albidum	Sassafras	4.8			Fair			X		
6135	Sassafras albidum	Sassafras	7.6			Fair			X		
6136	Acer rubrum	Red Maple	23.4			Fair			X		
6137	Acer rubrum	Red Maple	9			Fair				X	
6138	Acer rubrum	Red Maple	5.2			Fair				X	
6139	Prunus serotina	Black Cherry	4.3			Fair				X	
6140	Prunus serotina	Black Cherry	6.5			Fair				X	
6141	Prunus serotina	Black Cherry	5.7			Fair				X	
6142	Prunus serotina	Black Cherry	10.3			Fair				X	
6143	Prunus serotina	Black Cherry	6.2			Fair				X	
6144	Prunus serotina	Black Cherry	6.5			Fair				X	
6145	Prunus serotina	Black Cherry	7.2			Fair				X	
6146	Acer rubrum	Red Maple	6.7			Fair			X		
6147	Prunus serotina	Black Cherry	8.1	6.8		Fair			X		
6148	Acer rubrum	Red Maple	5			Fair			X		
6149	Acer rubrum	Red Maple	8			Fair				X	
6150	Prunus serotina	Black Cherry	12.8			Fair				X	
6151	Prunus serotina	Black Cherry	9.4			Fair			X		
6152	Acer rubrum	Red Maple	4.8			Fair			X		
6153	Acer rubrum	Red Maple	7.4	6	4.5	Fair				X	
6154	Acer rubrum	Red Maple	4.2			Fair			X		
6155	Acer rubrum	Red Maple	6.7			Fair			X		
6156	Acer rubrum	Red Maple	8			Fair			X		
6157	Acer rubrum	Red Maple	8.1			Fair				X	
6158	Prunus serotina	Black Cherry	10.2	5.3		Fair				X	
6159	Acer rubrum	Red Maple	7.1			Fair				X	
6160	Sassafras albidum	Sassafras	4.8			Fair				X	
6161	Sassafras albidum	Sassafras	5.1			Fair				X	
6162	Acer rubrum	Red Maple	5.1			Fair			X		
6163	Sassafras albidum	Sassafras	4.4			Fair				X	
6164	Sassafras albidum	Sassafras	6.6			Fair				X	
6165	Sassafras albidum	Sassafras	6.8			Fair				X	
6166	Prunus serotina	Black Cherry	6			Fair				X	
6167	Prunus serotina	Black Cherry	10			Fair				X	
6168	Sassafras albidum	Sassafras	5.9			Fair			X		
6169	Sassafras albidum	Sassafras	5.8			Fair				X	
6170	Sassafras albidum	Sassafras	5.9			Fair				X	
6171	Sassafras albidum	Sassafras	7.3			Fair				X	
6172	Sassafras albidum	Sassafras	5			Fair				X	
6173	Prunus serotina	Black Cherry	7			Fair				X	
6174	Acer rubrum	Red Maple	5			Fair				X	
6175	Acer rubrum	Red Maple	7.7			Fair				X	
6176	Prunus serotina	Black Cherry	8			Fair				X	
6177	Acer rubrum	Red Maple	11			Fair				X	
6178	Acer rubrum	Red Maple	4.4			Fair				X	
6179	Prunus serotina	Black Cherry	10.8			Fair				X	

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
6180	Acer rubrum	Red Maple	6.2	5.9		Fair				X	
6181	Acer rubrum	Red Maple	4.3			Fair				X	
6182	Prunus serotina	Black Cherry	7.9	6.6		Fair				X	
6183	Acer rubrum	Red Maple	7.4			Fair				X	
6184	Acer rubrum	Red Maple	4.8			Fair				X	
6185	Acer rubrum	Red Maple	5.3			Fair				X	
6186	Prunus serotina	Black Cherry	6.1			Fair				X	
6187	Sassafras albidum	Sassafras	4.9			Fair				X	
6188	Acer rubrum	Red Maple	5.8			Fair				X	
6189	Prunus serotina	Black Cherry	4.8			Fair				X	
6190	Prunus serotina	Black Cherry	10.8			Fair				X	
6191	Prunus serotina	Black Cherry	5.4	4.6		Fair				X	
6192	Prunus serotina	Black Cherry	10.9	8.3	8.1	Fair			X		
6193	Sassafras albidum	Sassafras	4.3			Fair			X		
6194	Prunus serotina	Black Cherry	7.4			Fair			X		
6195	Acer rubrum	Red Maple	5.3			Fair			X		
6196	Prunus serotina	Black Cherry	5.2			Fair				X	
6197	Prunus serotina	Black Cherry	12.1			Fair				X	
6198	Prunus serotina	Black Cherry	7.5			Fair				X	
6199	Acer rubrum	Red Maple	8.6			Fair				X	
6200	Prunus serotina	Black Cherry	5.4			Fair				X	
6201	Acer rubrum	Red Maple	6.1			Fair				X	
6202	Prunus serotina	Black Cherry	6.2			Fair				X	
6203	Prunus serotina	Black Cherry	6.6	5.9		Fair				X	
6204	Prunus serotina	Black Cherry	6.5	5.7		Fair			X		
6205	Prunus serotina	Black Cherry	7.7			Fair			X		
6206	Prunus serotina	Black Cherry	5.4			Fair			X		
6207	Prunus serotina	Black Cherry	4.5			Fair			X		
6208	Prunus serotina	Black Cherry	6.4	5.5		Fair				X	
6209	Acer rubrum	Red Maple	5.5	4.1		Fair				X	
6210	Acer rubrum	Red Maple	8.7			Fair				X	
6211	Acer rubrum	Red Maple	6.6			Fair				X	
6212	Prunus serotina	Black Cherry	10.4			Fair				X	
6213	Prunus serotina	Black Cherry	6			Fair				X	
6214	Acer rubrum	Red Maple	7.6			Fair				X	
6215	Prunus serotina	Black Cherry	5.1			Fair				X	
6216	Acer rubrum	Red Maple	7.6			Fair				X	
6217	Acer rubrum	Red Maple	8.5			Fair				X	
6218	Acer rubrum	Red Maple	10.2			Fair				X	
6219	Acer rubrum	Red Maple	6.2			Fair				X	
6220	Acer rubrum	Red Maple	6.4			Fair				X	
6221	Acer rubrum	Red Maple	4.2			Fair				X	
6222	Acer rubrum	Red Maple	4.5			Fair				X	
6223	Prunus serotina	Black Cherry	5.3			Fair				X	
6224	Prunus serotina	Black Cherry	7.7			Fair				X	
6225	Acer rubrum	Red Maple	9.3			Fair				X	
6226	Prunus serotina	Black Cherry	8.8			Fair				X	
6227	Acer rubrum	Red Maple	4.9			Fair				X	
6228	Prunus serotina	Black Cherry	12.3			Fair				X	
6229	Acer rubrum	Red Maple	4.4			Fair				X	
6230	Acer rubrum	Red Maple	6.4			Fair				X	
6231	Prunus serotina	Black Cherry	4.9			Fair				X	
6232	Acer rubrum	Red Maple	12			Fair				X	
6233	Ulmus americana	American Elm	12.9			Fair				X	
6234	Prunus serotina	Black Cherry	4.3			Fair				X	
6235	Prunus serotina	Black Cherry	4.7			Fair				X	
6236	Acer rubrum	Red Maple	9	6.9	5.6	Fair				X	
6237	Sassafras albidum	Sassafras	7.8			Fair				X	
6238	Prunus serotina	Black Cherry	6.8			Fair				X	
6239	Sassafras albidum	Sassafras	7.7			Fair				X	
6240	Acer rubrum	Red Maple	13			Fair				X	
6241	Sassafras albidum	Sassafras	5.3			Fair				X	
6242	Acer rubrum	Red Maple	6			Fair				X	
6243	Acer rubrum	Red Maple	6.9			Fair				X	
6244	Acer rubrum	Red Maple	4.3			Fair				X	
6245	Acer rubrum	Red Maple	4.8			Fair				X	
6246	Prunus serotina	Black Cherry	4.6			Fair				X	
6247	Prunus serotina	Black Cherry	5.2			Fair				X	
6248	Sassafras albidum	Sassafras	5.4			Fair				X	
6249	Prunus serotina	Black Cherry	8.2	6		Fair				X	
6250	Sassafras albidum	Sassafras	10.2			Fair				X	
6251	Sassafras albidum	Sassafras	14.2			Fair				X	
6252	Sassafras albidum	Sassafras	5	4.7		Fair				X	
6253	Prunus serotina	Black Cherry	4.7			Fair				X	
6254	Prunus serotina	Black Cherry	6.5			Fair				X	
6255	Prunus serotina	Black Cherry	9.2			Fair				X	
6256	Acer rubrum	Red Maple	7.8			Fair				X	
6257	Acer rubrum	Red Maple	4.8			Fair				X	
6258	Acer rubrum	Red Maple	4.3			Fair				X	
6259	Prunus serotina	Black Cherry	6.8			Fair				X	
6260	Prunus serotina	Black Cherry	5.5	4.3		Fair				X	
6261	Prunus serotina	Black Cherry	4.1			Fair				X	
6262	Sassafras albidum	Sassafras	13.1			Fair				X	
6263	Sassafras albidum	Sassafras	6.2			Fair				X	
6264	Prunus serotina	Black Cherry	4.4			Fair				X	
6265	Prunus serotina	Black Cherry	5.7	4.5		Fair				X	
6266	Sassafras albidum	Sassafras	4.6			Fair				X	
6267	Sassafras albidum	Sassafras	4.2			Fair				X	
6268	Sassafras albidum	Sassafras	5.5			Fair				X	
6269	Prunus serotina	Black Cherry	6.6			Fair				X	
6270	Prunus serotina	Black Cherry	4.2			Fair				X	
6271	Acer rubrum	Red Maple	17.8			Fair			X		
6272	Acer rubrum	Red Maple	14.8			Fair			X		
6273	Prunus serotina	Black Cherry	4.6			Fair				X	
6274	Acer rubrum	Red Maple	6.8			Fair				X	
6275	Prunus serotina	Black Cherry	5.8			Fair			X		
6276	Prunus serotina	Black Cherry	13.3			Fair			X		
6277	Prunus serotina	Black Cherry	5.7			Fair				X	
6278	Sassafras albidum	Sassafras	16.5			Fair	X				
6279	Prunus serotina	Black Cherry	6	5.2		Fair				X	
6280	Prunus serotina	Black Cherry	4.3			Fair				X	
6281	Acer rubrum	Red Maple	4.3			Fair				X	
6282	Prunus serotina	Black Cherry	4.1			Fair				X	
6283	Prunus serotina	Black Cherry	6.2			Fair				X	
6284	Acer rubrum	Red Maple	4.9			Fair				X	
6285	Acer rubrum	Red Maple	10			Fair				X	
6286	Prunus serotina	Black Cherry	5			Fair				X	
6287	Acer rubrum	Red Maple	10.8			Fair				X	
6288	Prunus serotina	Black Cherry	8.1	4.5	5.2	Fair			X		
6289	Prunus serotina	Black Cherry	5.1			Fair				X	
6290	Prunus serotina	Black Cherry	5.9			Fair			X		
6291	Prunus serotina	Black Cherry	6			Fair				X	
6292	Prunus serotina	Black Cherry	4.9			Fair				X	
6293	Prunus serotina	Black Cherry	5.3			Fair				X	
6294	Acer rubrum	Red Maple	14			Fair				X	
6295	Prunus serotina	Black Cherry	5.5			Fair				X	
6296	Acer rubrum	Red Maple	8.2			Fair				X	
6297	Prunus serotina	Black Cherry	7.8			Fair				X	
6298	Prunus serotina	Black Cherry	6.8			Fair				X	
6299	Acer rubrum	Red Maple	14.3			Fair				X	
6300	Acer rubrum	Red Maple	5.1	4.1		Fair				X	
6301	Acer rubrum	Red Maple	6.7			Fair			X		
6302	Prunus serotina	Black Cherry	4			Fair				X	
6303	Sassafras albidum	Sassafras	4.2			Fair				X	
6304	Sassafras albidum	Sassafras	5			Fair				X	
6305	Acer rubrum	Red Maple	6.6			Fair				X	
6306	Prunus serotina	Black Cherry	6.6			Fair				X	
6307	Acer rubrum	Red Maple	7.3			Fair				X	
6308	Sassafras albidum	Sassafras	6.5			Fair			X		
6309	Acer rubrum	Red Maple	6.9			Fair				X	
6310	Acer rubrum	Red Maple	18.5			Fair				X	
6311	Acer rubrum	Red Maple	19.1			Fair				X	
6312	Prunus serotina	Black Cherry	5.5			Fair				X	
6313	Prunus serotina	Black Cherry	4.6	4.2		Fair				X	
6314	Prunus serotina	Black Cherry	5.5	5		Fair				X	
6315	Acer rubrum	Red Maple	8.7			Fair				X	
6316	Acer rubrum	Red Maple	10.3			Fair				X	
6317	Prunus serotina	Black Cherry	7			Fair				X	
6318	Prunus serotina	Black Cherry	10			Very Poor				X	
6319	Prunus serotina	Black Cherry	7.1			Fair				X	
6320	Rhamnus cathartica	European Buckthorn	5.9			Fair			X		
6321	Prunus serotina	Black Cherry	7.5			Fair				X	
6322	Prunus avium	Sweet Cherry	13.2			Fair				X	
6323	Prunus serotina	Black Cherry	5.8			Fair				X	
6324	Ulmus americana	American Elm	8.9			Fair			X		
6325	Acer rubrum	Red Maple	4			Fair				X	
6326	Acer rubrum	Red Maple	12.8			Poor				X	
6327	Prunus serotina	Black Cherry	4			Fair				X	
6328	Acer rubrum	Red Maple	12.5			Fair				X	
6329	Acer rubrum	Red Maple	9.6			Fair				X	
6330	Acer rubrum	Red Maple	13.5	11.8		Fair				X	
6331	Acer rubrum	Red Maple	16.8			Fair				X	

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
6332	Acer rubrum	Red Maple	6.3			Fair				X	
6333	Acer rubrum	Red Maple	6.9			Fair				X	
6334	Acer rubrum	Red Maple	6			Fair				X	
6335	Acer rubrum	Red Maple	9.8			Fair				X	
6336	Sassafras albidum	Sassafras	14.2			Fair				X	
6337	Acer rubrum	Red Maple	7.9			Fair				X	
6338	Acer rubrum	Red Maple	11.7			Fair			X		
6339	Acer rubrum	Red Maple	7.5			Fair			X		
6340	Prunus serotina	Black Cherry	7.2			Fair				X	
6341	Acer rubrum	Red Maple	10.5			Fair				X	
6342	Acer rubrum	Red Maple	11.1			Fair				X	
6343	Acer rubrum	Red Maple	10.2			Fair				X	
6344	Acer rubrum	Red Maple	15.2			Fair				X	
6345	Acer platanoides	Norway Maple	5.5			Fair				X	
6346	Sassafras albidum	Sassafras	12.9			Poor				X	
6347	Sassafras albidum	Sassafras	4.6			Fair				X	
6348	Sassafras albidum	Sassafras	5.3			Fair				X	
6349	Sassafras albidum	Sassafras	4			Fair				X	
6350	Fraxinus americana	White Ash	5.7			Very Poor				X	
6351	Acer rubrum	Red Maple	14.6			Fair				X	
6352	Acer rubrum	Red Maple	10.1			Fair				X	
6353	Acer rubrum	Red Maple	9.5			Fair				X	
6354	Prunus serotina	Black Cherry	12.2			Fair				X	
6355	Acer rubrum	Red Maple	6.6			Fair				X	
6356	Prunus serotina	Black Cherry	5.8	5.7		Fair				X	
6357	Prunus serotina	Black Cherry	5.5			Fair				X	
6358	Prunus serotina	Black Cherry	4.6			Fair				X	
6359	Acer rubrum	Red Maple	5.3			Fair				X	
6360	Acer rubrum	Red Maple	7			Fair				X	
6361	Prunus serotina	Black Cherry	8.4			Fair				X	
6362	Acer rubrum	Red Maple	9.7			Fair				X	
6363	Ostrya virginiana	Hop Hornbeam	6.5			Fair			X		
6364	Acer rubrum	Red Maple	20.1			Fair			X		
6365	Acer rubrum	Red Maple	16.4			Fair				X	
6366	Ostrya virginiana	Hop Hornbeam	5.6			Fair			X		
6367	Ostrya virginiana	Hop Hornbeam	4.2			Fair				X	
6368	Prunus serotina	Black Cherry	4.5			Fair				X	
6369	Acer rubrum	Red Maple	7.7	6.5	5.3	Fair				X	
6370	Ostrya virginiana	Hop Hornbeam	5.8			Fair				X	
6371	Ostrya virginiana	Hop Hornbeam	5.6			Fair				X	
6372	Ostrya virginiana	Hop Hornbeam	4			Fair				X	
6373	Ostrya virginiana	Hop Hornbeam	5.8			Fair				X	
6374	Ostrya virginiana	Hop Hornbeam	4.5			Fair				X	
6375	Ostrya virginiana	Hop Hornbeam	5.8			Fair				X	
6376	Ostrya virginiana	Hop Hornbeam	5.3			Fair				X	
6377	Prunus serotina	Black Cherry	4.6			Fair				X	
6378	Acer rubrum	Red Maple	14.3			Fair				X	
6379	Prunus serotina	Black Cherry	4			Fair				X	
6380	Sassafras albidum	Sassafras	5.8			Fair				X	
6381	Sassafras albidum	Sassafras	5.7	5.4		Fair				X	
6382	Sassafras albidum	Sassafras	4.9			Fair				X	
6383	Sassafras albidum	Sassafras	6.7			Fair				X	
6384	Sassafras albidum	Sassafras	6.9			Fair				X	
6385	Prunus serotina	Black Cherry	7.6	7.3	7.1	Fair				X	
6386	Ostrya virginiana	Hop Hornbeam	4.7			Fair				X	
6387	Ostrya virginiana	Hop Hornbeam	5.8			Fair				X	
6388	Ostrya virginiana	Hop Hornbeam	4.6			Fair				X	
6389	Acer rubrum	Red Maple	11.6			Fair				X	
6390	Prunus serotina	Black Cherry	12.5			Fair			X		
6391	Acer rubrum	Red Maple	5.6			Fair				X	
6392	Acer rubrum	Red Maple	8.4			Fair				X	
6393	Sassafras albidum	Sassafras	6.9			Fair				X	
6394	Prunus serotina	Black Cherry	8			Fair				X	
6395	Sassafras albidum	Sassafras	6.8			Fair				X	
6396	Acer rubrum	Red Maple	6.6			Poor				X	
6397	Prunus serotina	Black Cherry	7.9			Fair				X	
6398	Prunus serotina	Black Cherry	8			Fair				X	
6399	Ulmus rubra	Slippery Elm	8.7			Fair				X	
6400	Sassafras albidum	Sassafras	6.2			Fair				X	
6401	Acer rubrum	Red Maple	6.5	5.2	4.7	Fair				X	
6402	Prunus serotina	Black Cherry	13.8			Fair				X	
6403	Acer rubrum	Red Maple	5.5			Fair				X	
6404	Sassafras albidum	Sassafras	17			Fair	X				
6405	Prunus serotina	Black Cherry	8.6			Fair				X	
6406	Prunus serotina	Black Cherry	6			Fair				X	
6407	Sassafras albidum	Sassafras	4.4			Fair				X	
6408	Sassafras albidum	Sassafras	4.6			Fair				X	
6409	Sassafras albidum	Sassafras	7.8			Fair				X	
6410	Sassafras albidum	Sassafras	7			Fair				X	
6411	Sassafras albidum	Sassafras	6.7			Fair				X	
6412	Sassafras albidum	Sassafras	4.2			Fair				X	
6413	Sassafras albidum	Sassafras	7			Fair				X	
6414	Acer saccharinum	Silver Maple	7.6			Fair				X	
6415	Sassafras albidum	Sassafras	6.8			Fair				X	
6416	Prunus serotina	Black Cherry	8.1			Fair				X	
6417	Prunus serotina	Black Cherry	4.6			Fair				X	
6418	Sassafras albidum	Sassafras	5.4			Fair				X	
6419	Prunus serotina	Black Cherry	7.6			Fair				X	
6420	Prunus serotina	Black Cherry	4.6			Fair				X	
6421	Prunus serotina	Black Cherry	5.6			Fair				X	
6422	Prunus serotina	Black Cherry	6.9			Fair				X	
6423	Prunus serotina	Black Cherry	5.8			Fair				X	
6424	Prunus serotina	Black Cherry	7.4			Fair				X	
6425	Sassafras albidum	Sassafras	5.4			Fair				X	
6426	Prunus serotina	Black Cherry	7.9	6.4		Fair				X	
6427	Sassafras albidum	Sassafras	5.4			Fair				X	
6428	Sassafras albidum	Sassafras	5			Fair				X	
6429	Sassafras albidum	Sassafras	5.1			Fair				X	
6430	Sassafras albidum	Sassafras	11.4			Fair			X		
6431	Sassafras albidum	Sassafras	4.8			Fair				X	
6432	Acer rubrum	Red Maple	10.2			Fair				X	
6433	Acer rubrum	Red Maple	8.6			Fair			X		
6434	Acer rubrum	Red Maple	6.3			Fair				X	
6435	Prunus serotina	Black Cherry	5.7			Fair			X		
6436	Prunus serotina	Black Cherry	9.9			Fair			X		
6437	Acer rubrum	Red Maple	4.3	4.1		Fair			X		
6438	Prunus serotina	Black Cherry	5.4			Fair			X		
6439	Acer rubrum	Red Maple	5.6	4.1		Fair			X		
6440	Prunus serotina	Black Cherry	8.1			Fair			X		
6441	Sassafras albidum	Sassafras	5.4			Fair			X		
6442	Prunus serotina	Black Cherry	4.7			Fair			X		
6443	Sassafras albidum	Sassafras	9.7			Fair			X		
6444	Sassafras albidum	Sassafras	4.4			Fair			X		
6445	Acer rubrum	Red Maple	4.9			Fair			X		
6446	Prunus serotina	Black Cherry	6	5.7		Fair			X		
6447	Prunus serotina	Black Cherry	4.9			Fair			X		
6448	Acer rubrum	Red Maple	5.3			Fair			X		
6449	Acer rubrum	Red Maple	11.1			Fair			X		
6450	Prunus serotina	Black Cherry	7.7			Fair				X	
6451	Acer rubrum	Red Maple	7.5			Fair				X	
6452	Prunus serotina	Black Cherry	6.4			Fair			X		
6453	Prunus serotina	Black Cherry	6.9			Fair			X		
6454	Prunus serotina	Black Cherry	4.6			Fair			X		
6455	Acer rubrum	Red Maple	5.3			Fair				X	
6456	Sassafras albidum	Sassafras	4.9			Fair				X	
6457	Acer rubrum	Red Maple	4.7			Fair				X	
6458	Acer rubrum	Red Maple	5.1			Fair				X	
6459	Acer rubrum	Red Maple	9.5			Fair				X	
6460	Prunus serotina	Black Cherry	5.4			Fair				X	
6461	Prunus serotina	Black Cherry	6	4.8		Fair			X		
6462	Sassafras albidum	Sassafras	5.2			Fair				X	
6463	Prunus serotina	Black Cherry	4.1			Fair				X	
6464	Acer rubrum	Red Maple	9.6			Fair				X	
6465	Sassafras albidum	Sassafras	4.3			Fair				X	
6466	Sassafras albidum	Sassafras	5.7			Fair				X	
6467	Prunus serotina	Black Cherry	4.8			Fair				X	
6468	Sassafras albidum	Sassafras	11.4			Fair				X	
6469	Acer rubrum	Red Maple	12.2			Fair				X	
6470	Sassafras albidum	Sassafras	17.8			Fair	X				
6471	Acer rubrum	Red Maple	6.1			Fair				X	
6472	Acer rubrum	Red Maple	13.4			Fair				X	
6473	Prunus serotina	Black Cherry	10.7			Fair				X	
6474	Acer rubrum	Red Maple	4.6			Fair				X	
6475	Acer rubrum	Red Maple	4.6			Fair				X	
6476	Sassafras albidum	Sassafras	7			Fair				X	
6477	Prunus serotina	Black Cherry	4.1			Fair				X	
6478	Prunus serotina	Black Cherry	11.2	6.4		Fair				X	
6479	Acer rubrum	Red Maple	5			Fair				X	
6480	Acer rubrum	Red Maple	5.1			Fair				X	
6481	Prunus serotina	Black Cherry	6.5			Fair				X	
6482	Sassafras albidum	Sassafras	5.6			Fair				X	
6483	Acer rubrum	Red Maple	5.3			Fair				X	

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
6484	Sassafras albidum	Sassafras	5.5			Fair				X	
6485	Prunus serotina	Black Cherry	7.5			Fair				X	
6486	Sassafras albidum	Sassafras	5.4			Fair			X		
6487	Sassafras albidum	Sassafras	9.2			Fair				X	
6488	Prunus serotina	Black Cherry	6.2	5.9		Fair				X	
6489	Acer rubrum	Red Maple	8	5.1		Fair				X	
6490	Acer rubrum	Red Maple	10.9			Fair				X	
6491	Acer rubrum	Red Maple	6			Fair				X	
6492	Quercus alba	White Oak	14.2			Fair				X	
6493	Acer rubrum	Red Maple	8.4			Fair				X	
6494	Prunus serotina	Black Cherry	8.1	6.4		Fair				X	
6495	Acer rubrum	Red Maple	4			Fair				X	
6496	Acer rubrum	Red Maple	5.9			Fair				X	
6497	Sassafras albidum	Sassafras	4.5			Fair				X	
6498	Acer rubrum	Red Maple	4.6			Fair				X	
6499	Acer rubrum	Red Maple	11.4			Fair				X	
6500	Acer rubrum	Red Maple	10.3	5.5		Fair				X	
6501	Acer rubrum	Red Maple	5.4	4		Fair				X	
6502	Prunus serotina	Black Cherry	7			Fair				X	
6503	Acer rubrum	Red Maple	10.5			Fair			X		
6504	Acer rubrum	Red Maple	7.2			Fair				X	
6505	Acer rubrum	Red Maple	5.4			Fair				X	
6506	Acer rubrum	Red Maple	17.6			Fair				X	
6507	Acer rubrum	Red Maple	11.6			Fair				X	
6508	Acer rubrum	Red Maple	9.4			Fair				X	
6509	Sassafras albidum	Sassafras	9.1			Fair			X		
6510	Acer rubrum	Red Maple	12.4			Fair				X	
6511	Prunus serotina	Black Cherry	7.6	5.2		Fair				X	
6512	Acer rubrum	Red Maple	5.4	4.4		Fair				X	
6513	Prunus serotina	Black Cherry	4.7			Fair				X	
6514	Prunus serotina	Black Cherry	4.3			Fair			X		
6516	Acer rubrum	Red Maple	6.4			Fair				X	
6517	Acer rubrum	Red Maple	7.2			Fair				X	
6518	Acer rubrum	Red Maple	11.8			Fair				X	
6519	Acer rubrum	Red Maple	4.6			Fair				X	
6520	Acer rubrum	Red Maple	14.1			Fair				X	
6521	Sassafras albidum	Sassafras	5.5			Fair				X	
6522	Prunus serotina	Black Cherry	4.6			Fair				X	
6523	Acer rubrum	Red Maple	4.3			Fair				X	
6524	Acer rubrum	Red Maple	7.6			Fair				X	
6525	Acer rubrum	Red Maple	10.6			Fair				X	
6526	Prunus serotina	Black Cherry	4.4			Fair				X	
6527	Acer rubrum	Red Maple	12.2			Fair				X	
6528	Acer rubrum	Red Maple	15			Fair			X		
6529	Acer rubrum	Red Maple	4.5			Fair				X	
6530	Acer rubrum	Red Maple	14.2			Poor				X	
6531	Acer rubrum	Red Maple	12.1			Fair			X		
6532	Acer rubrum	Red Maple	5.2			Fair				X	
6533	Acer rubrum	Red Maple	4.6			Fair				X	
6534	Sassafras albidum	Sassafras	5.6			Fair				X	
6535	Sassafras albidum	Sassafras	6			Fair				X	
6536	Prunus serotina	Black Cherry	5.7			Fair				X	
6537	Prunus serotina	Black Cherry	7.4			Fair				X	
6538	Sassafras albidum	Sassafras	5.3			Fair			X		
6539	Acer rubrum	Red Maple	6.4			Fair			X		
6540	Prunus serotina	Black Cherry	5.9	4.7		Fair				X	
6541	Acer rubrum	Red Maple	5.6	4.3	4.1	Fair				X	
6542	Acer rubrum	Red Maple	5.4			Fair				X	
6543	Acer rubrum	Red Maple	5.1	4.6		Fair				X	
6544	Acer rubrum	Red Maple	4			Fair				X	
6545	Sassafras albidum	Sassafras	5.4			Fair				X	
6546	Sassafras albidum	Sassafras	5			Fair				X	
6547	Sassafras albidum	Sassafras	5.1			Fair				X	
6548	Acer rubrum	Red Maple	17.7			Fair				X	
6549	Acer rubrum	Red Maple	6.3	4		Fair				X	
6550	Acer rubrum	Red Maple	17.2			Fair				X	
6551	Prunus avium	Sweet Cherry	10.1			Fair				X	
6552	Prunus serotina	Black Cherry	7.1			Fair				X	
6553	Prunus serotina	Black Cherry	4.9			Fair				X	
6554	Acer rubrum	Red Maple	18.4			Fair				X	
6555	Sassafras albidum	Sassafras	13.3			Fair			X		
6556	Prunus serotina	Black Cherry	5.4	4.9	4.6	Fair				X	
6557	Prunus serotina	Black Cherry	6.9			Fair				X	
6558	Prunus serotina	Black Cherry	5.9	4		Fair			X		
6559	Prunus serotina	Black Cherry	7.9	7.3	5.6	Fair				X	
6560	Acer rubrum	Red Maple	4.5			Fair			X		
6561	Prunus serotina	Black Cherry	5.8	4.6		Fair			X		
6562	Prunus serotina	Black Cherry	7.5	6.4		Fair			X		
6563	Prunus serotina	Black Cherry	4.6			Fair			X		
6564	Sassafras albidum	Sassafras	4.6			Fair				X	
6565	Prunus serotina	Black Cherry	10.4			Fair			X		
6566	Quercus velutina	Black Oak	23.4			Fair			X		
6567	Acer rubrum	Red Maple	12.6			Fair			X		
6568	Prunus serotina	Black Cherry	5.6			Fair			X		
6569	Acer rubrum	Red Maple	6.4			Fair			X		
6570	Prunus serotina	Black Cherry	8.1			Fair				X	
6571	Prunus serotina	Black Cherry	4.7			Fair			X		
6572	Prunus serotina	Black Cherry	4.3			Fair				X	
6573	Acer rubrum	Red Maple	5.2			Fair				X	
6574	Acer rubrum	Red Maple	4.8			Fair				X	
6575	Acer rubrum	Red Maple	4.7			Fair				X	
6576	Prunus serotina	Black Cherry	9			Fair				X	
6577	Quercus alba	White Oak	5.1			Fair				X	
6578	Sassafras albidum	Sassafras	5.1			Fair				X	
6579	Sassafras albidum	Sassafras	5.3			Fair				X	
6580	Acer rubrum	Red Maple	9.1			Fair				X	
6581	Acer rubrum	Red Maple	6.2			Fair				X	
6582	Acer saccharinum	Silver Maple	6.2			Fair				X	
6583	Acer rubrum	Red Maple	6.4			Fair				X	
6584	Acer rubrum	Red Maple	4.4			Fair				X	
6585	Prunus serotina	Black Cherry	9.6			Fair				X	
6586	Acer rubrum	Red Maple	14.3			Fair				X	
6587	Prunus serotina	Black Cherry	11.3			Fair				X	
6588	Acer rubrum	Red Maple	8.6			Fair				X	
6589	Acer rubrum	Red Maple	6.4			Fair				X	
6590	Prunus serotina	Black Cherry	7			Fair				X	
6591	Prunus serotina	Black Cherry	6			Fair				X	
6592	Prunus serotina	Black Cherry	8.7			Fair				X	
6593	Sassafras albidum	Sassafras	5.4			Fair			X		
6594	Acer rubrum	Red Maple	5.2			Fair			X		
6595	Prunus serotina	Black Cherry	6.8			Fair				X	
6596	Prunus serotina	Black Cherry	5.4			Fair			X		
6597	Prunus serotina	Black Cherry	9.7			Fair				X	
6598	Sassafras albidum	Sassafras	12.1			Fair				X	
6599	Acer rubrum	Red Maple	6.2			Fair				X	
6600	Sassafras albidum	Sassafras	5.8			Fair				X	
6601	Prunus serotina	Black Cherry	4.2			Fair				X	
6602	Acer rubrum	Red Maple	5.6			Fair				X	
6603	Prunus serotina	Black Cherry	8.1			Fair				X	
6604	Acer rubrum	Red Maple	6.7			Fair				X	
6605	Acer rubrum	Red Maple	5.4			Fair				X	
6606	Sassafras albidum	Sassafras	11.6			Fair				X	
6607	Prunus serotina	Black Cherry	6			Fair			X		
6608	Acer rubrum	Red Maple	12.6			Fair				X	
6609	Acer rubrum	Red Maple	7.6			Fair			X		
6610	Acer rubrum	Red Maple	10.6			Fair				X	
6611	Acer rubrum	Red Maple	11.4			Fair				X	
6612	Sassafras albidum	Sassafras	8.9			Fair				X	
6613	Sassafras albidum	Sassafras	7.3			Fair				X	
6614	Prunus serotina	Black Cherry	6.7			Fair				X	
6615	Acer rubrum	Red Maple	4.5			Fair				X	
6616	Prunus serotina	Black Cherry	7.4			Fair				X	
6617	Prunus serotina	Black Cherry	6.4			Fair				X	
6618	Acer rubrum	Red Maple	5.4			Fair				X	
6619	Prunus serotina	Black Cherry	8.1			Fair				X	
6620	Prunus serotina	Black Cherry	6.1			Fair				X	
6621	Quercus velutina	Black Oak	17			Fair				X	
6622	Acer rubrum	Red Maple	5.5			Fair				X	
6623	Prunus serotina	Black Cherry	7.5			Fair				X	
6624	Prunus serotina	Black Cherry	7			Fair				X	
6625	Acer rubrum	Red Maple	14.7			Fair				X	
6626	Acer rubrum	Red Maple	11.4			Fair				X	
6627	Prunus serotina	Black Cherry	4.8	4.5		Fair				X	
6628	Prunus serotina	Black Cherry	4.4			Fair				X	
6629	Sassafras albidum	Sassafras	4.7			Fair				X	
6630	Quercus rubra	Red Oak	6.3			Fair				X	
6631	Sassafras albidum	Sassafras	4.3			Fair				X	
6632	Sassafras albidum	Sassafras	4.2			Fair				X	
6633	Prunus serotina	Black Cherry	4.2			Fair				X	
6634	Acer rubrum	Red Maple	5.5			Fair				X	
6635	Acer rubrum	Red Maple	7.7			Fair				X	
6636	Acer rubrum	Red Maple	7.3			Fair				X	

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 542

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE:

NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG 12_Tree--12/16/2022 8:22:17 AM

SHEET NO.

12

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
6637	Acer rubrum	Red Maple	4.9			Poor				X	
6638	Sassafras albidum	Sassafras	14.5			Fair				X	
6639	Ulmus americana	American Elm	4.6			Fair				X	
6640	Populus grandidentata	Bigtooth Aspen	4			Fair				X	
6641	Acer rubrum	Red Maple	9	8.1		Fair				X	
6642	Acer rubrum	Red Maple	16.5			Fair				X	
6643	Sassafras albidum	Sassafras	17.7			Fair	X				
6644	Acer rubrum	Red Maple	8.2			Fair				X	
6645	Prunus serotina	Black Cherry	9.4			Fair				X	
6646	Populus grandidentata	Bigtooth Aspen	5.6			Fair				X	
6647	Prunus serotina	Black Cherry	11.4			Fair				X	
6648	Acer rubrum	Red Maple	4.6			Fair				X	
6649	Acer rubrum	Red Maple	13.3			Fair				X	
6650	Quercus alba	White Oak	5			Fair				X	
6651	Quercus rubra	Red Oak	22.4			Fair				X	
6652	Acer rubrum	Red Maple	7.2			Fair				X	
6653	Sassafras albidum	Sassafras	11.8			Fair				X	
6654	Acer rubrum	Red Maple	16.5			Fair				X	
6655	Prunus serotina	Black Cherry	6.3			Fair				X	
6656	Acer rubrum	Red Maple	11.3			Fair			X		
6657	Acer rubrum	Red Maple	13.8			Fair			X		
6658	Acer rubrum	Red Maple	7.1			Fair			X		
6659	Acer rubrum	Red Maple	6.4			Fair			X		
6660	Acer rubrum	Red Maple	9.3			Fair			X		
6661	Acer rubrum	Red Maple	11.1			Fair			X		
6662	Acer rubrum	Red Maple	12.5			Fair				X	
6663	Acer rubrum	Red Maple	13.4			Fair				X	
6664	Acer rubrum	Red Maple	16.6			Fair				X	
6665	Sassafras albidum	Sassafras	5.3			Fair				X	
6666	Ulmus americana	American Elm	11.6			Fair				X	
6667	Quercus rubra	Red Oak	13.4			Fair				X	
6668	Acer rubrum	Red Maple	6.7			Fair			X		
6669	Populus grandidentata	Bigtooth Aspen	15.1			Fair				X	
6670	Acer rubrum	Red Maple	4.3			Fair				X	
6671	Acer rubrum	Red Maple	12			Fair				X	
6672	Acer rubrum	Red Maple	4.8			Fair				X	
6673	Prunus serotina	Black Cherry	7.7			Fair				X	
6674	Acer rubrum	Red Maple	22.9	11.8		Fair			X		
6675	Quercus alba	White Oak	6.4			Fair			X		
6676	Quercus alba	White Oak	9.1			Fair				X	
6677	Sassafras albidum	Sassafras	6.1			Fair				X	
6678	Sassafras albidum	Sassafras	11.3			Fair				X	
6679	Sassafras albidum	Sassafras	9			Fair				X	
6680	Acer rubrum	Red Maple	20.6			Fair				X	
6681	Acer rubrum	Red Maple	15.2			Fair			X		
6682	Sassafras albidum	Sassafras	9.2			Fair			X		
6683	Acer rubrum	Red Maple	13			Fair				X	
6684	Sassafras albidum	Sassafras	5.2			Fair			X		
6685	Sassafras albidum	Sassafras	8.6			Fair			X		
6686	Sassafras albidum	Sassafras	6.8			Fair				X	
6687	Acer rubrum	Red Maple	5.4			Fair				X	
6688	Prunus serotina	Black Cherry	4.7			Fair				X	
6689	Prunus serotina	Black Cherry	4.7			Fair				X	
6690	Acer rubrum	Red Maple	4			Fair				X	
6691	Sassafras albidum	Sassafras	6.5			Fair				X	
6692	Prunus serotina	Black Cherry	5.2			Fair				X	
6693	Acer rubrum	Red Maple	6.5			Fair				X	
6694	Prunus serotina	Black Cherry	7.5			Fair				X	
6695	Prunus serotina	Black Cherry	4.7			Fair			X		
6696	Ulmus americana	American Elm	4.8			Fair			X		
6697	Sassafras albidum	Sassafras	15.5			Fair	X				
6698	Acer rubrum	Red Maple	12.7			Fair			X		
6699	Sassafras albidum	Sassafras	8.4			Fair			X		
6700	Sassafras albidum	Sassafras	12.8			Fair			X		
6701	Prunus serotina	Black Cherry	14.3			Fair				X	
6702	Acer rubrum	Red Maple	5.4			Fair				X	
6703	Acer rubrum	Red Maple	4.8			Fair				X	
6704	Acer rubrum	Red Maple	5			Poor				X	
6705	Acer platanoides	Norway Maple	9	6.5		Fair				X	
6706	Prunus serotina	Black Cherry	6.3			Fair				X	
6707	Prunus serotina	Black Cherry	6.8			Fair				X	
6708	Acer negundo	Boxelder	6.2			Fair				X	
6709	Prunus serotina	Black Cherry	5			Fair				X	
6710	Prunus serotina	Black Cherry	6.6	5.6		Fair				X	
6711	Acer negundo	Boxelder	6.3			Fair				X	
6712	Prunus serotina	Black Cherry	4.2			Fair				X	
6713	Prunus serotina	Black Cherry	8.7			Fair				X	
6714	Acer rubrum	Red Maple	12.8			Fair				X	
6715	Quercus alba	White Oak	16.5			Fair				X	
6716	Acer negundo	Boxelder	4.3			Fair				X	
6717	Acer rubrum	Red Maple	5.2			Poor				X	
6718	Prunus serotina	Black Cherry	4.3			Fair				X	
6719	Prunus serotina	Black Cherry	4.8			Fair				X	
6720	Prunus serotina	Black Cherry	4.8			Fair				X	
6721	Acer rubrum	Red Maple	5.4			Fair				X	
6722	Prunus serotina	Black Cherry	4.1			Fair				X	
6723	Quercus alba	White Oak	17.2			Fair				X	
6724	Acer rubrum	Red Maple	5.6	5.3	5	Fair				X	
6725	Acer rubrum	Red Maple	10.2			Fair				X	
6726	Sassafras albidum	Sassafras	4.4			Fair				X	
6727	Sassafras albidum	Sassafras	4.7			Fair				X	
6728	Sassafras albidum	Sassafras	9.9			Fair				X	
6729	Quercus alba	White Oak	13.5			Fair				X	
6730	Sassafras albidum	Sassafras	11.4			Fair				X	
6731	Prunus serotina	Black Cherry	6.4			Fair				X	
6732	Acer rubrum	Red Maple	4.7			Fair				X	
6733	Sassafras albidum	Sassafras	4.3			Fair				X	
6734	Sassafras albidum	Sassafras	5.2			Fair				X	
6735	Prunus serotina	Black Cherry	12.4			Fair			X		
6736	Acer rubrum	Red Maple	6.5	6.2	5.3	Fair			X		
6737	Prunus serotina	Black Cherry	7			Poor				X	
6738	Sassafras albidum	Sassafras	5.3			Fair				X	
6739	Prunus serotina	Black Cherry	5.8			Fair				X	
6740	Prunus serotina	Black Cherry	6.1			Fair				X	
6741	Prunus serotina	Black Cherry	5.6			Fair				X	
6742	Ulmus americana	American Elm	6			Fair				X	
6743	Acer rubrum	Red Maple	7.2			Fair				X	
6744	Prunus serotina	Black Cherry	6.8			Fair				X	
6745	Prunus serotina	Black Cherry	4.9	4.8		Fair				X	
6746	Prunus serotina	Black Cherry	6.2			Fair				X	
6747	Acer rubrum	Red Maple	4.1			Fair				X	
6748	Prunus serotina	Black Cherry	4.8			Fair				X	
6749	Prunus serotina	Black Cherry	5.2			Fair				X	
6750	Prunus serotina	Black Cherry	6			Fair				X	
6751	Prunus serotina	Black Cherry	5.1			Fair				X	
6752	Acer rubrum	Red Maple	7.7	5.2		Fair				X	
6753	Sassafras albidum	Sassafras	7.4			Fair				X	
6754	Ulmus americana	American Elm	16.6			Fair				X	
6755	Quercus alba	White Oak	15.1			Fair				X	
6756	Prunus serotina	Black Cherry	4.3			Fair				X	
6757	Acer rubrum	Red Maple	6.3			Fair				X	
6758	Acer rubrum	Red Maple	14.5			Fair				X	
6759	Sassafras albidum	Sassafras	12.7			Fair				X	
6760	Sassafras albidum	Sassafras	10.3			Fair				X	
6761	Prunus serotina	Black Cherry	5.5	4.2		Fair				X	
6762	Acer negundo	Boxelder	6.2			Fair			X		
6763	Acer rubrum	Red Maple	6.6			Fair				X	
6764	Acer rubrum	Red Maple	5.1			Fair				X	
6765	Prunus serotina	Black Cherry	6			Fair				X	
6766	Prunus serotina	Black Cherry	5.1			Fair				X	
6767	Prunus serotina	Black Cherry	4.8			Fair				X	
6768	Prunus serotina	Black Cherry	13.5			Fair				X	
6769	Prunus serotina	Black Cherry	8			Fair				X	
6770	Acer rubrum	Red Maple	7.1			Fair				X	
6771	Acer rubrum	Red Maple	5.5			Fair				X	
6772	Acer rubrum	Red Maple	12			Fair				X	
6773	Sassafras albidum	Sassafras	10.2			Fair				X	
6774	Sassafras albidum	Sassafras	7.1			Fair				X	
6775	Prunus serotina	Black Cherry	9.8			Fair			X		
6776	Prunus serotina	Black Cherry	6.3			Fair				X	
6777	Prunus serotina	Black Cherry	13.4			Fair			X		
6778	Prunus serotina	Black Cherry	6.4			Fair				X	
6779	Rhamnus cathartica	European Buckthorn	6.9			Fair				X	
6780	Prunus avium	Sweet Cherry	14.9			Fair				X	
6781	Quercus rubra	Red Oak	15			Fair			X		
6782	Prunus serotina	Black Cherry	15.1			Fair				X	
6783	Acer rubrum	Red Maple	5.3			Fair			X		
6784	Prunus serotina	Black Cherry	9			Poor				X	
6785	Prunus serotina	Black Cherry	9.1			Fair				X	
6786	Prunus serotina	Black Cherry	7.6			Fair				X	
6787	Ulmus americana	American Elm	10.1			Fair				X	
6788	Ulmus americana	American Elm	5.5			Fair				X	
6789	Ulmus americana	American Elm	6.5			Fair			X		
6790	Acer rubrum	Red Maple	9.3			Fair				X	
6791	Prunus serotina	Black Cherry	8.2			Fair				X	
6792	Prunus serotina	Black Cherry	7.5			Fair				X	
6793	Ulmus americana	American Elm	6.2			Fair				X	
6794	Quercus alba	White Oak	30.9			Fair	X				
6795	Acer negundo	Boxelder	6.4			Fair				X	
6796	Prunus serotina	Black Cherry	5.9			Fair				X	
6797	Prunus serotina	Black Cherry	9.1			Fair			X		
6798	Prunus serotina	Black Cherry	4.6			Very Poor				X	
6799	Prunus serotina	Black Cherry	6.2			Fair				X	
6800	Prunus serotina	Black Cherry	8			Fair				X	
6801	Quercus velutina	Black Oak	25.2			Fair	X				
6802	Acer rubrum	Red Maple	4.3			Fair				X	
6803	Quercus velutina	Black Oak	29.5			Fair	X				
6804	Quercus velutina	Black Oak	5.7			Fair				X	
6805	Quercus velutina	Black Oak	23.7			Fair				X	
6806	Ulmus americana	American Elm	6.7			Fair				X	
6807	Prunus serotina	Black Cherry	7			Fair				X	
6808	Morus alba	Common Mulberry	4.1			Fair				X	
6809	Populus deltoides	Eastern Cottonwood	15.5	17.3		Fair				X	
6810	Quercus velutina	Black Oak	34.5			Poor	X				
6811	Acer rubrum	Red Maple	8			Fair				X	
6812	Acer rubrum	Red Maple	10.5			Fair			X		
6813	Quercus velutina	Black Oak	11.8			Fair				X	
6814	Quercus velutina	Black Oak	9.8			Fair				X	
6815	Quercus velutina	Black Oak	10.8			Fair			X		
6816	Quercus velutina	Black Oak	5			Fair			X		
6817	Sassafras albidum	Sassafras	5.7			Fair			X		
6818	Acer negundo	Boxelder	6.2			Fair			X		
6819	Acer negundo	Boxelder	6.7			Fair			X		
6820	Acer negundo	Boxelder	4.8			Fair			X		
6821	Prunus avium	Sweet Cherry	6.4			Poor			X		
6822	Acer negundo	Boxelder	7			Fair			X		
6823	Acer negundo	Boxelder	5.6			Fair			X		
6824	Acer negundo	Boxelder	8.7			Fair			X		
6825	Acer negundo	Boxelder	5.2			Fair			X		
6826	Ulmus americana	American Elm	11.1			Fair				X	
6827	Acer negundo	Boxelder	5.9			Fair			X		
6828	Acer negundo	Boxelder	7.6			Fair				X	
6829	Prunus serotina	Black Cherry	8.5			Fair				X	
6830	Acer negundo	Boxelder	6.8			Fair				X	
6831	Acer negundo	Boxelder	4.6			Fair				X	
6832	Acer negundo	Boxelder	5.9	6.7		Fair				X	
6833	Acer negundo	Boxelder	9.5			Fair				X	
6834	Prunus serotina	Black Cherry	4.2			Fair				X	
6835	Prunus serotina	Black Cherry	7.9			Fair				X	
6836	Prunus serotina	Black Cherry	4.1			Fair				X	
6837	Rhamnus cathartica	European Buckthorn	4.3			Fair				X	
6838	Prunus serotina	Black Cherry	5.8			Poor				X	
6839	Prunus serotina	Black Cherry	13.4			Fair				X	
6840	Prunus serotina	Black Cherry	4.7			Fair				X	
6841	Prunus serotina	Black Cherry	6.3			Fair				X	
6842	Prunus serotina	Black Cherry	4			Fair				X	
6843	Prunus serotina	Black Cherry	4.8			Fair				X	
6844	Acer negundo	Boxelder	5.9			Fair				X	
6845	Prunus serotina	Black Cherry	4.5			Fair				X	
6846	Prunus serotina	Black Cherry	12	9.3		Fair			X		
6847	Acer negundo	Boxelder	9.7	9.3		Fair				X	
6848	Euonymus europaeus	European Spindle	6.6			Fair				X	
6849	Prunus serotina	Black Cherry	4.7			Fair				X	
6850	Euonymus europaeus	European Spindle	6.5			Fair				X	
6851	Juglans nigra	Black Walnut	6.5			Fair				X	
6852	Acer negundo	Boxelder	6			Fair				X	
6853	Quercus velutina	Black Oak	8.2			Fair				X	
6854	Acer negundo	Boxelder	4.2			Fair				X	
6855	Populus deltoides	Eastern Cottonwood	11.8			Fair				X	
6856	Acer negundo	Boxelder	6.5			Fair				X	
6857	Acer negundo	Boxelder	4.8			Fair				X	
6858	Juglans nigra	Black Walnut	11.7			Fair				X	
6859	Acer negundo	Boxelder	6.9			Fair				X	
6860	Acer negundo	Boxelder	7.4			Fair				X	
6861	Acer negundo	Boxelder	11.8			Fair			X		
6862	Acer negundo	Boxelder	4.7			Fair				X	
6863	Juglans nigra	Black Walnut	13.2	8		Fair				X	
6864	Picea abies	Norway Spruce	18.9			Fair				X	
6865	Acer saccharinum	Silver Maple	41.5			Fair	X				
6866	Morus alba	Common Mulberry	6.8			Fair				X	
6867	Morus alba	Common Mulberry	8.3			Fair				X	
6868	Rhamnus cathartica	European Buckthorn	4.1			Fair			X		
6869	Populus deltoides	Eastern Cottonwood	26.9			Fair			X		
6870	Juglans nigra	Black Walnut	4.9			Fair			X		
6871	Acer rubrum	Red Maple	15			Fair				X	
6872	Populus tremuloides	Quaking Aspen	4.6			Fair				X	
6873	Populus tremuloides	Quaking Aspen	7.7			Fair				X	
6874	Populus tremuloides	Quaking Aspen	6.3			Fair				X	
6875	Acer rubrum	Red Maple	5.5			Fair			X		
6876	Populus tremuloides	Quaking Aspen	9.4			Fair			X		
6877	Quercus velutina	Black Oak	16	10		Fair			X		
6878	Populus tremuloides	Quaking Aspen	8.3			Fair				X	
6879	Populus tremuloides	Quaking Aspen	6.8			Fair				X	
6880	Populus tremuloides	Quaking Aspen	5.3			Fair				X	
6881	Populus tremuloides	Quaking Aspen	6.1			Fair				X	
6882	Populus tremuloides	Quaking Aspen	5.1			Fair				X	
6883	Prunus serotina	Black Cherry	9			Fair				X	
6884	Quercus velutina	Black Oak	12.1			Fair				X	
6885	Quercus velutina	Black Oak	9.1			Fair				X	
6886	Quercus velutina	Black Oak	5.4			Fair			X		
6887	Quercus velutina	Black Oak	5.9			Fair				X	
6888	Quercus velutina	Black Oak	12.6			Fair				X	
6889	Acer rubrum	Red Maple	8.3			Fair				X	
6890	Quercus velutina	Black Oak	9.7			Fair				X	
6891	Quercus velutina	Black Oak	14.7			Fair				X	
6892	Quercus velutina	Black Oak	8.3			Fair				X	
6893	Quercus velutina	Black Oak	7.3			Fair				X	
6894	Quercus velutina	Black Oak	11.3			Fair				X	
6895	Quercus velutina	Black Oak	13.9			Fair				X	
6896	Populus tremuloides	Quaking Aspen	7.8			Fair				X	
6897	Quercus velutina	Black Oak	9.5			Fair				X	
6898	Quercus velutina	Black Oak	10.2			Fair			X		
6899	Quercus velutina	Black Oak	10.3			Fair			X		
6900	Quercus velutina	Black Oak	10.7			Fair				X	
6901	Prunus serotina	Black Cherry	13.8			Fair			X		
6902	Sassafras albidum	Sassafras	5.3			Fair			X		
6903	Sassafras albidum	Sassafras	5			Fair				X	
6904	Sassafras albidum	Sassafras	5.9			Fair			X		
6905	Acer rubrum	Red Maple	6.3	5.8	4	Fair			X		
6906	Acer rubrum	Red Maple	7.5	6.8	5.2	Fair				X	
6907	Ostrya virginiana	Hop Hornbeam	8.3			Fair	X				
6908	Acer rubrum	Red Maple	7.1			Fair			X		
6909	Ostrya virginiana	Hop Hornbeam	6.2			Fair				X	
6910	Ostrya virginiana	Hop Hornbeam	4.4			Fair				X	
6911	Ostrya virginiana	Hop Hornbeam	8.8			Fair	X				
6912	Ostrya virginiana	Hop Hornbeam	5.2			Fair				X	
6913	Sassafras albidum	Sassafras	7.2			Fair				X	
6914	Prunus serotina	Black Cherry	5.4			Fair				X	
6915	Prunus serotina	Black Cherry	8			Fair			X		
6916	Acer rubrum	Red Maple	6.6			Fair				X	
6917	Acer rubrum	Red Maple	12.8			Fair				X	
6918	Prunus serotina	Black Cherry	6.7			Fair				X	
6919	Prunus serotina	Black Cherry	5.4			Fair				X	
6920	Acer rubrum	Red Maple	4.3			Fair				X	
6921	Sassafras albidum	Sassafras	5			Fair				X	
6922	Prunus serotina	Black Cherry	5.9			Fair				X	
6923	Acer rubrum	Red Maple	12.1			Fair				X	
6924	Acer rubrum	Red Maple	24			Fair	X				
6925	Prunus serotina	Black Cherry	6.3			Fair				X	
6926	Acer rubrum	Red Maple	16.3			Fair				X	
6927	Acer rubrum	Red Maple	9.5			Fair				X	
6928	Acer rubrum	Red Maple	5.6			Fair				X	
6929	Sassafras albidum	Sassafras	8.2			Fair				X	
6930	Sassafras albidum	Sassafras	9.5			Fair				X	
6931	Prunus serotina	Black Cherry	5.3			Fair			X		
6932	Sassafras albidum	Sassafras	17			Fair	X				
6933	Acer rubrum	Red Maple	4.7			Fair			X		
6934	Sassafras albidum	Sassafras	12.4			Fair			X		
6935	Acer rubrum	Red Maple	6.8			Fair			X		
6936	Sassafras albidum	Sassafras	8.3			Fair				X	
6937	Prunus serotina	Black Cherry	5.8			Fair			X		
6938	Prunus serotina	Black Cherry	7.3			Fair				X	
6939	Sassafras albidum	Sassafras	5.9			Fair				X	
6940	Acer rubrum	Red Maple	6.3			Fair				X	
6941	Sassafras albidum	Sassafras	5.6			Fair				X	
6942	Prunus serotina	Black Cherry	10.8			Fair			X		
6943	Acer rubrum	Red Maple	11.2			Fair				X	
6944	Acer rubrum	Red Maple	5.3			Fair				X	
6945	Acer rubrum	Red Maple	5.5			Fair				X	
6946	Prunus serotina	Black Cherry	5.4			Fair				X	
6947	Sassafras albidum	Sassafras	5.2			Fair				X	
6948	Acer rubrum	Red Maple	10.2			Fair				X	
6949	Sassafras albidum	Sassafras	5.2			Fair				X	
6950	Sassafras albidum	Sassafras	4.9			Fair				X	
6951	Sassafras albidum	Sassafras	5.1			Fair				X	
6952	Prunus serotina	Black Cherry	9.5			Fair				X	
6953	Prunus serotina	Black Cherry	10.1			Fair				X	
6954	Sassafras albidum	Sassafras	8.3			Fair				X	
6955	Sassafras albidum	Sassafras	6.1			Fair				X	
6956	Prunus serotina	Black Cherry	4.8			Fair				X	
6957	Prunus serotina	Black Cherry	8.2			Fair				X	
6958	Prunus serotina	Black Cherry	5.3			Fair				X	
6959	Prunus serotina	Black Cherry	9.2			Fair				X	
6960	Acer rubrum	Red Maple	9.5			Fair				X	
6962	Sassafras albidum	Sassafras	8.2			Fair				X	
6963	Prunus serotina	Black Cherry	7.1			Fair				X	
6964	Acer rubrum	Red Maple	5.7			Fair				X	
6965	Acer rubrum	Red Maple	5.2			Fair				X	
6966	Prunus serotina	Black Cherry	5.7			Fair				X	
6967	Prunus serotina	Black Cherry	4.8			Fair				X	
6968	Sassafras albidum	Sassafras	6.9			Fair				X	
6969	Quercus alba	White Oak	17.7			Fair				X	
6970	Sassafras albidum	Sassafras	7			Fair				X	
6971	Acer rubrum	Red Maple	10			Fair				X	
6972	Acer rubrum	Red Maple	5.5			Fair				X	
6973	Acer rubrum	Red Maple	7.1			Fair			X		
6974	Acer rubrum	Red Maple	4.6			Fair				X	
6975	Acer rubrum	Red Maple	9.2	8.7		Fair				X	
6976	Prunus serotina	Black Cherry	7.9			Fair				X	
6977	Sassafras albidum	Sassafras	8.3			Fair				X	
6978	Sassafras albidum	Sassafras	9.8			Fair				X	
6979	Prunus serotina	Black Cherry	8.8			Fair				X	
6980	Sassafras albidum	Sassafras	7.5			Fair				X	
6981	Acer rubrum	Red Maple	12.8			Fair				X	
6982	Prunus serotina	Black Cherry	7.6			Fair				X	
6983	Prunus serotina	Black Cherry	5			Fair				X	
6984	Acer rubrum	Red Maple	9.7			Fair				X	
6985	Acer rubrum	Red Maple	12.4			Fair				X	
6986	Acer rubrum	Red Maple	9.3			Fair				X	
6987	Acer rubrum	Red Maple	10.8			Fair				X	
6988	Acer rubrum	Red Maple	16.5			Fair			X		
6989	Acer rubrum	Red Maple	4.2			Fair			X		
6990	Acer rubrum	Red Maple	6			Fair				X	
6991	Acer rubrum	Red Maple	10			Fair				X	
6992	Acer rubrum	Red Maple	6.3			Fair				X	
6993	Ulmus americana	American Elm	8.4			Fair				X	
6994	Quercus alba	White Oak	11.6			Fair				X	
6995	Acer rubrum	Red Maple	6.4			Fair				X	
6996	Ulmus americana	American Elm	9.2			Fair				X	
6997	Acer rubrum	Red Maple	6.7			Fair				X	
6998	Acer rubrum	Red Maple	9.1			Fair				X	
6999	Prunus serotina	Black Cherry	6.5			Fair				X	
7000	Prunus serotina	Black Cherry	5			Fair				X	
7001	Quercus velutina	Black Oak	13.5			Fair				X	
7002	Acer rubrum	Red Maple	9.4			Fair				X	
7003	Ulmus americana	American Elm	7.5			Fair				X	
7004	Ulmus americana	American Elm	18.5			Fair				X	
7005	Acer rubrum	Red Maple	8.8	6		Fair			X		
7006	Prunus serotina	Black Cherry	5			Poor			X		
7007	Quercus velutina	Black Oak	26.1			Fair	X				
7008	Acer rubrum	Red Maple	9.5			Fair				X	
7009	Acer rubrum	Red Maple	13.4			Fair				X	
7010	Prunus serotina	Black Cherry	5.7			Fair				X	
7011	Ulmus americana	American Elm	7			Fair				X	
7012	Prunus serotina	Black Cherry	8.3			Fair				X	
7013	Acer rubrum	Red Maple	9.7	7.4		Fair				X	
7014	Prunus serotina	Black Cherry	4.2			Fair				X	
7015	Prunus serotina	Black Cherry	7			Fair				X	
7016	Acer rubrum	Red Maple	5.4			Fair				X	
7017	Prunus serotina	Black Cherry	7.3			Poor				X	
7018	Ulmus americana	American Elm	5.4			Fair				X	
7019	Prunus serotina	Black Cherry	7.2			Fair				X	
7020	Prunus serotina	Black Cherry	5.7			Fair				X	
7021	Quercus velutina	Black Oak	21.9			Fair			X		
7022	Quercus velutina	Black Oak	13.8			Fair			X		
7023	Prunus serotina	Black Cherry	12.4			Poor				X	
7024	Prunus serotina	Black Cherry	17.6			Fair				X	
7025	Quercus velutina	Black Oak	13.9			Fair				X	
7026	Quercus velutina	Black Oak	16.4			Fair				X	
7027	Quercus velutina	Black Oak	23.8			Fair				X	
7028	Rhamnus cathartica	European Buckthorn	7.3	5.2	4.5	Fair				X	
7029	Quercus alba	White Oak	9.2			Fair			X		
7030	Pinus sylvestris	Scots Pine	5.5			Fair				X	
7031	Prunus serotina	Black Cherry	14.4			Poor			X		
7032	Juglans nigra	Black Walnut	4.7			Fair			X		
7033	Quercus velutina	Black Oak	23.1			Fair			X		
7034	Acer rubrum	Red Maple	18.5			Fair			X		
7035	Quercus velutina	Black Oak	6.3			Fair			X		
7036	Acer rubrum	Red Maple	23.1	9.9	6.2	Fair				X	
7037	Quercus alba	White Oak	11	7.9		Fair			X		
7038	Acer rubrum	Red Maple	4.6			Fair				X	
7039	Morus alba	Common Mulberry	9.2	5.8		Poor				X	
7040	Acer negundo	Boxelder	4.9			Fair				X	
7041	Morus alba	Common Mulberry	10.3	10	6.9	Fair				X	
7042	Juglans nigra	Black Walnut	6			Fair				X	
7043	Ailanthus altissima	Tree of Heaven	4.6			Fair			X		
7044	Ailanthus altissima	Tree of Heaven	4.7			Fair				X	
7045	Acer negundo	Boxelder	9.7			Poor				X	
7046	Acer negundo	Boxelder	11			Poor				X	
7047	Quercus velutina	Black Oak	7.1			Fair				X	
7048	Juglans nigra	Black Walnut	18.4			Fair				X	
7049	Sassafras albidum	Sassafras	5.8			Fair				X	
7050	Quercus velutina	Black Oak	10.7			Fair				X	
7051	Juglans nigra	Black Walnut	6.6			Fair				X	
7052	Juglans nigra	Black Walnut	5.1			Fair				X	
7053	Juglans nigra	Black Walnut	18			Fair			X		
7054	Prunus serotina	Black Cherry	6			Poor				X	
7055	Juglans nigra	Black Walnut	10.8			Fair				X	
7056	Juglans nigra	Black Walnut	18			Fair				X	
7057	Juglans nigra	Black Walnut	7.7			Fair				X	
7058	Acer negundo	Boxelder	6.3			Fair			X		
7059	Acer negundo	Boxelder	13.5	11.1		Fair			X		
7060	Acer negundo	Boxelder	17.1	11.8	11.4	Fair			X		
7061	Ailanthus altissima	Tree of Heaven	9.4			Fair				X	
7062	Ailanthus altissima	Tree of Heaven	8.5			Fair				X	
7063	Ailanthus altissima	Tree of Heaven	8.2			Fair				X	
7064	Juniperus virginiana	Eastern Red Cedar	5			Fair			X		
7065	Ailanthus altissima	Tree of Heaven	5.4			Fair			X		
7066	Juglans nigra	Black Walnut	5.4			Fair			X		
7067	Acer negundo	Boxelder	5.6			Fair			X		
7068	Acer negundo	Boxelder	9.8			Fair			X		
7069	Acer negundo	Boxelder	8.5	7.2		Fair			X		
7070	Acer negundo	Boxelder	5			Fair			X		
7071	Acer negundo	Boxelder	8.6			Fair			X		
7072	Acer negundo	Boxelder	6.5			Fair			X		
7073	Acer negundo	Boxelder	9.8			Fair			X		
7074	Acer negundo	Boxelder	6.4	5.9		Fair			X		
7075	Acer negundo	Boxelder	5.2			Fair			X		
7076	Acer negundo	Boxelder	5			Fair			X		
7077	Acer negundo	Boxelder	5.4	4.5		Fair			X		
7078	Acer negundo	Boxelder	7.1			Fair			X		
7079	Acer negundo	Boxelder	9.1			Fair			X		
7080	Juglans nigra	Black Walnut	7			Fair			X		
7081	Juglans nigra	Black Walnut	12.4			Poor			X		
7082	Juglans nigra	Black Walnut	5.1			Fair				X	
7083	Juglans nigra	Black Walnut	8.7			Fair				X	
7084	Juglans nigra	Black Walnut	6.6			Fair				X	
7085	Juglans nigra	Black Walnut	5			Fair			X		
7086	Juglans nigra	Black Walnut	6			Fair			X		
7087	Sassafras albidum	Sassafras	6.2			Fair				X	
7088	Quercus velutina	Black Oak	8	5.2		Fair				X	
7089	Ulmus americana	American Elm	9			Fair				X	
7090	Juglans nigra	Black Walnut	8.1			Fair			X		
7091	Sassafras albidum	Sassafras	18.5			Fair	X				
7092	Juglans nigra	Black Walnut	6.9	6	5.2	Fair				X	
7093	Quercus alba	White Oak	10.7			Fair				X	
7094	Juglans nigra	Black Walnut	13.4	10.5		Fair				X	
7095	Juglans nigra	Black Walnut	11			Fair				X	
7096	Juglans nigra	Black Walnut	14.6			Fair				X	
7097	Juglans nigra	Black Walnut	14.2			Fair				X	
7098	Prunus serotina	Black Cherry	11.4			Poor				X	
7099	Juglans nigra	Black Walnut	8.4			Fair				X	
7100	Acer negundo	Boxelder	4.9	4.6		Fair				X	
7101	Acer rubrum	Red Maple	4.6			Fair				X	
7102	Sassafras albidum	Sassafras	9.6			Fair				X	
7103	Acer rubrum	Red Maple	11			Fair				X	
7104	Sassafras albidum	Sassafras	13.2			Fair				X	
7105	Acer rubrum	Red Maple	5.2			Fair				X	
7106	Sassafras albidum	Sassafras	10.5			Fair				X	
7107	Sassafras albidum	Sassafras	7.3			Fair				X	
7108	Sassafras albidum	Sassafras	9.1			Fair				X	
7109	Sassafras albidum	Sassafras	5			Fair				X	
7110	Acer rubrum	Red Maple	5.6			Fair				X	
7111	Prunus serotina	Black Cherry	5			Fair				X	
7112	Acer rubrum	Red Maple	7.8			Fair				X	
7113	Acer rubrum	Red Maple	12.3			Fair				X	
7114	Acer rubrum	Red Maple	8.5			Fair				X	
7115	Sassafras albidum	Sassafras	11.4			Fair			X		
7116	Sassafras albidum	Sassafras	9.5			Fair				X	
7117	Acer rubrum	Red Maple	5.8	5.6	4.3	Fair				X	
7118	Prunus avium	Sweet Cherry	13			Fair				X	
7119	Acer rubrum	Red Maple	7.3	7.2	6.3	Fair				X	
7120	Prunus serotina	Black Cherry	14.7			Fair				X	
7121	Sassafras albidum	Sassafras	5.3			Fair				X	
7122	Acer rubrum	Red Maple	8.7	7.1	4.5	Fair			X		
7123	Prunus serotina	Black Cherry	12.8			Fair				X	
7124	Acer rubrum	Red Maple	7.6			Fair				X	
7125	Prunus serotina	Black Cherry	11.6			Fair				X	
7126	Acer rubrum	Red Maple	8.4			Fair				X	
7127	Prunus serotina	Black Cherry	5.2			Fair				X	
7128	Acer rubrum	Red Maple	12.5			Fair				X	
7129	Prunus serotina	Black Cherry	10			Fair				X	
7130	Sassafras albidum	Sassafras	11.2			Fair				X	
7131	Sassafras albidum	Sassafras	9.9			Fair				X	
7132	Sassafras albidum	Sassafras	14.1			Fair				X	
7133	Acer rubrum	Red Maple	9.1			Fair				X	
7134	Sassafras albidum	Sassafras	12.9			Fair			X		
7135	Acer rubrum	Red Maple	4.4			Fair				X	
7136	Prunus serotina	Black Cherry	5			Fair			X		
7137	Prunus serotina	Black Cherry	4.5			Fair				X	
7138	Acer rubrum	Red Maple	14.7			Fair				X	
7139	Quercus rubra	Red Oak	4.6			Fair				X	
7140	Acer rubrum	Red Maple	7.6			Fair				X	
7141	Quercus rubra	Red Oak	20			Fair				X	
7142	Acer rubrum	Red Maple	7			Fair				X	
7143	Acer rubrum	Red Maple	5.9			Fair				X	
7144	Ulmus americana	American Elm	12.8			Fair				X	
7145	Ulmus americana	American Elm	11.2			Fair			X		
7146	Ulmus americana	American Elm	7.2	6.6		Fair			X		
7147	Acer rubrum	Red Maple	12			Fair			X		
7148	Prunus serotina	Black Cherry	8.7			Fair			X		
7149	Carya glabra	Pignut Hickory	14.4			Fair				X	
7150	Sassafras albidum	Sassafras	11.2			Fair				X	
7151	Prunus serotina	Black Cherry	6.4			Fair			X		
7152	Ulmus americana	American Elm	7.3			Fair			X		
7153	Prunus serotina	Black Cherry	6.3			Fair				X	
7154	Sassafras albidum	Sassafras	5.2			Fair			X		
7155	Quercus alba	White Oak	6.6			Fair				X	
7156	Acer rubrum	Red Maple	11.6			Fair				X	
7157	Sassafras albidum	Sassafras	11			Fair				X	
7158	Ulmus americana	American Elm	5.2			Fair				X	
7159	Quercus rubra	Red Oak	5.8			Fair			X		
7160	Prunus serotina	Black Cherry	5.6			Fair				X	
7161	Quercus rubra	Red Oak	13.9			Fair			X		
7162	Prunus serotina	Black Cherry	9.3			Fair			X		
7163	Quercus velutina	Black Oak	12.3			Fair			X		
7164	Quercus velutina	Black Oak	21			Fair				X	
7165	Quercus velutina	Black Oak	12.7			Fair			X		
7166	Juglans nigra	Black Walnut	12.6	7.3		Fair			X		
7167	Juglans nigra	Black Walnut	5.5			Fair				X	
7168	Quercus rubra	Red Oak	8.7			Fair				X	
7169	Acer rubrum	Red Maple	6.6			Fair				X	
7170	Prunus serotina	Black Cherry	10			Fair			X		
7171	Prunus serotina	Black Cherry	12.9			Fair			X		
7172	Prunus serotina	Black Cherry	9.8			Fair				X	
7173	Prunus serotina	Black Cherry	13			Fair				X	
7174	Prunus serotina	Black Cherry	10.8			Fair				X	
7175	Ulmus americana	American Elm	17.2			Fair				X	
7176	Prunus serotina	Black Cherry	9.2			Fair				X	
7177	Prunus serotina	Black Cherry	12.2			Fair				X	
7178	Acer negundo	Boxelder	9			Fair				X	
7179	Prunus serotina	Black Cherry	7.9			Fair				X	
7180	Prunus serotina	Black Cherry	9.2	7.7		Fair				X	
7181	Prunus serotina	Black Cherry	4.9			Fair				X	
7182	Prunus serotina	Black Cherry	8			Fair				X	
7183	Prunus serotina	Black Cherry	8.7			Fair				X	
7184	Prunus serotina	Black Cherry	6.5	4.6	4.5	Fair				X	
7185	Prunus serotina	Black Cherry	11.1			Fair				X	
7186	Robinia pseudoacacia	Black Locust	13			Fair				X	
7187	Ulmus americana	American Elm	12.9			Fair				X	
7188	Prunus serotina	Black Cherry	18.1			Fair				X	
7189	Acer negundo	Boxelder	6.4			Fair				X	
7190	Acer negundo	Boxelder	9.9	6.4	5.1	Fair				X	
7191	Acer negundo	Boxelder	14.4	5.6	5.6	Fair				X	
7192	Morus alba	Common Mulberry	16.6			Fair				X	
7193	Morus alba	Common Mulberry	12.3			Fair				X	
7194	Quercus velutina	Black Oak	8.3			Fair				X	
7195	Pinus strobus	Eastern White Pine	12			Fair				X	
7196	Juglans nigra	Black Walnut	7.1			Fair				X	
7197	Juglans nigra	Black Walnut	6.5			Fair				X	
7198	DROPPED		0			Fair				X	
7199	Quercus velutina	Black Oak	8.3			Fair				X	
7200	Juglans nigra	Black Walnut	6.5			Fair				X	
7201	Acer negundo	Boxelder	8.9	8.2	7	Fair				X	
7202	Acer negundo	Boxelder	9.3			Fair			X		
7203	Juglans nigra	Black Walnut	11.3			Fair				X	
7204	Acer negundo	Boxelder	8.7			Fair			X		
7205	Juglans nigra	Black Walnut	13.7	8.1	8	Fair				X	
7206	Juglans nigra	Black Walnut	6.3			Fair				X	
7207	Juglans nigra	Black Walnut	5.6			Fair			X		
7208	Juglans nigra	Black Walnut	6.4			Fair			X		
7209	Juglans nigra	Black Walnut	13.5			Fair			X		
7210	Juglans nigra	Black Walnut	9.5			Fair			X		
7211	Juglans nigra	Black Walnut	8.6			Fair				X	
7212	Juglans nigra	Black Walnut	12.4			Fair			X		
7213	Juglans nigra	Black Walnut	7.4			Fair			X		
7214	Juglans nigra	Black Walnut	12.7			Fair				X	
7215	Juglans nigra	Black Walnut	7.2			Fair				X	
7216	Juglans nigra	Black Walnut	6			Fair				X	
7217	Juglans nigra	Black Walnut	10.7			Fair				X	
7218	Juglans nigra	Black Walnut	12			Fair				X	
7219	Populus tremuloides	Quaking Aspen	8.5			Fair				X	
7220	Juglans nigra	Black Walnut	10.5			Fair				X	
7221	Acer negundo	Boxelder	7.5			Fair				X	
7222	Juglans nigra	Black Walnut	6.7			Fair				X	
7223	Ailanthus altissima	Tree of Heaven	4.2			Fair				X	
7224	Ailanthus altissima	Tree of Heaven	4.4			Fair			X		
7225	Juglans nigra	Black Walnut	12.6			Fair			X		
7226	Quercus velutina	Black Oak	6.2			Fair				X	
7227	Quercus velutina	Black Oak	16.6			Fair				X	
7228	Prunus serotina	Black Cherry	6.6			Fair			X		
7229	Quercus velutina	Black Oak	17.8			Fair				X	
7230	Quercus velutina	Black Oak	12			Fair				X	
7231	Ailanthus altissima	Tree of Heaven	5.6			Fair				X	
7232	Populus tremuloides	Quaking Aspen	5			Fair				X	
7233	Populus tremuloides	Quaking Aspen	5			Fair				X	
7234	Populus tremuloides	Quaking Aspen	4.8			Fair				X	
7235	Populus tremuloides	Quaking Aspen	4.3			Fair			X		
7236	Populus tremuloides	Quaking Aspen	7.8			Fair			X		
7237	Populus tremuloides	Quaking Aspen	4.3			Fair				X	
7238	Quercus velutina	Black Oak	7.2	6.7		Fair				X	
7239	Prunus avium	Sweet Cherry	7.5			Fair				X	
7240	Prunus avium	Sweet Cherry	8.3			Fair				X	
7241	Prunus avium	Sweet Cherry	13.4			Fair				X	
7242	Quercus alba	White Oak	11.6			Fair				X	
7243	Prunus serotina	Black Cherry	9.8			Fair				X	
7244	Acer rubrum	Red Maple	11.7			Fair				X	
7245	Ulmus americana	American Elm	5.4			Fair			X		
7246	Prunus serotina	Black Cherry	5.9			Fair			X		
7247	Sassafras albidum	Sassafras	4.6			Fair			X		
7248	Quercus alba	White Oak	13.7			Fair				X	
7249	Acer rubrum	Red Maple	8.7			Fair			X		
7250	Prunus serotina	Black Cherry	10			Fair			X		
7251	Quercus velutina	Black Oak	8.4			Fair			X		
7252	Quercus velutina	Black Oak	11.6			Fair				X	
7253	Ulmus americana	American Elm	8.8			Fair				X	
7254	Quercus alba	White Oak	15.7			Fair				X	
7255	Acer rubrum	Red Maple	4.5			Fair				X	
7256	Acer rubrum	Red Maple	14.3			Fair				X	
7257	Sassafras albidum	Sassafras	4.7			Fair				X	
7258	Sassafras albidum	Sassafras	4.6			Fair				X	
7259	Quercus velutina	Black Oak	20.2			Fair				X	
7260	Prunus serotina	Black Cherry	4.7			Fair				X	
7261	Acer rubrum	Red Maple	13.5			Fair				X	
7262	Acer rubrum	Red Maple	7.8			Fair				X	
7263	Acer rubrum	Red Maple	4.1			Fair				X	
7264	Prunus serotina	Black Cherry	4.7			Fair				X	
7265	Prunus serotina	Black Cherry	5.6			Fair				X	
7266	Quercus alba	White Oak	11.8			Fair				X	
7267	Acer rubrum	Red Maple	6			Fair				X	
7268	Acer rubrum	Red Maple	11			Fair				X	
7269	Prunus serotina	Black Cherry	6.4			Fair				X	
7270	Prunus serotina	Black Cherry	15.7			Fair				X	
7271	Prunus serotina	Black Cherry	7.5			Fair				X	
7272	Acer rubrum	Red Maple	19.6			Fair				X	
7273	Acer rubrum	Red Maple	5.3			Fair				X	
7274	Prunus avium	Sweet Cherry	14.4			Fair				X	
7275	Prunus serotina	Black Cherry	10.5	9.6		Fair				X	
7276	Juglans nigra	Black Walnut	12.5			Fair				X	
7277	Picea pungens	Blue Spruce	24			Fair	X				
7278	Pinus nigra	Black Pine	9.8			Fair				X	
7279	Pinus strobus	Eastern White Pine	15.5			Fair				X	
7280	Pinus strobus	Eastern White Pine	17.1			Fair				X	
7281	Pinus strobus	Eastern White Pine	18.3			Fair				X	
7282	Pinus strobus	Eastern White Pine	19.6			Fair				X	
7283	Pinus strobus	Eastern White Pine	23.1			Fair				X	
7284	Ulmus pumila	Siberian Elm	8.2	6.8		Fair				X	
7285	Ulmus pumila	Siberian Elm	4.6			Fair				X	
7286	Morus alba	Common Mulberry	5.8	4.3		Fair				X	
7287	Prunus avium	Sweet Cherry	4.1	4.5		Fair				X	
7288	Ulmus pumila	Siberian Elm	12			Fair					X
7289	Ulmus pumila	Siberian Elm	5.5			Fair					X
7290	Quercus alba	White Oak	7.8			Fair				X	
7291	Quercus velutina	Black Oak	16.3	11.5		Fair			X		
7292	Ulmus pumila	Siberian Elm	6.8			Fair				X	
7293	Quercus velutina	Black Oak	6.4			Fair			X		
7294	Acer negundo	Boxelder	12.9	15.4		Fair				X	
7295	Prunus serotina	Black Cherry	8.7			Fair				X	
7296	Prunus serotina	Black Cherry	20.4			Poor				X	
7297	Fraxinus americana	White Ash	7.8			Poor				X	
7298	Prunus serotina	Black Cherry	10.7	9.2		Fair				X	
7299	Prunus serotina	Black Cherry	7	6.4		Fair				X	
7300	Prunus serotina	Black Cherry	25.9			Fair	X				
7301	Populus tremuloides	Quaking Aspen	7.3			Fair			X		
7302	Populus tremuloides	Quaking Aspen	8.1			Fair				X	
7303	Juglans nigra	Black Walnut	5.3			Fair				X	
7304	Pinus sylvestris	Scots Pine	7.3			Fair				X	
7305	Juglans nigra	Black Walnut	5			Fair				X	
7306	Populus tremuloides	Quaking Aspen	6.7			Fair				X	
7307	Populus tremuloides	Quaking Aspen	6.4			Fair				X	
7308	Populus tremuloides	Quaking Aspen	5.4			Fair				X	
7309	Populus tremuloides	Quaking Aspen	6.3			Fair			X		
7310	Robinia pseudoacacia	Black Locust	10.4			Poor				X	
7311	Populus tremuloides	Quaking Aspen	8.4	8		Fair			X		
7312	Quercus velutina	Black Oak	6.1	4.5		Fair				X	
7313	Quercus velutina	Black Oak	5.7			Fair				X	
7314	Populus tremuloides	Quaking Aspen	9.1			Fair				X	
7315	Quercus velutina	Black Oak	8.1			Fair				X	
7316	Quercus velutina	Black Oak	5.1			Fair				X	
7317	Populus tremuloides	Quaking Aspen	7.8			Fair				X	
7318	Quercus velutina	Black Oak	9.2			Fair				X	
7319	Populus tremuloides	Quaking Aspen	5.6			Fair				X	
7320	Populus tremuloides	Quaking Aspen	7.2			Fair				X	
7321	Acer rubrum	Red Maple	5.9			Fair				X	
7322	Quercus velutina	Black Oak	19.2			Fair				X	
7323	Quercus velutina	Black Oak	5.3			Fair				X	
7324	Quercus velutina	Black Oak	5.6			Fair			X		
7325	Quercus velutina	Black Oak	17.6			Fair				X	
7326	Quercus velutina	Black Oak	4.5	4.1		Fair				X	
7327	Quercus velutina	Black Oak	4.6			Fair				X	
7328	Quercus velutina	Black Oak	9.3			Fair				X	
7329	Quercus velutina	Black Oak	8			Fair				X	
7330	Juglans nigra	Black Walnut	5.4			Fair				X	
7331	Quercus velutina	Black Oak	13.2			Fair			X		
7332	Prunus serotina	Black Cherry	10.5			Fair				X	
7333	Prunus serotina	Black Cherry	10.1			Fair			X		
7334	Prunus serotina	Black Cherry	6			Fair			X		
7335	Prunus serotina	Black Cherry	8.1			Poor			X		
7336	Acer negundo	Boxelder	5.5			Fair				X	
7337	Prunus serotina	Black Cherry	6.4			Fair				X	
7338	Prunus avium	Sweet Cherry	11.3			Very Poor				X	
7339	Prunus serotina	Black Cherry	12.6			Fair				X	
7340	Prunus serotina	Black Cherry	6.4			Fair				X	
7341	Prunus avium	Sweet Cherry	12.5			Very Poor				X	
7342	Prunus serotina	Black Cherry	4.7			Fair				X	
7343	Prunus serotina	Black Cherry	4.7			Fair				X	
7344	Prunus serotina	Black Cherry	14.2			Fair				X	
7345	Prunus serotina	Black Cherry	7.6			Fair				X	
7346	Prunus avium	Sweet Cherry	16			Fair				X	
7347	Prunus serotina	Black Cherry	7.5			Fair				X	
7348	Prunus serotina	Black Cherry	7.1			Fair				X	
7349	Prunus serotina	Black Cherry	5.3			Fair				X	
7350	Prunus serotina	Black Cherry	9.1			Fair				X	
7351	Prunus serotina	Black Cherry	7.6			Fair				X	
7352	Prunus serotina	Black Cherry	7.1			Fair				X	
7353	Prunus serotina	Black Cherry	10.2			Fair				X	
7354	Prunus serotina	Black Cherry	8.4			Fair				X	
7355	Prunus serotina	Black Cherry	4.3			Fair				X	
7356	Acer negundo	Boxelder	4.6			Fair				X	
7357	Prunus serotina	Black Cherry	9.3			Fair				X	
7358	Acer negundo	Boxelder	5.3			Fair				X	
7359	Prunus serotina	Black Cherry	7.9			Fair			X		
7360	Prunus serotina	Black Cherry	6.8			Fair			X		
7361	Acer negundo	Boxelder	4.3			Fair			X		
7362	Ulmus americana	American Elm	7.4			Fair				X	
7363	Acer negundo	Boxelder	5.6			Very Poor				X	
7364	Ulmus americana	American Elm	5.1			Fair				X	
7365	Prunus serotina	Black Cherry	6.4			Fair				X	
7366	Prunus serotina	Black Cherry	6.8			Fair			X		
7367	Prunus serotina	Black Cherry	6.7			Fair				X	
7368	Prunus serotina	Black Cherry	6.5			Fair				X	
7369	Prunus serotina	Black Cherry	4.8			Fair				X	
7370	Prunus serotina	Black Cherry	4.7			Fair				X	
7371	Prunus serotina	Black Cherry	8.1			Fair				X	
7372	Acer rubrum	Red Maple	5.5			Fair				X	
7373	Acer rubrum	Red Maple	4.3			Fair				X	
7374	Prunus serotina	Black Cherry	7.4			Fair				X	
7375	Acer negundo	Boxelder	9.1			Fair				X	
7376	Acer negundo	Boxelder	4.4			Fair				X	
7377	Prunus serotina	Black Cherry	6.2			Fair				X	
7378	Prunus serotina	Black Cherry	7.2			Fair				X	
7379	Prunus serotina	Black Cherry	5.1			Fair				X	
7380	Prunus serotina	Black Cherry	6.7			Fair				X	
7381	Prunus serotina	Black Cherry	4.5			Fair				X	
7382	Prunus serotina	Black Cherry	5			Fair				X	
7383	Prunus serotina	Black Cherry	7.7			Fair				X	
7384	Acer negundo	Boxelder	6.9			Fair				X	
7385	Sassafras albidum	Sassafras	5.4			Fair				X	
7386	Ulmus americana	American Elm	7.2			Fair				X	
7387	Acer rubrum	Red Maple	5.3			Fair				X	
7388	Acer rubrum	Red Maple	6.3			Fair				X	
7389	Acer rubrum	Red Maple	9.2	9		Fair				X	
7390	Quercus velutina	Black Oak	12			Fair				X	
7391	Acer rubrum	Red Maple	7.5			Fair				X	
7392	Acer rubrum	Red Maple	14.4			Fair				X	
7393	Acer rubrum	Red Maple	10.1	8.4		Fair				X	
7394	Acer rubrum	Red Maple	15.3			Fair				X	
7395	Acer rubrum	Red Maple	16.1			Fair				X	
7396	Quercus velutina	Black Oak	10			Fair				X	
7397	Sassafras albidum	Sassafras	4.8			Fair				X	

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 543

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE:

NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
13_Tree--12/16/2022 8:27:04 AM

SHEET NO.

13

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

			DBH								
Tag	Scientific Name	Common Name	Trunk 1	Trunk 2	Trunk 3	Condition (1)	Landmark	Save	Rem & Rplc	No Replace	Offiste
7398	Quercus velutina	Black Oak	12.5	12.1	11.6	Fair				X	
7399	Acer rubrum	Red Maple	7			Fair				X	
7400	Prunus serotina	Black Cherry	9.6	8.3		Fair				X	
7401	Quercus velutina	Black Oak	11			Poor			X		
7402	Acer rubrum	Red Maple	7			Poor			X		
7403	Juglans nigra	Black Walnut	21.4			Poor				X	
7404	Sassafras albidum	Sassafras	6			Poor			X		
7405	Juglans nigra	Black Walnut	15.7			Fair				X	
7406	Acer rubrum	Red Maple	6.4			Poor				X	
7407	Quercus velutina	Black Oak	9.9			Poor				X	
7408	Quercus velutina	Black Oak	7.4			Poor				X	
7409	Acer rubrum	Red Maple	4.7			Poor				X	
7410	Ulmus americana	American Elm	10.2			Poor				X	
7411	Prunus serotina	Black Cherry	9.1			Fair				X	
7412	Prunus serotina	Black Cherry	6.4			Fair				X	
7413	Acer rubrum	Red Maple	12.5			Fair				X	
7414	Prunus serotina	Black Cherry	7.3			Fair				X	
7415	Juglans nigra	Black Walnut	7.4			Poor				X	
7416	Acer rubrum	Red Maple	8.1			Poor				X	
7417	Quercus velutina	Black Oak	12			Poor				X	
7418	Quercus velutina	Black Oak	17.4			Fair				X	
7419	Quercus velutina	Black Oak	10.4			Fair				X	
7420	Juglans nigra	Black Walnut	14.4			Fair				X	
7421	Prunus serotina	Black Cherry	6.4			Fair				X	
7422	Prunus serotina	Black Cherry	7.5			Fair			X		
7423	Sassafras albidum	Sassafras	8.6			Fair				X	
7424	Prunus serotina	Black Cherry	5.1			Fair				X	
7425	Juglans nigra	Black Walnut	8.8			Fair				X	
7426	Juglans nigra	Black Walnut	16.8			Poor				X	
7427	Juglans nigra	Black Walnut	15.7			Fair				X	
7428	Sassafras albidum	Sassafras	4.8			Fair				X	
7429	Quercus velutina	Black Oak	13.3			Fair				X	
7430	Quercus velutina	Black Oak	13.2			Fair				X	
7431	Juglans nigra	Black Walnut	21.4			Fair				X	
7432	Juglans nigra	Black Walnut	6			Poor				X	
7433	Juglans nigra	Black Walnut	21.3			Fair				X	
7434	Juglans nigra	Black Walnut	14.2			Fair			X		
7435	Juglans nigra	Black Walnut	4.6			Poor				X	
7436	Juglans nigra	Black Walnut	10.6			Poor				X	
7437	Juglans nigra	Black Walnut	14.9			Poor				X	
7438	Juglans nigra	Black Walnut	18.6	16.7		Fair				X	
7439	Juglans nigra	Black Walnut	9.3			Poor			X		
7440	Juglans nigra	Black Walnut	15.5			Poor				X	
7441	Juglans nigra	Black Walnut	9.1			Poor				X	
7442	Acer negundo	Boxelder	15.7	11.4		Poor				X	
7443	Prunus serotina	Black Cherry	5.5			Fair				X	
7444	Juglans nigra	Black Walnut	13.3			Fair			X		
7445	Juglans nigra	Black Walnut	6.3			Poor				X	
7446	Robinia pseudoacacia	Black Locust	7.2			Fair			X		
7447	Robinia pseudoacacia	Black Locust	5.7			Fair			X		
7448	Robinia pseudoacacia	Black Locust	11.9			Fair			X		
7449	Robinia pseudoacacia	Black Locust	9			Fair			X		
7450	Robinia pseudoacacia	Black Locust	18.4			Fair				X	
7451	Juglans nigra	Black Walnut	13.1			Poor			X		
7452	Juglans nigra	Black Walnut	6.6			Poor			X		
7453	Juglans nigra	Black Walnut	9.8			Poor			X		
7454	Juglans nigra	Black Walnut	6.5			Poor			X		
7455	Juglans nigra	Black Walnut	13.6			Poor				X	
7456	Juglans nigra	Black Walnut	8.7			Fair				X	
7457	Juglans nigra	Black Walnut	19.6			Fair				X	
7458	Juglans nigra	Black Walnut	9.1	8.7	7.6	Poor				X	
7459	Quercus velutina	Black Oak	8.2			Fair			X		
7460	Acer rubrum	Red Maple	8.3			Very Poor			X		
7461	Prunus serotina	Black Cherry	11.2			Very Poor			X		
7462	Prunus serotina	Black Cherry	8.4			Very Poor			X		
7463	Prunus serotina	Black Cherry	10.8			Very Poor				X	
7464	Prunus serotina	Black Cherry	5.1			Fair				X	
7465	Prunus serotina	Black Cherry	9.7			Fair				X	
7466	Prunus serotina	Black Cherry	7.1			Poor			X		
7467	Prunus serotina	Black Cherry	4.9			Poor			X		
7468	Acer negundo	Boxelder	8.5	6.9		Fair			X		
7469	Prunus serotina	Black Cherry	11.4			Fair				X	
7470	Acer rubrum	Red Maple	6.4	5.1		Poor				X	
7471	Juniperus virginiana	Eastern Red Cedar	9.8	6.7	5.3	Fair				X	
7472	Acer rubrum	Red Maple	17.1	6		Fair				X	
7473	Acer negundo	Boxelder	7.4	5.7	5.5	Fair				X	
7474	Acer negundo	Boxelder	8.5	6.9		Fair				X	
7475	Quercus alba	White Oak	4.7			Fair			X		
7476	Acer negundo	Boxelder	5.8			Fair			X		
7477	Prunus serotina	Black Cherry	5.3			Very Poor			X		
7478	Acer negundo	Boxelder	6.4			Poor			X		
7479	Prunus serotina	Black Cherry	9.4			Poor				X	
7480	Prunus serotina	Black Cherry	6.6			Poor				X	
7481	Acer rubrum	Red Maple	6.4			Fair				X	
7482	Prunus serotina	Black Cherry	8.3	7.4		Fair				X	
7483	Prunus serotina	Black Cherry	7.1	7		Fair				X	
7484	Acer negundo	Boxelder	8.4	6.5		Fair				X	
7485	Acer negundo	Boxelder	6.7			Fair				X	
7486	Prunus serotina	Black Cherry	6.6	6.2		Fair				X	
7487	Prunus serotina	Black Cherry	4.3			Fair				X	
7488	Prunus serotina	Black Cherry	4.6			Fair				X	
7489	Prunus serotina	Black Cherry	6.3			Fair			X		
7490	Prunus serotina	Black Cherry	6.3			Fair			X		
7491	Prunus serotina	Black Cherry	5.6			Fair			X		
7492	Acer rubrum	Red Maple	5			Fair			X		
7493	Prunus serotina	Black Cherry	6.4	5.2	4.5	Fair			X		
7494	Prunus serotina	Black Cherry	5	4.2		Fair				X	
7495	Prunus serotina	Black Cherry	5.7	4.8		Fair				X	
7496	Juglans nigra	Black Walnut	7.7	6.1	4.8	Poor				X	
7497	Ulmus americana	American Elm	14.5			Fair				X	
7498	Acer rubrum	Red Maple	12.1	11.3		Fair				X	
7499	Juglans nigra	Black Walnut	19.2			Fair				X	
7500	Juglans nigra	Black Walnut	11.4			Fair				X	
7501	Prunus serotina	Black Cherry	22.9			Fair				X	
7502	Quercus velutina	Black Oak	15.8			Fair			X		
7503	Quercus velutina	Black Oak	12.5			Fair				X	
7504	Prunus serotina	Black Cherry	13	9.7		Fair				X	
7505	Juglans nigra	Black Walnut	16.6			Fair				X	
7506	Ulmus americana	American Elm	8.4			Fair				X	
7507	Prunus serotina	Black Cherry	5.9			Fair			X		
7508	Prunus serotina	Black Cherry	23.4			Fair				X	
7509	Ulmus americana	American Elm	7.2			Fair				X	
7510	Acer rubrum	Red Maple	6			Fair				X	
7511	Prunus serotina	Black Cherry	27.6			Fair	X				
7512	Ulmus americana	American Elm	8.6			Fair				X	
7513	Quercus velutina	Black Oak	15.6			Fair				X	
7514	Sassafras albidum	Sassafras	7.4			Fair				X	
7515	Ulmus americana	American Elm	4.6			Fair				X	
7516	Ulmus americana	American Elm	5.5			Very Poor				X	
7517	Sassafras albidum	Sassafras	5.1			Fair				X	
7518	Quercus velutina	Black Oak	5.8			Fair				X	
7519	Acer rubrum	Red Maple	5.7			Fair				X	
7520	Ulmus americana	American Elm	5.3	4.8	4.6	Fair				X	
7521	Prunus serotina	Black Cherry	4.8			Fair				X	
7522	Ulmus americana	American Elm	7.3			Fair				X	
7523	Quercus velutina	Black Oak	11.1			Fair				X	
7524	Malus pumila	Common Apple	6	5.5	5.5	Fair				X	
7525	Prunus serotina	Black Cherry	10.5			Fair				X	
7526	Pinus sylvestris	Scots Pine	7.6			Fair				X	
7527	Ulmus pumila	Siberian Elm	12.6			Fair				X	
7528	Ulmus americana	American Elm	7.9			Fair				X	
7529	Juniperus virginiana	Eastern Red Cedar	5.2			Fair				X	
7530	Ulmus americana	American Elm	4.3			Fair			X		
7531	Ulmus americana	American Elm	4.3			Fair				X	
7532	Quercus velutina	Black Oak	4.7			Fair				X	
7533	Quercus alba	White Oak	15.2			Fair				X	
7534	Quercus alba	White Oak	15.2			Fair				X	
7536	Acer rubrum	Red Maple	5.5			Fair				X	
7537	Acer negundo	Boxelder	10.2			Fair					X
7538	Acer negundo	Boxelder	10.1			Fair			X		
7539	Acer negundo	Boxelder	4.5	4.4		Fair					X
7540	Juniperus virginiana	Eastern Red Cedar	6.6	6.4		Fair			X		
7541	Quercus velutina	Black Oak	7			Fair				X	
7542	Prunus serotina	Black Cherry	4.9			Fair				X	
7543	Populus tremuloides	Quaking Aspen	7.5			Fair			X		
7544	Populus tremuloides	Quaking Aspen	13.1	10.6	9.7	Fair			X		
7545	Malus pumila	Common Apple	8.7	6.6	6.6	Fair			X		
7546	Prunus serotina	Black Cherry	10.4			Fair			X		
7547	Rhamnus cathartica	European Buckthorn	10.4			Fair				X	
7548	Populus deltoides	Eastern Cottonwood	45.1			Fair	X				
7549	Quercus velutina	Black Oak	13.4			Fair				X	
7550	Ulmus americana	American Elm	7.4			Fair				X	
7551	Rhamnus cathartica	European Buckthorn	7.1			Fair			X		
7552	Prunus serotina	Black Cherry	17.2			Fair				X	
7553	Juniperus virginiana	Eastern Red Cedar	7.4			Fair				X	
7554	Ulmus americana	American Elm	5.4			Fair				X	
7555	Prunus serotina	Black Cherry	7.9	5.2	4.2	Fair				X	
7556	Prunus serotina	Black Cherry	11	7.3		Fair				X	
7557	Prunus serotina	Black Cherry	10.4			Fair				X	
7558	Sassafras albidum	Sassafras	5.8			Fair				X	
7559	Ulmus americana	American Elm	5.6			Fair				X	
7560	Juniperus virginiana	Eastern Red Cedar	10.2			Fair				X	
7561	Prunus serotina	Black Cherry	19.4			Fair				X	
7562	Acer rubrum	Red Maple	10.8			Fair				X	
7563	Ulmus pumila	Siberian Elm	10.8			Fair				X	
7564	Malus pumila	Common Apple	5	5		Fair				X	
7565	Malus pumila	Common Apple	5.2	4.7		Fair				X	
7566	Rhamnus cathartica	European Buckthorn	6.1			Fair				X	
7567	Malus pumila	Common Apple	4.4			Fair				X	
7568	Malus pumila	Common Apple	5.2			Fair				X	
7569	Malus pumila	Common Apple	4.1			Fair				X	
7570	Pinus strobus	Eastern White Pine	20.6			Fair			X		
7571	Rhamnus cathartica	European Buckthorn	4.7			Fair			X		
7572	Prunus serotina	Black Cherry	10.7			Fair			X		
7573	Prunus serotina	Black Cherry	4.4			Fair				X	
7574	Prunus serotina	Black Cherry	6			Fair				X	
7575	Fraxinus americana	White Ash	7.5			Fair					X
7576	Prunus serotina	Black Cherry	10.1			Fair					X
7577	Prunus serotina	Black Cherry	9.6			Fair					X
7578	Prunus serotina	Black Cherry	5.7			Fair			X		
7579	Ulmus americana	American Elm	14.8			Fair			X		
7580	Prunus serotina	Black Cherry	12			Fair			X		
7581	Rhamnus cathartica	European Buckthorn	5.6			Fair			X		
7582	Prunus serotina	Black Cherry	20.2			Fair			X		
7583	Ulmus americana	American Elm	12			Fair			X		
7584	Prunus serotina	Black Cherry	7	7.7		Fair				X	
7585	Acer rubrum	Red Maple	7.2			Fair				X	
7586	Prunus serotina	Black Cherry	6.5			Fair				X	
7587	Prunus serotina	Black Cherry	4.9			Fair			X		
7588	Prunus serotina	Black Cherry	12			Fair				X	
7589	Prunus serotina	Black Cherry	12			Fair				X	
7590	Prunus serotina	Black Cherry	18	15.8	14	Poor				X	
7591	Ulmus americana	American Elm	5.8			Fair				X	
7592	Rhamnus cathartica	European Buckthorn	7			Fair				X	
7593	Quercus alba	White Oak	7.7			Fair				X	
7594	Acer rubrum	Red Maple	9.2			Fair				X	
7595	Prunus serotina	Black Cherry	18.7			Fair				X	
7596	Ulmus americana	American Elm	5.7			Fair				X	
7597	Prunus serotina	Black Cherry	4.2			Fair				X	
7598	Rhamnus cathartica	European Buckthorn	4.8			Fair				X	
7599	Malus pumila	Common Apple	4.5			Fair			X		
7600	Ulmus americana	American Elm	8.8			Fair				X	
7601	Morus alba	Common Mulberry	11.2	6.4		Fair				X	
7602	Quercus velutina	Black Oak	13.2			Fair				X	
7603	Prunus serotina	Black Cherry	10.4			Fair				X	
7604	Quercus velutina	Black Oak	20.9			Fair				X	
7605	Quercus velutina	Black Oak	10			Fair				X	
7606	Acer rubrum	Red Maple	8.2	7.7		Fair				X	
7607	Acer rubrum	Red Maple	4.8			Fair				X	
7608	Quercus velutina	Black Oak	11.6			Fair				X	
7609	Prunus serotina	Black Cherry	14.2			Fair				X	
7610	Acer rubrum	Red Maple	5.1			Fair				X	
7611	Acer rubrum	Red Maple	11.5			Fair				X	
7612	Acer rubrum	Red Maple	7.5			Fair				X	
7613	Acer rubrum	Red Maple	10.7			Fair			X		
7614	Quercus velutina	Black Oak	13			Fair			X		
7615	Acer rubrum	Red Maple	10.4			Fair				X	
7616	Quercus velutina	Black Oak	11			Fair				X	
7617	Quercus velutina	Black Oak	16.3			Fair				X	
7618	Ulmus americana	American Elm	5.8			Fair				X	
7619	Quercus velutina	Black Oak	5.5			Fair				X	
7620	Quercus velutina	Black Oak	7			Fair				X	
7621	Quercus velutina	Black Oak	6.4			Fair				X	
7622	Quercus velutina	Black Oak	11			Fair				X	
7623	Acer rubrum	Red Maple	7.2			Fair				X	
7624	Prunus serotina	Black Cherry	9.5			Fair				X	
7625	Ulmus americana	American Elm	18.2			Fair				X	
7626	Ulmus americana	American Elm	11			Fair			X		
7627	Prunus serotina	Black Cherry	7.5			Fair			X		
7628	Prunus serotina	Black Cherry	6.8			Fair			X		
7629	Prunus serotina	Black Cherry	6.6			Fair			X		
7630	Quercus velutina	Black Oak	17.4			Fair				X	
7631	Acer rubrum	Red Maple	5.8			Fair			X		
7632	Acer rubrum	Red Maple	8.2			Fair			X		
7633	Acer rubrum	Red Maple	12.4			Fair				X	
7634	Prunus serotina	Black Cherry	11.8			Fair				X	
7635	Quercus velutina	Black Oak	11.1			Fair				X	
7636	Prunus serotina	Black Cherry	5			Fair			X		
7637	Acer rubrum	Red Maple	9.6			Fair			X		
7638	Quercus velutina	Black Oak	7.3			Fair			X		
7639	Quercus velutina	Black Oak	14.2			Fair			X		
7640	Quercus velutina	Black Oak	13.6	9.4		Fair			X		
7641	Prunus serotina	Black Cherry	5.2			Fair			X		
7642	Prunus serotina	Black Cherry	11			Fair			X		
7643	Quercus velutina	Black Oak	10.6			Fair			X		
7644	Prunus serotina	Black Cherry	5.3			Fair			X		
7645	Quercus velutina	Black Oak	8.6			Fair			X		
7646	Quercus velutina	Black Oak	9.2			Fair			X		
7647	Quercus velutina	Black Oak	15			Fair			X		
7648	Quercus velutina	Black Oak	8.2			Fair			X		
7649	Quercus velutina	Black Oak	6.2			Fair			X		
7650	Acer rubrum	Red Maple	9			Fair			X		
7651	Quercus velutina	Black Oak	13.5			Fair			X		
7652	Quercus velutina	Black Oak	11.8			Fair			X		
7653	Quercus velutina	Black Oak	17			Fair			X		
7654	Quercus velutina	Black Oak	14.2			Fair			X		
7655	Quercus velutina	Black Oak	5.3			Fair				X	
7656	Quercus velutina	Black Oak	6.9			Fair			X		
7657	Acer rubrum	Red Maple	8.6			Fair				X	
7658	Quercus velutina	Black Oak	8			Fair				X	
7659	Quercus velutina	Black Oak	9.4			Fair				X	
7660	Prunus serotina	Black Cherry	9.6			Fair				X	
7661	Quercus velutina	Black Oak	4.4			Fair				X	
7662	Quercus velutina	Black Oak	5.6			Fair				X	
7663	Prunus serotina	Black Cherry	7.1			Fair				X	
7664	Prunus serotina	Black Cherry	6.9			Fair				X	
7665	Quercus velutina	Black Oak	17.2			Fair				X	
7666	Quercus velutina	Black Oak	15.6			Fair			X		
7667	Quercus velutina	Black Oak	15.2			Fair				X	
7668	Quercus velutina	Black Oak	15.7			Fair				X	
7669	Quercus velutina	Black Oak	8.1			Fair				X	
7670	Quercus velutina	Black Oak	10.2			Fair				X	
7671	Prunus serotina	Black Cherry	12.5			Fair				X	
7672	Quercus velutina	Black Oak	14.2			Fair				X	
7673	Prunus serotina	Black Cherry	4.3			Fair				X	
7674	Quercus velutina	Black Oak	9.1			Fair				X	
7675	Quercus velutina	Black Oak	12.8			Fair				X	
7676	Quercus velutina	Black Oak	8.1			Fair				X	
7677	Quercus velutina	Black Oak	12.9			Fair				X	
7678	Quercus velutina	Black Oak	15			Fair				X	
7679	Prunus serotina	Black Cherry	17.7			Fair				X	
7680	Quercus velutina	Black Oak	12.2			Fair				X	
7681	Sassafras albidum	Sassafras	14.1			Poor			X		
7682	Acer rubrum	Red Maple	6.7			Fair				X	
7683	Prunus serotina	Black Cherry	12.6			Fair				X	
7684	Prunus serotina	Black Cherry	7.1			Fair				X	
7685	Prunus serotina	Black Cherry	6.8			Fair				X	
7686	Prunus serotina	Black Cherry	11.6			Fair				X	
7687	Prunus serotina	Black Cherry	12.6			Fair				X	
7688	Prunus serotina	Black Cherry	6.8			Fair				X	
7689	Prunus serotina	Black Cherry	4.3			Fair				X	
7690	Quercus velutina	Black Oak	16.5			Fair				X	
7691	Prunus serotina	Black Cherry	14.6	11.8		Fair				X	
7692	Prunus serotina	Black Cherry	11.1			Fair				X	
7693	Acer rubrum	Red Maple	6.3			Fair				X	
7694	Acer rubrum	Red Maple	4.6			Fair				X	
7695	Quercus velutina	Black Oak	13.9			Fair				X	
7696	Quercus velutina	Black Oak	6.8	6.4		Fair				X	
7697	Quercus velutina	Black Oak	12.2			Fair				X	
7698	Prunus serotina	Black Cherry	14.8			Fair				X	
7699	Prunus serotina	Black Cherry	8.4			Fair				X	
7700	Prunus serotina	Black Cherry	5.9			Fair				X	
7701	Juglans nigra	Black Walnut	21.6	8.9	8.4	Poor				X	
7702	Juglans nigra	Black Walnut	23.6			Poor				X	
7703	Juglans nigra	Black Walnut	8.9	4		Fair				X	
7704	Juglans nigra	Black Walnut	7.4			Poor				X	
7705	Juglans nigra	Black Walnut	13.1			Very Poor				X	
7706	Juglans nigra	Black Walnut	13.6			Fair				X	
7707	Quercus rubra	Red Oak	9.2			Fair				X	
7708	Quercus velutina	Black Oak	6.4			Fair				X	
7709	Populus tremuloides	Quaking Aspen	7.4			Fair				X	
7710	Acer rubrum	Red Maple	6.9			Fair				X	
7711	Ailanthus altissima	Tree of Heaven	11.7			Fair				X	
7712	Quercus velutina	Black Oak	15.4			Fair			X		
7713	Quercus velutina	Black Oak	4.6			Fair			X		
7714	Ulmus americana	American Elm	5.5			Fair			X		
7715	Ailanthus altissima	Tree of Heaven	5.8			Fair				X	
7716	Acer rubrum	Red Maple	5	4.3		Fair				X	
7717	Acer rubrum	Red Maple	5.9			Poor				X	
7718	Ailanthus altissima	Tree of Heaven	5.3			Poor				X	
7719	Juglans nigra	Black Walnut	7.3	6.4		Very Poor			X		
7720	Juglans nigra	Black Walnut	8.4			Very Poor				X	
7721	Ulmus americana	American Elm	7			Poor				X	
7722	Quercus velutina	Black Oak	23.2			Fair				X	
7723	Quercus rubra	Red Oak	9.3			Fair				X	
7724	Ulmus americana	American Elm	10.2			Poor				X	
7725	Prunus serotina	Black Cherry	5.4			Poor				X	
7726	Ulmus americana	American Elm	7.1			Fair			X		
7727	Prunus serotina	Black Cherry	12.9			Fair			X		
7728	Ulmus americana	American Elm	9.2			Fair			X		
7729	Ulmus americana	American Elm	5.4			Fair			X		
7730	Prunus serotina	Black Cherry	12.5	6.6		Poor			X		
7731	Acer rubrum	Red Maple	6.3			Fair				X	
7732	Prunus serotina	Black Cherry	6.6			Fair				X	
7733	Ulmus americana	American Elm	5.5			Fair				X	
7734	Prunus serotina	Black Cherry	9.2			Fair				X	
7735	Acer rubrum	Red Maple	7.1	6.2		Fair				X	
7736	Prunus serotina	Black Cherry	7.1			Fair				X	
7737	Acer rubrum	Red Maple	9.2			Fair				X	
7738	Acer rubrum	Red Maple	8.1	4		Fair				X	
7739	Prunus serotina	Black Cherry	17.4			Fair				X	
7740	Juglans nigra	Black Walnut	7.2			Fair				X	
7741	Juglans nigra	Black Walnut	8.2	7.3		Fair				X	
7742	Prunus serotina	Black Cherry	5.5			Fair				X	
7743	Prunus serotina	Black Cherry	5.8			Fair			X		
7744	Sassafras albidum	Sassafras	5.6			Fair			X		
7745	Sassafras albidum	Sassafras	4.2			Fair			X		
7746	Prunus serotina	Black Cherry	7.9	3.2		Fair			X		
7747	Sassafras albidum	Sassafras	6			Fair			X		
7748	Sassafras albidum	Sassafras	7.1			Fair			X		
7749	Sassafras albidum	Sassafras	6.3			Fair				X	
7750	Prunus serotina	Black Cherry	14			Poor				X	
7751	Acer rubrum	Red Maple	14.3			Poor				X	
7752	Ulmus americana	American Elm	14.6	6.1	4.7	Fair				X	
7753	Acer rubrum	Red Maple	5.3			Fair				X	
7754	Sassafras albidum	Sassafras	6.7			Fair				X	
7755	Prunus serotina	Black Cherry	7.3			Fair				X	
7756	Prunus serotina	Black Cherry	6.8			Fair				X	
7757	Prunus serotina	Black Cherry	8.4	8.2		Fair				X	
7758	Acer rubrum	Red Maple	12.7			Fair				X	
7759	Pinus strobus	Eastern White Pine	20.3			Fair				X	
7760	Quercus velutina	Black Oak	15.3	13.8		Fair				X	
7761	Quercus velutina	Black Oak	14.2	13.3		Fair				X	
7762	Quercus velutina	Black Oak	8.6			Fair				X	
7763	Quercus velutina	Black Oak	7.3			Fair				X	
7764	Quercus velutina	Black Oak	6.9			Fair				X	
7765	Prunus serotina	Black Cherry	7.1			Fair				X	
7766	Quercus velutina	Black Oak	7.8			Fair				X	
7767	Robinia pseudoacacia	Black Locust	29.1			Fair				X	
7768	Morus alba	Common Mulberry	11			Fair				X	
7769	Robinia pseudoacacia	Black Locust	13.3			Fair				X	
7770	Robinia pseudoacacia	Black Locust	22.9			Fair			X		
7771	Juglans nigra	Black Walnut	9.8			Fair			X		
7772	Juglans nigra	Black Walnut	10.2			Fair				X	
7773	Acer rubrum	Red Maple	9	5.1		Fair				X	
7774	Prunus serotina	Black Cherry	13.7			Fair			X		
7775	Sassafras albidum	Sassafras	5.9			Fair			X		
7776	Prunus serotina	Black Cherry	14.9			Fair				X	
7777	Sassafras albidum	Sassafras	5.8			Fair				X	
7778	Sassafras albidum	Sassafras	6.6			Fair				X	
7779	Juglans nigra	Black Walnut	26.4			Poor	X				
7780	Juglans nigra	Black Walnut	7.7			Poor				X	
7781	Juglans nigra	Black Walnut	14.6			Fair				X	
7782	Prunus serotina	Black Cherry	14			Poor				X	
7783	Quercus velutina	Black Oak	8.6			Poor				X	
7784	Acer negundo	Boxelder	4.4			Fair				X	
7785	Morus alba	Common Mulberry	8	7.2		Fair				X	
7786	Juglans nigra	Black Walnut	10.3			Fair				X	
7787	Sassafras albidum	Sassafras	7			Fair				X	
7788	Quercus velutina	Black Oak	6.6			Fair				X	
7789	Quercus velutina	Black Oak	5			Fair				X	
7790	Prunus serotina	Black Cherry	11.1			Fair				X	
7791	Ulmus americana	American Elm	5.4			Fair				X	
7792	Fraxinus pennsylvanica	Green Ash	5			Fair				X	
7793	Prunus serotina	Black Cherry	19			Fair				X	
7794	Prunus serotina	Black Cherry	15.2			Fair				X	
7795	Malus pumila	Common Apple	4.6			Fair				X	
7796	Fraxinus pennsylvanica	Green Ash	4			Fair				X	
7797	Acer rubrum	Red Maple	4.4			Fair				X	
7798	Ulmus americana	American Elm	5.1			Fair				X	
7799	Ulmus americana	American Elm	5.1			Fair				X	
7800	Acer rubrum	Red Maple	6.5			Fair				X	
7801	Quercus velutina	Black Oak	5.3			Fair				X	
7802	Quercus velutina	Black Oak	20.6			Fair				X	
7803	Quercus velutina	Black Oak	7.9			Fair				X	
7804	Prunus serotina	Black Cherry	9.2			Fair				X	
7805	Acer rubrum	Red Maple	11.1			Fair			X		
7806	Prunus serotina	Black Cherry	9.4			Fair			X		
7807	Populus tremuloides	Quaking Aspen	8.5			Fair			X		
7808	Acer rubrum	Red Maple	5.3			Fair			X		
7809	Acer rubrum	Red Maple	8.9	4.9		Fair				X	
7810	Acer negundo	Boxelder	4.9			Fair				X	
7811	Acer negundo	Boxelder	11.5			Fair				X	
7812	Prunus serotina	Black Cherry	9.9	5.7		Fair				X	
7813	Prunus serotina	Black Cherry	8.1	6.6		Fair				X	
7814	Ulmus americana	American Elm	6.1	5.7		Fair				X	
7815	Prunus serotina	Black Cherry	4.3			Fair				X	
7816	Ulmus americana	American Elm	6.2			Fair				X	
7817	Ulmus americana	American Elm	11			Fair				X	
7818	Ulmus americana	American Elm	12.8			Fair				X	
7819	Acer rubrum	Red Maple	9.6	6.5		Fair			X		
7820	Quercus velutina	Black Oak	12.1			Fair				X	
7821	Quercus velutina	Black Oak	6.7			Fair				X	
7822	Prunus serotina	Black Cherry	4.6			Fair				X	
7823	Quercus velutina	Black Oak	5.9			Fair				X	
7824	Quercus velutina	Black Oak	8.8			Fair			X		
7825	Quercus alba	White Oak	9.2			Fair					X
7826	Quercus alba	White Oak	9			Fair					X
7827	Acer negundo	Boxelder	7.4			Fair			X		
7828	Acer negundo	Boxelder	10.6	7.6		Fair			X		
7829	Quercus velutina	Black Oak	14.9			Fair			X		
7830	Malus pumila	Common Apple	6.2			Fair			X		
7831	Ulmus americana	American Elm	12.4			Fair			X		
7832	Ulmus americana	American Elm	7.6			Fair			X		
7833	Prunus serotina	Black Cherry	7.6			Fair				X	
7834	Quercus velutina	Black Oak	11.1			Fair			X		
7835	Quercus velutina	Black Oak	7.3			Fair			X		
7836	Prunus serotina	Black Cherry	5.4			Fair			X		
7837	Prunus serotina	Black Cherry	7.6			Fair			X		
7838	Quercus velutina	Black Oak	11.9			Fair				X	
7839	Quercus velutina	Black Oak	7			Fair				X	
7840	Quercus velutina	Black Oak	14.8			Fair				X	
7841	Quercus velutina	Black Oak	10			Fair				X	
7842	Acer rubrum	Red Maple	5.9			Fair				X	
7843	Quercus velutina	Black Oak	8.2			Fair				X	
7844	Quercus velutina	Black Oak	6.6			Fair				X	
7845	Quercus velutina	Black Oak	13.1			Fair				X	
7846	Quercus velutina	Black Oak	5.3			Fair				X	
7847	Quercus velutina	Black Oak	6.6			Fair				X	
7848	Quercus velutina	Black Oak	5.4			Fair				X	
7849	Quercus velutina	Black Oak	13			Fair				X	
7850	Quercus velutina	Black Oak	4.7			Fair				X	
7851	Quercus velutina	Black Oak	5.6			Fair				X	
7852	Quercus velutina	Black Oak	16.6			Fair				X	
7853	Quercus velutina	Black Oak	8.6			Fair				X	
7854	Quercus velutina	Black Oak	8.1			Fair				X	
7855	Quercus velutina	Black Oak	20			Fair				X	
7856	Quercus velutina	Black Oak	12.7			Fair				X	
7857	Quercus velutina	Black Oak	10.6			Fair				X	
7858	Quercus velutina	Black Oak	26.4	14.8		Fair	X				
7859	Quercus velutina	Black Oak	13.2			Fair				X	
7860	Prunus serotina	Black Cherry	8.1			Fair				X	
7861	Acer negundo	Boxelder	8.8	7.9	5.3	Fair				X	
7862	Malus pumila	Common Apple	8.1			Fair				X	
7863	Acer rubrum	Red Maple	5.3			Fair				X	
7864	Ulmus americana	American Elm	8			Fair				X	
7865	Prunus serotina	Black Cherry	19.1			Fair				X	
7866	Acer rubrum	Red Maple	10.2			Poor				X	
7867	Prunus serotina	Black Cherry	28.9			Fair	X				
7868	Quercus velutina	Black Oak	8.4			Fair				X	
7869	Quercus velutina	Black Oak	13.9			Fair				X	
7870	Prunus avium	Sweet Cherry	9.9			Fair				X	
7871	Prunus serotina	Black Cherry	17.3	10.1		Fair				X	
7872	Quercus velutina	Black Oak	15.4			Fair				X	
7873	Ulmus americana	American Elm	6.3			Fair				X	
7874	Ulmus americana	American Elm	8.7			Fair				X	
7875	Prunus serotina	Black Cherry	8.2			Fair				X	
7876	Pinus sylvestris	Scots Pine	7			Fair				X	
7877	Prunus serotina	Black Cherry	22.8	16.5		Fair			X		
7878	Rhamnus cathartica	European Buckthorn	7.2	6.1		Fair					X
7879	Rhamnus cathartica	European Buckthorn	5.8	5.6	5.1	Fair					X
7880	Acer negundo	Boxelder	14.2			Fair					X
7881	Prunus serotina	Black Cherry	26.3			Fair	X				
7882	Ulmus americana	American Elm	6.9			Fair			X		
7883	Prunus serotina	Black Cherry	9.7			Fair			X		
7884	Prunus serotina	Black Cherry	17.9			Fair			X		
7885	Prunus serotina	Black Cherry	10.6			Fair				X	
7886	Prunus serotina	Black Cherry	24.1			Fair	X				
7887	Prunus serotina	Black Cherry	21.5			Fair			X		
7888	Acer negundo	Boxelder	16.8			Fair			X		
7889	Ulmus americana	American Elm	6.2			Fair			X		
7890	Malus pumila	Common Apple	7.4	6.9		Fair			X		
7891	Prunus serotina	Black Cherry	5.6			Fair			X		
7892	Rhamnus cathartica	European Buckthorn	7.8			Fair			X		
7893	Rhamnus cathartica	European Buckthorn	6			Fair				X	
7894	Ulmus americana	American Elm	13.3			Fair				X	
7895	Prunus serotina	Black Cherry	22.7			Fair				X	
7896	Prunus serotina	Black Cherry	14.3			Fair				X	
7897	Prunus serotina	Black Cherry	9.2			Fair				X	
7898	Rhamnus cathartica	European Buckthorn	8.7			Fair				X	
7899	Prunus serotina	Black Cherry	17			Fair				X	
7900	Ulmus americana	American Elm	6.9			Fair				X	
7901	Quercus velutina	Black Oak	10.6			Fair			X		
7902	Quercus velutina	Black Oak	9.8			Fair			X		
7903	Quercus velutina	Black Oak	7.9			Fair			X		
7904	Quercus velutina	Black Oak	19.9			Fair			X		
7905	Quercus velutina	Black Oak	13.8			Fair				X	
7906	Prunus serotina	Black Cherry	9.6			Fair				X	
7907	Quercus velutina	Black Oak	6.7			Fair			X		
7908	Prunus serotina	Black Cherry	7.2			Fair			X		
7909	Quercus velutina	Black Oak	7			Fair				X	
7910	Quercus velutina	Black Oak	11			Fair				X	
7911	Quercus velutina	Black Oak	13.4			Fair				X	
7912	Quercus velutina	Black Oak	13.1			Fair				X	
7913	Quercus velutina	Black Oak	15.4			Fair				X	
7914	Quercus velutina	Black Oak	7.9			Fair				X	
7915	Quercus velutina	Black Oak	16.1			Fair				X	
7916	Quercus velutina	Black Oak	15			Fair				X	
7917	Prunus serotina	Black Cherry	4.2			Fair				X	
7918	Quercus velutina	Black Oak	20.4			Fair				X	
7919	Prunus serotina	Black Cherry	17.4			Fair				X	
7920	Rhamnus cathartica	European Buckthorn	5.4			Fair				X	
7921	Prunus serotina	Black Cherry	5.3			Fair				X	
7922	Rhamnus cathartica	European Buckthorn	4.7			Fair				X	
7923	Prunus serotina	Black Cherry	5.6			Fair				X	
7924	Prunus serotina	Black Cherry	9.5			Fair				X	
7925	Prunus serotina	Black Cherry	10.9			Fair				X	
7926	Quercus velutina	Black Oak	18.5			Fair				X	
7927	Prunus serotina	Black Cherry	4.1			Fair				X	
7928	Prunus serotina	Black Cherry	4			Fair				X	
7929	Prunus serotina	Black Cherry	11.7			Fair				X	
7930	Quercus velutina	Black Oak	8.3			Fair				X	
7931	Rhamnus cathartica	European Buckthorn	4.8			Fair				X	
7932	Quercus velutina	Black Oak	13.7			Fair				X	
7933	Quercus velutina	Black Oak	9.3			Fair				X	
7934	Quercus velutina	Black Oak	11.5			Fair				X	
7935	Quercus velutina	Black Oak	17.9			Fair				X	
7936	Prunus serotina	Black Cherry	12.4			Fair				X	
7937	Quercus velutina	Black Oak	17			Fair				X	
7938	Quercus velutina	Black Oak	7.3			Fair				X	
7939	Quercus velutina	Black Oak	7.2			Fair				X	
7940	Quercus velutina	Black Oak	6.9			Fair				X	
7941	Prunus serotina	Black Cherry	7.6			Fair				X	
7942	Quercus velutina	Black Oak	10			Fair				X	
7943	Prunus serotina	Black Cherry	5.2			Fair				X	
7944	Quercus velutina	Black Oak	10			Fair				X	
7945	Quercus velutina	Black Oak	13			Fair				X	
7946	Quercus velutina	Black Oak	17.9			Fair				X	
7947	Quercus velutina	Black Oak	11.3			Fair				X	
7948	Prunus serotina	Black Cherry	6.2			Fair				X	
7949	Prunus serotina	Black Cherry	6.5			Fair				X	
7950	Prunus serotina	Black Cherry	6.2			Fair				X	
7951	Prunus serotina	Black Cherry	7.8			Fair				X	
7952	Prunus serotina	Black Cherry	5.5			Fair				X	
7953	Quercus velutina	Black Oak	8			Fair				X	
7954	Ulmus americana	American Elm	12.9			Fair				X	
7955	Prunus serotina	Black Cherry	8.1			Fair			X		
7956	Prunus serotina	Black Cherry	8.8			Fair			X		
7957	Quercus velutina	Black Oak	14.1			Fair			X		
7958	Quercus velutina	Black Oak	8.9			Fair			X		
7959	Quercus velutina	Black Oak	12.6			Fair			X		
7960	Quercus velutina	Black Oak	13.1			Fair			X		
7961	Prunus serotina	Black Cherry	5.8			Fair			X		
7962	Quercus velutina	Black Oak	14.6	11.6		Fair			X		
7963	Quercus velutina	Black Oak	4.6			Fair				X	
7964	Prunus serotina	Black Cherry	7.6			Fair			X		
7965	Quercus velutina	Black Oak	4.2			Fair			X		
7966	Prunus serotina	Black Cherry	9			Fair				X	
7967	Prunus serotina	Black Cherry	9.6			Fair			X		
7968	Prunus serotina	Black Cherry	9.2			Fair			X		
7969	Prunus serotina	Black Cherry	6.4			Fair			X		
7970	Acer negundo	Boxelder	4.9			Fair				X	
7971	Prunus serotina	Black Cherry	18.2			Fair				X	
7972	Quercus velutina	Black Oak	10.8			Fair				X	
7973	Quercus velutina	Black Oak	4.4			Fair				X	
7974	Prunus serotina	Black Cherry	13.1			Fair				X	
7975	Prunus serotina	Black Cherry	18			Fair				X	
7976	Quercus velutina	Black Oak	4			Fair				X	
7977	Quercus alba	White Oak	8.5			Fair				X	
7978	Quercus velutina	Black Oak	12.1			Fair				X	
7979	Quercus velutina	Black Oak	17.2			Fair				X	
7980	Quercus velutina	Black Oak	12.5			Fair				X	
7981	Acer rubrum	Red Maple	4.2			Fair				X	
7982	Quercus velutina	Black Oak	5.1			Fair				X	
7983	Sassafras albidum	Sassafras	4.6			Fair				X	
7984	Sassafras albidum	Sassafras	9.3			Fair				X	
7985	Quercus velutina	Black Oak	13.7			Fair				X	
7986	Quercus velutina	Black Oak	5.6			Fair				X	
7987	Prunus serotina	Black Cherry	10.3			Fair				X	
7988	Quercus velutina	Black Oak	10.2			Fair				X	
7989	Rhamnus cathartica	European Buckthorn	4.6			Fair				X	
7990	Quercus velutina	Black Oak	4.2			Fair				X	
7991	Quercus velutina	Black Oak	4.5			Fair				X	
7992	Quercus velutina	Black Oak	15.7			Fair				X	
7993	Prunus serotina	Black Cherry	8.7			Fair				X	
7994	Prunus serotina	Black Cherry	9.6			Fair				X	
7995	Sassafras albidum	Sassafras	6.7			Fair			X		
7996	Quercus velutina	Black Oak	11.3			Fair			X		
7997	Prunus serotina	Black Cherry	7.7			Fair			X		
7998	Acer rubrum	Red Maple	5.5			Fair			X		
7999	Prunus serotina	Black Cherry	6.4			Fair			X		
8000	Prunus serotina	Black Cherry	9.2			Fair				X	
9001	Quercus velutina	Black Oak	20.6			Fair				X	
9002	Prunus serotina	Black Cherry	10.5			Fair				X	
9003	Prunus serotina	Black Cherry	6.7			Fair				X	
9004	Quercus velutina	Black Oak	8.1			Fair				X	
9005	Prunus serotina	Black Cherry	12.3			Fair				X	
9006	Prunus serotina	Black Cherry	6.3			Fair				X	
9007	Prunus serotina	Black Cherry	5.7			Fair				X	
9008	Prunus serotina	Black Cherry	6.8			Fair				X	
9009	Rhamnus cathartica	European Buckthorn	8			Fair				X	
9010	Quercus velutina	Black Oak	18.2			Fair				X	
9011	Ulmus americana	American Elm	7.9			Fair				X	
9012	Prunus serotina	Black Cherry	4.7			Fair				X	
9013	Quercus velutina	Black Oak	17.1			Fair				X	
9014	Quercus velutina	Black Oak	15.6			Fair				X	
9015	Quercus velutina	Black Oak	4.9			Fair				X	
9016	Quercus velutina	Black Oak	5.8			Fair				X	
9017	Prunus serotina	Black Cherry	10.6			Fair				X	
9018	Quercus velutina	Black Oak	16.3			Fair				X	
9019	Acer rubrum	Red Maple	9			Fair				X	
9020	Prunus serotina	Black Cherry	4.3			Fair				X	
9021	Prunus serotina	Black Cherry	4.3			Fair				X	
9022	Prunus serotina	Black Cherry	5			Fair				X	
9023	Sassafras albidum	Sassafras	10.8			Fair				X	
9024	Sassafras albidum	Sassafras	4.6			Fair				X	
9025	Prunus serotina	Black Cherry	6.5			Fair				X	
9026	Prunus serotina	Black Cherry	4.6			Fair				X	
9027	Prunus serotina	Black Cherry	4.7			Fair				X	
9028	Quercus velutina	Black Oak	17.7			Fair				X	
9029	Prunus serotina	Black Cherry	6.8			Fair				X	
9030	Quercus velutina	Black Oak	14.1			Fair				X	
9031	Quercus velutina	Black Oak	14.6			Fair			X		
9032	Quercus velutina	Black Oak	4.9			Fair				X	
9033	Quercus velutina	Black Oak	17.6			Fair				X	
9034	Quercus velutina	Black Oak	4.8			Fair				X	
9035	Prunus serotina	Black Cherry	11.9			Fair				X	
9036	Quercus velutina	Black Oak	14.6			Fair			X		
9037	Prunus serotina	Black Cherry	6.5			Fair				X	
9038	Prunus serotina	Black Cherry	6.4			Fair				X	
9039	Prunus serotina	Black Cherry	9.3	4.3		Fair				X	
9040	Quercus velutina	Black Oak	12.5			Fair				X	
9041	Quercus velutina	Black Oak	5.7			Fair			X		
9042	Quercus velutina	Black Oak	16.6			Fair			X		
9043	Prunus serotina	Black Cherry	5			Fair			X		
9044	Quercus velutina	Black Oak	7			Fair			X		
9045	Quercus velutina	Black Oak	5.5			Fair			X		
9046	Acer rubrum	Red Maple	6.5			Fair				X	
9047	Quercus velutina	Black Oak	15.5			Fair				X	
9048	Quercus velutina	Black Oak	6			Fair				X	
9049	Prunus serotina	Black Cherry	5.5			Fair				X	
9050	Prunus serotina	Black Cherry	5.4			Fair				X	
9051	Quercus velutina	Black Oak	7.7			Fair				X	
9052	Prunus serotina	Black Cherry	7.9			Fair				X	
9053	Morus alba	Common Mulberry	6.5			Fair				X	
9054	Prunus serotina	Black Cherry	8			Poor				X	
9055	Prunus serotina	Black Cherry	5.5			Fair				X	
9056	Prunus serotina	Black Cherry	5.9			Fair				X	
9057	Prunus serotina	Black Cherry	4.6			Fair				X	
9058	Prunus avium	Sweet Cherry	6.7			Fair				X	
9059	Prunus serotina	Black Cherry	9.2			Fair				X	
9060	Quercus velutina	Black Oak	7.2			Fair				X	
9061	Quercus velutina	Black Oak	5.9			Fair				X	
9062	Quercus velutina	Black Oak	12.5			Fair				X	
9063	Prunus serotina	Black Cherry	6.3			Fair				X	
9064	Prunus serotina	Black Cherry	4.1			Fair				X	
9065	Prunus serotina	Black Cherry	5.3			Fair				X	
9066	Prunus serotina	Black Cherry	4.8			Fair				X	
9067	Quercus velutina	Black Oak	9.9			Fair				X	
9068	Prunus serotina	Black Cherry	5.5			Fair				X	
9069	Prunus serotina	Black Cherry	10			Fair				X	
9070	Prunus serotina	Black Cherry	5.7			Very Poor				X	
9071	Prunus serotina	Black Cherry	8			Fair				X	
9072	Prunus serotina	Black Cherry	5.2			Fair				X	
9073	Prunus serotina	Black Cherry	9.1			Fair				X	
9074	Acer rubrum	Red Maple	4.3			Fair				X	
9075	Quercus velutina	Black Oak	11.3			Fair				X	
9076	Prunus serotina	Black Cherry	5			Fair				X	
9077	Quercus velutina	Black Oak	8.2			Fair				X	
9078	Prunus serotina	Black Cherry	12.4			Fair				X	
9079	Acer rubrum	Red Maple	8.4			Fair				X	
9080	Prunus serotina	Black Cherry	5.9			Fair				X	
9081	Quercus velutina	Black Oak	9			Fair				X	
9082	Quercus velutina	Black Oak	7.9			Fair				X	
9083	Quercus velutina	Black Oak	8			Fair				X	
9084	Prunus serotina	Black Cherry	7			Fair				X	
9085	Quercus velutina	Black Oak	5.6			Fair				X	
9086	Acer rubrum	Red Maple	5.8			Fair				X	
9087	Quercus velutina	Black Oak	5.8			Fair				X	
9088	Prunus serotina	Black Cherry	10			Fair				X	
6937	Sassafras albidum	Sassafras	9.4			Fair					
						Total	83	1070	1851	4412	112

(1) Condition as per ISA Health Ratings, 9th Edition

(2) Landmark as per Charter Township of Orion Zoning Ordinance Section 27.12

DBH = Diameter at Breast Height

[shaded box]	-	LANDMARK TREE TO BE REMOVED
51	-	TOTAL NUMBER OF LANDMARK TREES TO BE REMOVED
1289.90"	-	TOTAL CUMULATIVE CALIPER SIZE OF LANDMARK TREES THAT REQUIRE REPLACEMENT

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME: 544

BALDWIN VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

JACOBSON MOCERI ORION, LLC

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
NAC	JLA	DECEMBER 2022

SCALE: NONE

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO. 0361-0067

M:\0361\0361-0067\DWG\CIVIL\01_TREE SURVEY.DWG
14_Tree--12/16/2022 8:58:26 AM

SHEET NO. 14

COPYRIGHT, 2021, ANDERSON, ECKSTEIN AND WESTRICK, INC.

ORION TOWNSHIP ORDINANCE LANDSCAPE REQUIREMENTS (RESIDENTIAL COMPONENTS) :

All requirements and provisions shown here relate to the residential components of Baldwin Village (Uptown Village, North Village, & South Village). See corresponding Commercial area landscape planting plans and data tables for commercial area requirements and provisions.

Tree & Woodlands Protection (Section 27.12) :

See Residential Tree Inventory map and data summary tables for greater detail

7,416 Total regulated and Landmark trees currently on site

83 Total Landmark trees on site
51 Landmark trees to be removed (cumulative dbh = 1.289.9")
32 Landmark trees to remain on site

1,070 Total regulated trees to remain on site
1,070 regulated + 32 Landmark trees to remain = 1,102 total trees to remain on site
1,102 total trees to remain = 15% of existing trees to remain on site

1,851 Total regulated trees to be removed which qualify for replacement

4,412 Total regulated trees located within the "development site" to be removed and therefore do not qualify for replacement

Replacement Requirements:

Deciduous replacement trees shall be 2" dbh (caliper) in size
Evergreen replacement trees shall be 6' height in size
All removed, regulated (non-landmark) trees are to be replaced at a 1 : 1 basis
All removed landmark trees are to be replaced at a 1" of replacement for each 1" removed basis

Replacement Calculations:

1,851 Total regulated trees to removed which qualify for replacement
Required: 1,851 Regulated Replacement trees (at 2" dbh or 6' height)

1,290" Total caliper inch of landmark trees to removed
Required: 1,290 / 2" dbh = 645 Landmark Replacement trees (at 2" dbh or 6' height)

2,496 Total Replacement Trees required assuming 2" dbh or 6' height minimum size planted

The Applicant proposes to significantly increase the size of the replacement trees in exchange for reducing the total number of replacement trees to be planted

Required Size : 2" cal. Deciduous Tree or 6' height Evergreen Tree
Proposed Size : 3 1/2" cal. Deciduous Tree or 8' height Evergreen Tree
This represents a 75% increase in required replacement caliper size.
The Applicant therefore proposes to reduce the total number of required replacement trees by the proportional amount :
3.5" / 1.75 = 2"
2,496 / 1.75 = 1,426 Total Replacement Trees equivalent at larger sizes

General Ordinance Standards (Section 27.05) :

All portions of the landscape shall be planted with grass, groundcover, shrubs, or left natural with existing trees and wooded growth: **PROVIDED**

Open Space Tree Requirement : (7.02-acres of open space. See site plan)
Required: 1 tree planted per every 3,000 sf of open space
7.02 acres of open space = 305,791 / 3,000 = 101.9
102 Open Space trees required
PROVIDED: 102 Open Spaces trees

Baldwin Road Greenbelt Requirement :
Required: 20' wide greenbelt at Baldwin Road frontage: **PROVIDED**
1 tree per 30 linft frontage. (1,175' frontage)
1,175 / 30 = 39
39 Baldwin Road Greenbelt trees required
PROVIDED: 39 Baldwin Road Greenbelt trees

Interior Parking Lot Requirement : (604 exterior spaces within Uptown Village area)
Required: 20sqft parking lot landscape area per space: **PROVIDED**
1 tree per 200sqft or landscape area or 1 tree per every 10 spaces
604 / 10 = 60.4
61 Parking Lot trees required (Uptown Village)
PROVIDED: 61 Interior Parking Lot trees

Adjacent Neighboring Use Greenbelt Requirement : (Multifamily adjacent to single family)
Required: 1 tree per 30 linft adjacent use Greenbelt. (3,520' adjacent use Greenbelt)
3,520 / 30 = 118
118 Greenbelt trees required adjacent use greenbelt area
PROVIDED: 118 Adjacent Use Greenbelt trees

Gingelliville Village Center Overlay District (Ordinance 78)

Open Space: 15% Open Space required within Residential developments
Residential Area = 46.83 acres
15% Open Space = 7.02 acres **PROVIDED** : 15% (see site plan)

Parking Lot Screening Along Baldwin Road:
The Baldwin Road frontage is enhanced with significant landscape plantings as well as interment placement of decorative masonry pillars and fencing to meet the Gingelliville overlay standards:
PROVIDED

Summary of Requirements:

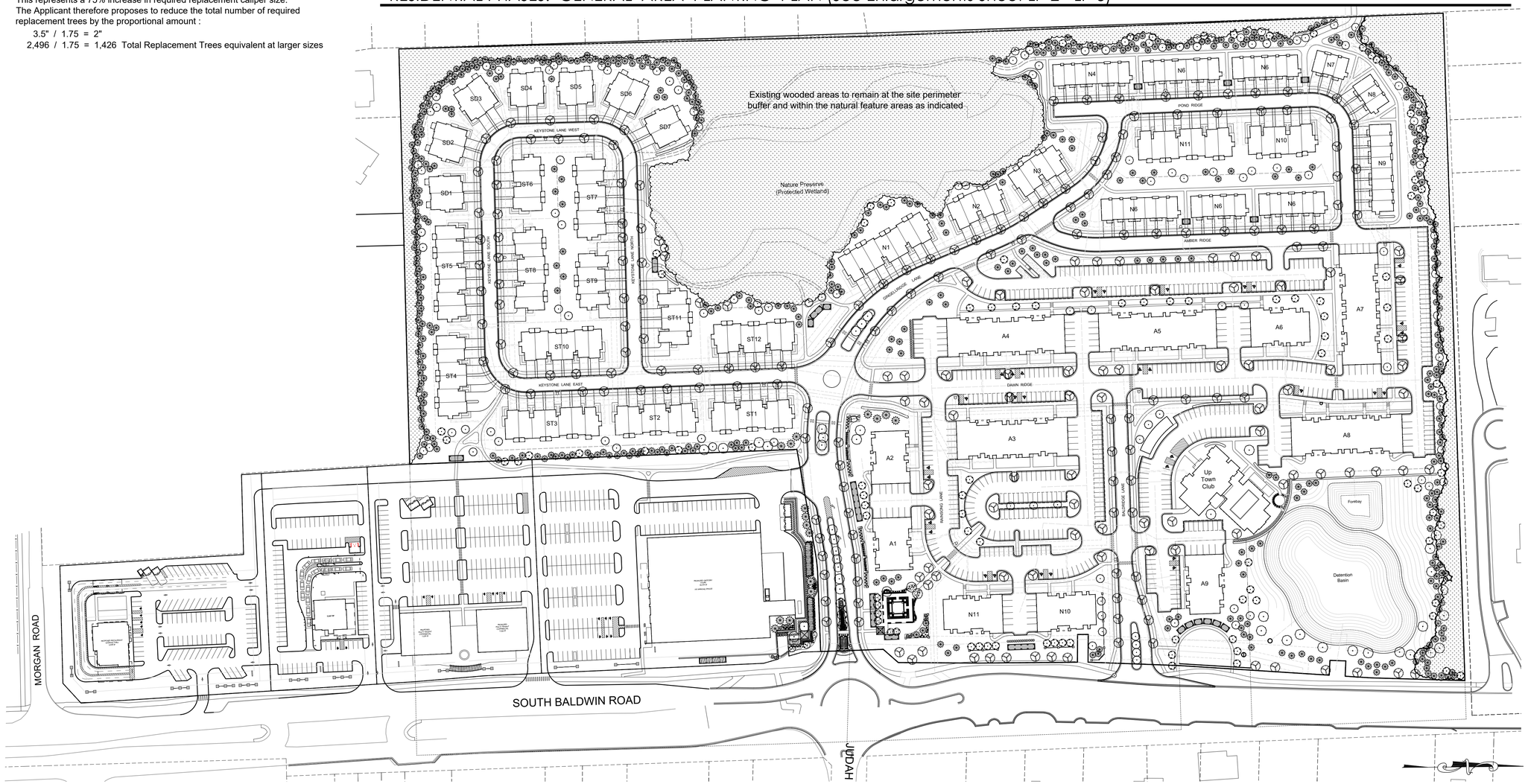
	Required	Provided
General Area Open Space	102	102
Baldwin Road Greenbelt	39	39
Interior Parking Lot	61	61
Adjacent Neighbor Greenbelt	118	118
Existing Woodlands / Replacement	1,426	713
	1,746	1,033 (713 delta)

The applicant has made every effort to propose robust landscape plantings throughout Baldwin Village. The landscape plantings will create a beautiful, lush green neighborhood. The applicant has primarily used the replacement trees to significantly increase the buffer & screening plantings at the northern, western, and southern boundary to provide greater screening to adjacent neighbors which are in addition to the existing woods that will remain at the perimeter of the site to provide a natural buffer. Replacement trees are also proposed at Baldwin Road to enhance the frontage beautification.

The applicant has maximized all planting locations and proposes to install a total of 1,033 deciduous & evergreen trees, all of which exceed the minimum size requirements, within the residential components. Installing additional trees closer together would compromise the horticultural health and potential of the trees and therefore is not recommended.

The applicant therefore requests that the landscape plantings, as proposed, satisfy the landscape requirements as may be determined by the Planning Commission under the PUD standards as permitted within the Orion Township Ordinance.

RESIDENTIAL PHASES: GENERAL AREA PLANTING PLAN (See Enlargements Sheet LP-2 - LP-5)



3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
FOR THE LOCATION OF UNDERGROUND FACILITIES

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio

Landscape Architecture
Traditional Town Planning

9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

© 2022 J EPPINK PARTNERS, INC

Project:
Baldwin Village

545

Owner:
Jacobson Moceri Orion, LLC
3005 University Drive
Auburn Hills, MI 48326
248-340-9400

Sheet:
Common Area Landscape Plan & Requirements

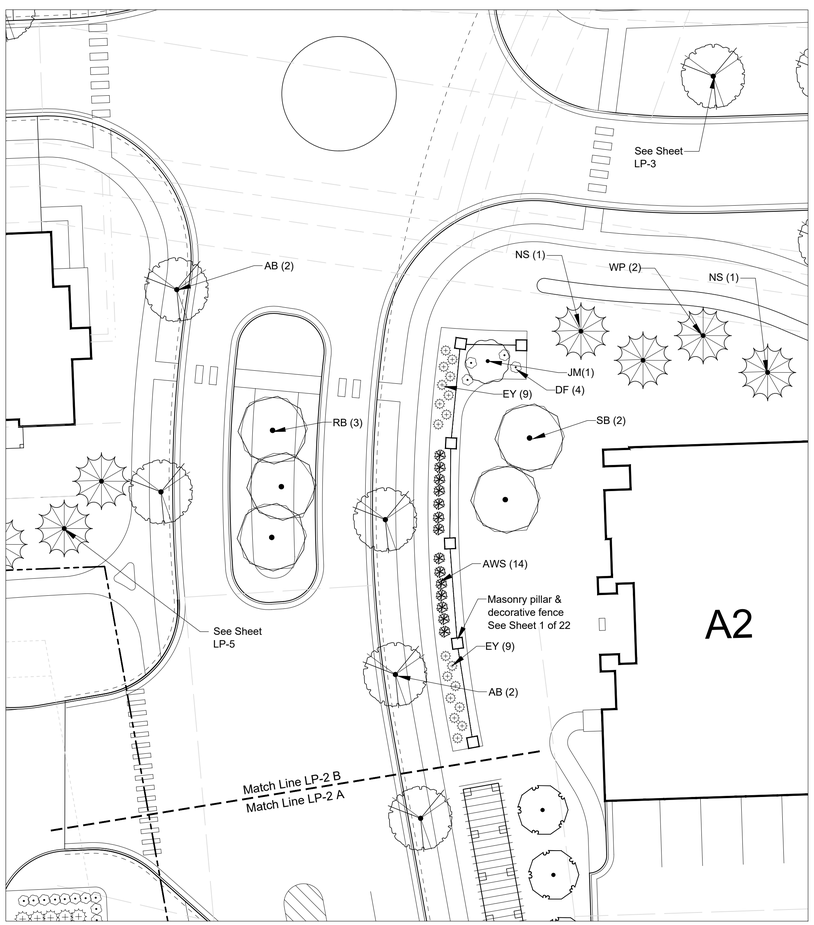
Issues / Revisions
Final PUD Plan 12-09-2022

Drawn by:
JTE
Checked By

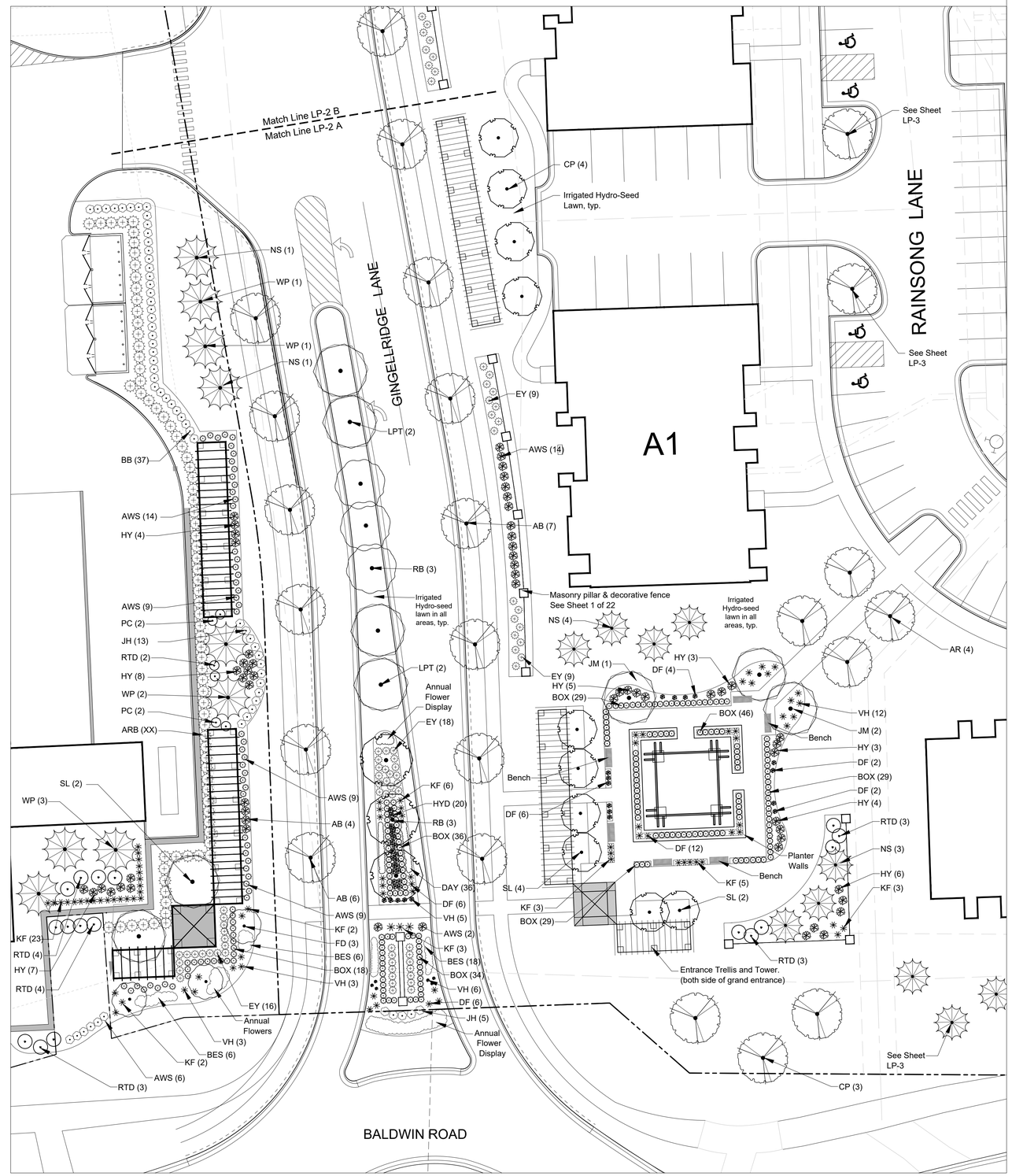
Date
December 9, 2022
Scale
1" = 100'

Not for Construction

Sheet
LP-1



MAIN ENTRANCE FEATURE - BALDWIN ROAD & GINGELLRIDGE LANE :



MAIN ENTRANCE FEATURE - BALDWIN ROAD & GINGELLRIDGE LANE :

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
FOR THE LOCATION OF UNDERGROUND FACILITIES

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio

Landscape Architecture
Traditional Town Planning

9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

© 2022 J EPPINK PARTNERS, INC

Project:

Baldwin Village

546

Owner:

Jacobson Moceri Orion, LLC

3005 University Drive
Auburn Hills, MI 48326
248-340-9400

Sheet:

Main Entrance Landscape Plan

Issues / Revisions

Final PUD Plan	12-09-2022

Drawn by:
JTE

Checked By

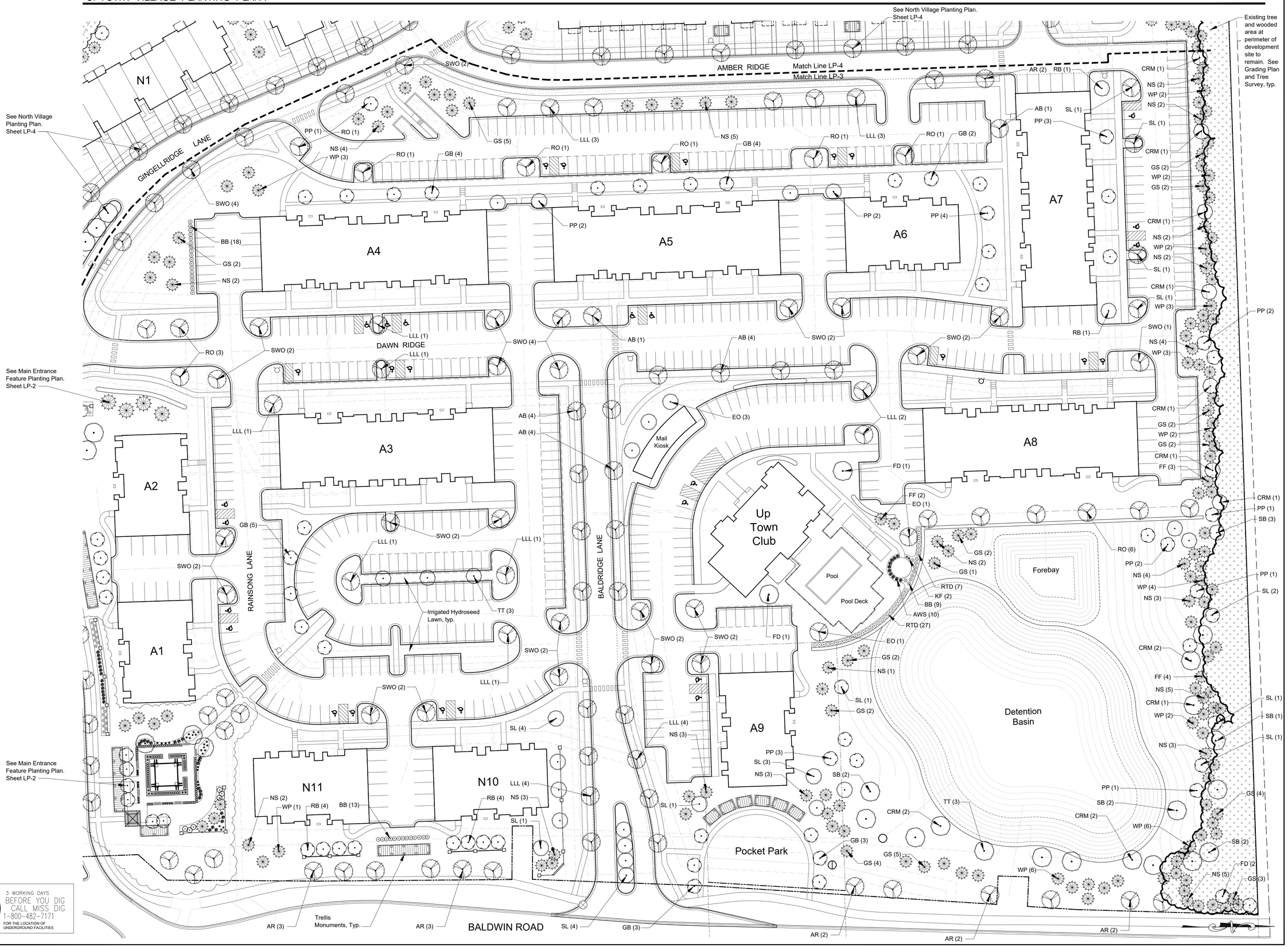
Date
December 9, 2022

Scale
1" = 20'

Not for Construction

Sheet
LP-2

UPTOWN VILLAGE PLANTING PLAN :



3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
FOR THE LOCATION OF UNDERGROUND FACILITIES

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio

Landscape Architecture
Traditional Town Planning

9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

© 2022 J EPPINK PARTNERS, INC

Project:

Baldwin Village

547

Owner:

Jacobson Moceri Orion, LLC

3005 University Drive
Auburn Hills, MI 48326
248-340-9400

Sheet:

Uptown Village Landscape Plan

Issues / Revisions

Final PUD Plan	12-09-2022

Drawn by: JTE

Checked By

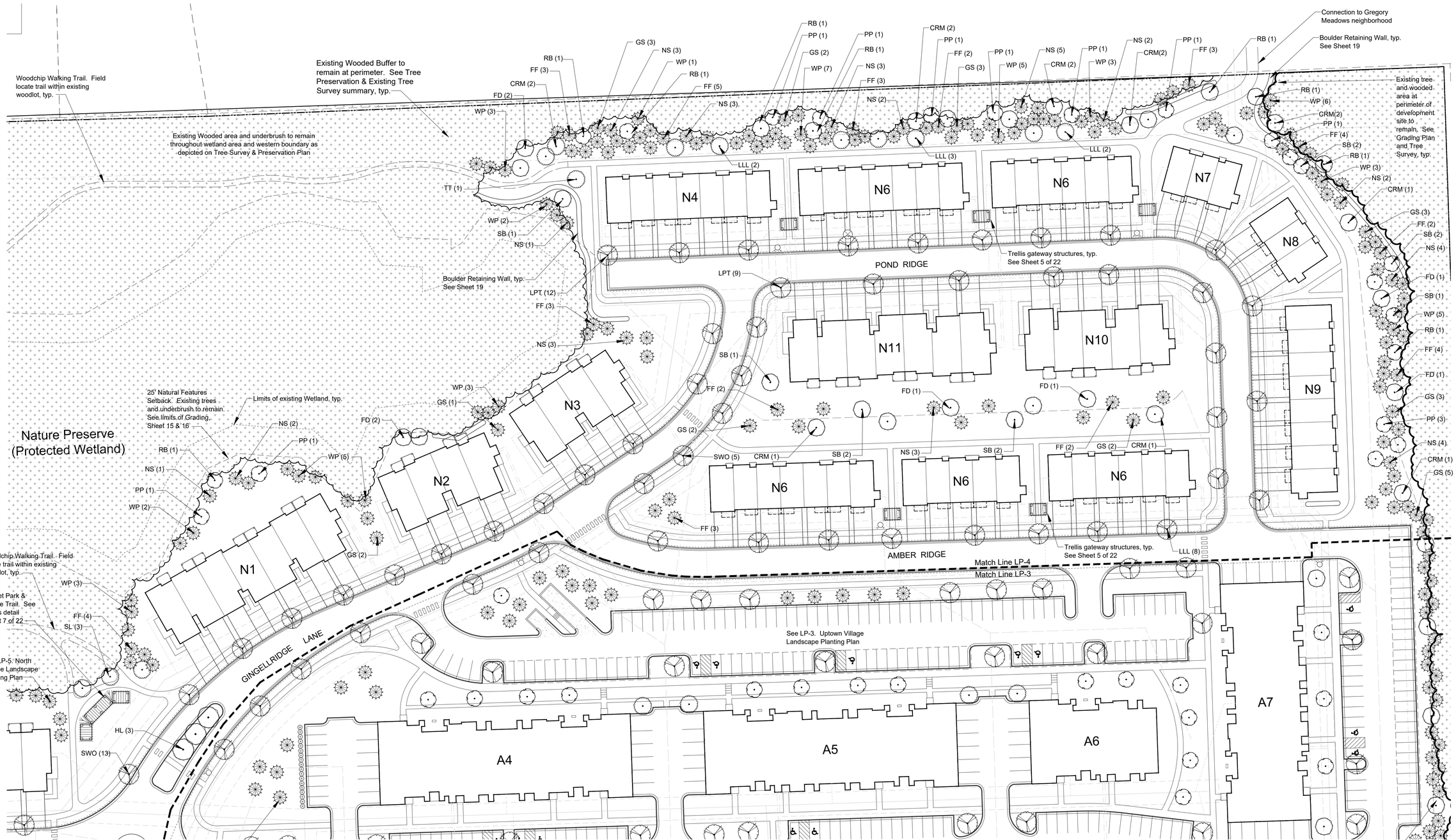
Date: December 9, 2022

Scale: 1" = 40'

Not for Construction

Sheet: LP-3

UPTOWN VILLAGE PLANTING PLAN :



3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
FOR THE LOCATION OF UNDERGROUND FACILITIES

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio

Landscape Architecture
Traditional Town Planning

9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

© 2022 J EPPINK PARTNERS, INC

Project:

Baldwin Village

548

Owner:

Jacobson Moceri Orion, LLC

3005 University Drive
Auburn Hills, MI 48326
248-340-9400

Sheet:

North Village Landscape Plan

Issues / Revisions

Final PUD Plan	12-09-2022

Drawn by: JTE

Checked By

Date: December 9, 2022

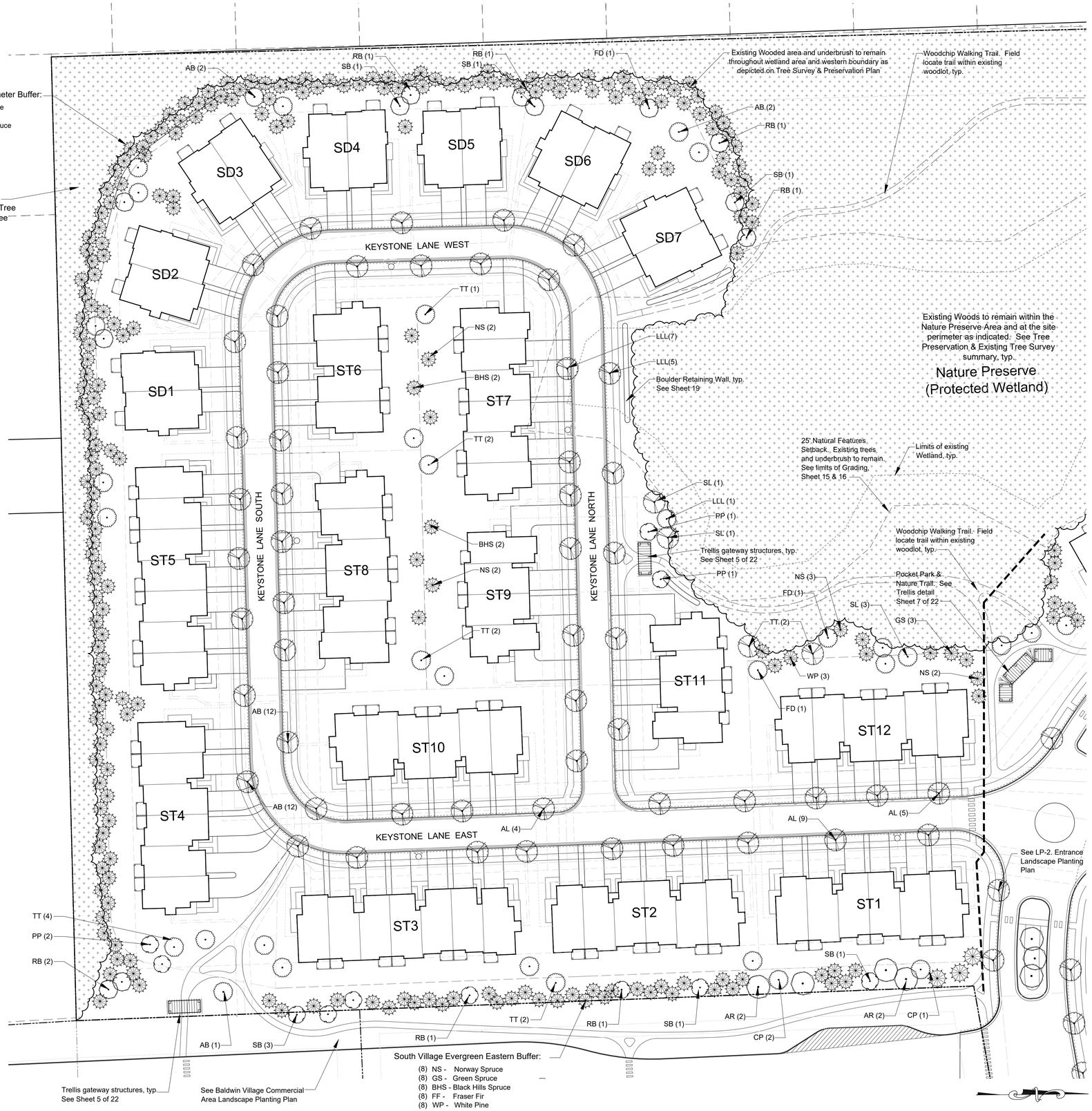
Scale: 1" = 40'

Not for Construction

Sheet

LP- 4

UPTOWN VILLAGE PLANTING PLAN :



3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
FOR THE LOCATION OF UNDERGROUND FACILITIES

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio

Landscape Architecture
Traditional Town Planning

9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

© 2022 J EPPINK PARTNERS, INC

Project:

Baldwin Village

549

Owner:

Jacobson Moceri Orion, LLC

3005 University Drive
Auburn Hills, MI 48326
248-340-9400

Sheet:

South Village Landscape Plan

Issues / Revisions

Final PUD Plan	12-09-2022

Drawn by:
JTE

Checked By

Date
December 9, 2022

Scale
1" = 40'

Not for Construction

Sheet
LP- 5

PLANTING NOTES:

1. Contractor shall be responsible for contacting and coordinating with all pertinent utility companies 72 hours in advance of any digging to make themselves familiar with all underground utilities, pipes and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities or structures.
2. Contractor shall not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist. Such conditions shall immediately be brought to the attention of the Owner's Representative. The contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.
3. Any discrepancies between dimensioned layout and actual field conditions shall be reported to the Owner's Representative. Failure to make such discrepancies known will result in contractor's responsibility and liability for any changes and associated costs.
4. Contractor shall be responsible for any coordination with subcontractors as required to accomplish construction installation operations.
5. Contractor shall provide and maintain positive surface drainage.
6. Contractor shall be responsible for any existing materials that are damaged during construction.
7. See Plant & Material List and Planting Details for planting requirements, materials and execution.
8. All trees shall have a clay loam or clay root ball. Trees with sand root balls will not be accepted.
9. All tree varieties and substitutions, or deviations to the landscape plan must be approved prior to installation. Any plant material delivered to site not previously approved may be rejected and are the sole responsibility of the contractor.
10. The location of all plant material shall be scaled from drawings or interpreted from plant list. Final location of all plant material shall be subject to approval from the Owner's Representative.
11. The contractor shall "water in" and fertilize all plants immediately after planting.
12. Hydro-seed all Common Area lawn areas as noted on drawings.
13. Contractor shall install 3" depth Shredded Hardwood Mulch in all shrub and tree planting beds unless otherwise indicated. Peat Moss is to be installed in all annual flower, perennial flower and ground cover planting beds. Such beds shall have no shredded mulch, typ.
14. Contractor shall coordinate lawn repair and planting bed construction in conjunction with the timing of other building construction and improvements.
15. The contractor shall guarantee and maintain all trees, shrubs, ground cover and other plant materials for two years from the date of installation, including labor and removal and disposal of dead material. Project owner shall be responsible for a maintenance program which includes replacing all dead or diseased material by the end of the following planting season.
16. All plant material shall be grade 1 northern nursery grown from a local source. All trees and plant material shall meet the current standards of the American Society of Nurseryman.
17. Landscape Contractor shall install an automated irrigation system for all lawn and planting bed areas on a Design/Build basis. A complete design, materials list, and cost estimate is required as part of the original bid proposal.
18. Contractor shall adhere to all soil erosion prevention methods as directed within civil engineering drawings and Municipal Ordinance including maintaining silt fencing and ensuring that soil, silt and other debris is prevented from leaving site or entering area drains, sewer inlets, creeks or natural areas.

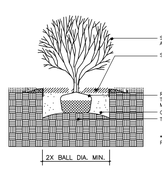
RESIDENTIAL COMMON AREA PLANT LIST:

SYMB.	QTY.	DESCRIPTION	NOTES
NS	159	Picea abies Norway Spruce, 8'	B&B
GS	111	Picea pungens Green Spruce, 8'	B&B
BHS	72	Picea glauca Black Hills Spruce, 8'	B&B
WP	139	Pinus strobus White Pine, 8'	B&B
FF	115	Abies fraseri Fraser Fir, 8'	B&B
FD	18	Cornus florida Flowering Dogwood, 2.5" cal'	B&B / Multi Stem
JM	4	Magnolia liliiflora Jane Magnolia, 2.5" cal'	B&B / Multi Stem
SB	29	Amelanchier arborea Serviceberry, 8-10'	B&B / Multi Stem
RB	36	Betula nigra River Birch, 8-10'	B&B / Multi Stem
PP	38	Malus x 'Profusion' Pink Profusion Crab, 2.5" cal.	B&B
AB	60	Acer freemanii 'Autumn Red' Autumn Blaze Red Maple. 3.5" cal.	B&B
AR	22	Acer rubrum Red Maple. 3.5" cal.	B&B
CRM	27	Acer rubrum Clump Red Maple. 10-12'	B&B / Multi Stem
GB	21	Ginkgo biloba Maidenhair Tree, 3.5" cal.	B&B

SYMB.	QTY.	DESCRIPTION	NOTES
TT	20	Liriodendron tulipifera Tulip Tree, 3.5" cal.	B&B
LPT	25	Plantanus x acerifolia London Plane Tree, 3.5" cal.	B&B
CP	10	Pyrus calleryana 'Cleveland Select' Cleveland Select Pear, 3.5" cal.	B&B
LLL	44	Tilia cordata Little Leaf Linden, 3.5" cal.	B&B
AL	18	Tilia americanan Basswood, 3.5" cal.	B&B
EO	5	Quercus robur English Oak, 3.5" cal.	B&B
EO	14	Quercus rubra Red Oak, 3.5" cal.	B&B
SWO	53	Quercus bicolor Swamp White Oak, 3.5" cal.	B&B
SL	38	Gleditsia triacanthos inermis Skyline Locust, 3.5" cal.	B&B
HL	3	Gleditsia triacanthos Honey Locust, 3.5" cal.	B&B
ARB	79	Thujia occidentalis Emerald Green Arborvitae, 6'	B&B
BOX	175	Buxus microphylia Green Gem Boxwood, 24"	Container
AWS	78	Spiraea japonica Anthony Waterer Spirea, 36"	B&B
HY	60	Hydrangea paniculata Lime Light Hydrangea, 36"	Container
RTD	53	Cornus sericea Red Twig Dogwood, 42"	Container

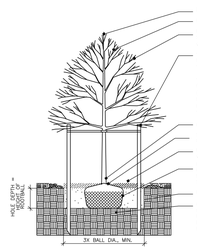
SYMB.	QTY.	DESCRIPTION	NOTES
JH	18	Juniperus horizontalis Creeping Juniper, 24"	Container
PC	4	Prunus x cistena Purple Sand Cherry, 42"	Container
BB	79	Euonymous alatus compactus Dwarf Burning Bush, 36"	B&B
EY	70	Taxus Densaformus Everlow Yew, 36"	B&B
KF	49	Calamagrostis x acutiflora Karl Foerster Reed Grass, 2 gal.	Container
DF	42	Pennisetum alopecuroides 'Hamelin" Dwarf Fountain Grass, 3 gal.	Container
BES	30	Rudbeckia fulgida Dwarf Black Eyed Susan, 1 gal.	Container
VH	30	Hosta Undulata Variegata Variegated Hosta, 2 gal.	Container
DAY	36	Hemerocallis Stella D'Oro Daylily, 2 gal.	Container

PLANTING DETAILS:



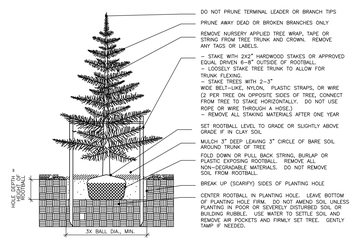
SHRUB PLANTING – BALL AND BURLAP, TYP.

NOT TO SCALE



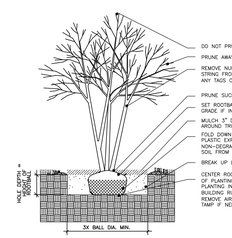
DECIDUOUS TREE PLANTING DETAIL, TYP.

NOT TO SCALE



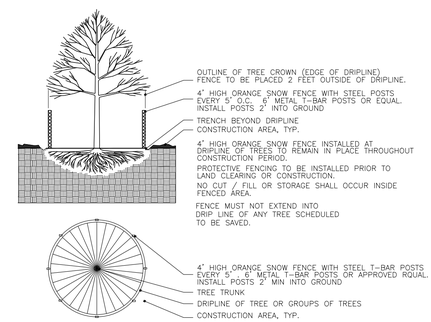
EVERGREEN TREE PLANTING DETAIL, TYP.

NOT TO SCALE



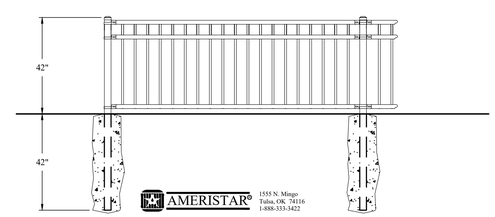
MULTI–STEM TREE PLANTING , TYP.

NOT TO SCALE



TREE PROTECTION DETAIL, TYP.

NOT TO SCALE



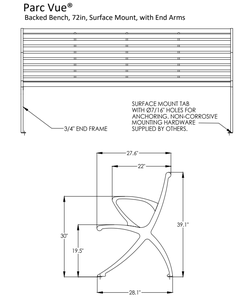
BALDWIN ROAD FENCE DETAIL

NOT TO SCALE

See Sheet 1 of 22 - 22 of 22 for Baldwin Road masonry pillar detail and monument trellis details

landscapef rms
www.landscapeforms.com Ph: 800.521.2546

Parc Vue®
Backed Bench, 72in, Surface Mount, with End Arms



PARC VUE BENCH DETAIL

NOT TO SCALE

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
FOR THE LOCATION OF UNDERGROUND FACILITIES

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio

Landscape Architecture
Traditional Town Planning

9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

The ideas and design concepts expressed herein and the graphically displayed arrangement of their components represented by this drawing have been developed for the exclusive use of the specified project and are the sole property of J EPPINK PARTNERS, INC. Any conveyance or disclosure of the ideas or design concepts or use of any graphically displayed arrangements of their components shall be at the discretion of and only through the expressed written consent of J EPPINK PARTNERS, INC

© 2022 J EPPINK PARTNERS, INC

Project:

Baldwin Village

550

Owner:

Jacobson Moceri Orion, LLC

3005 University Drive
Auburn Hills, MI 48326
248-340-9400

Sheet:

Landscape Details & Notes

Issues / Revisions

Final PUD Plan	12-09-2022

Drawn by:
JTE

Checked By

Date
December 9, 2022

Scale
1" = 40'

Not for Construction

Sheet
LP- 6

Baldwin Village

Orion Township, Michigan

Project Applicant:

RED Equities, LLC

121 W. Long Lake Road
Suite 190
Bloomfield Hills, MI 48304

Attn: Gilbert 'Buzz' Silverman
buzz@silverman.com

Jim Eppink
jim@jeppink.com

Development Team:

Moceri Companies

S.R. Jacobson

ALRIG USA

Site Data:

Parcel Size:
58.7 acres net

Location:
West side of Baldwin Road, north of Morgan Road and west of Judah Road
Orion Township, Michigan

Underlying Zoning:
BIZ & Gingellville Village Center Overlay District

Conceptual PUD Approval:
Conceptual Mixed-Use PUD approved by Twp Board August 15, 2022

Proposed Uses:
A 15-minute neighborhood: Three Residential Villages, best-in-class commercial, environmental preservation, & open space

December 20, 2022

RECEIVED
December 20, 2022
Orion Township
Planning & Zoning

Tammy Girling
Orion Township Director, Planning & Zoning
2323 Joslyn Road
Lake Orion, MI 48360

Dear Ms. Girling;

We are pleased to submit the attached Final PUD & Final Site Plan submission package for Baldwin Village, a proposed mixed-use neighborhood located at the northwest corner of Baldwin Road and Morgan Road in Orion Township.

As you know, a Public Hearing was held at a joint meeting of the Planning Commission and Board of Trustees on August 3, 2022. On August 15, 2022, the Board of Trustees motioned to approve the Conceptual PUD and Site Plan following the Planning Commission's recommendation for Conceptual approval.

We are now submitting a Final Site Plan and related documents (Dated December 9, 2022) for review and consideration for Final PUD and Final Site Plan approval.

Included Are:

- Baldwin Village Master Plan
- Residential & Commercial Components that include:
  - Final Site Plan for each component
  - Final Grading & Engineering
  - Architectural Plans
  - Tree Survey & Woodland Preservation Plans
  - Site Amenities Plan
  - Signage & Lighting Plans
  - Landscape Architectural Plans

Also Attached is a draft version of the PUD Agreement and the traffic report letter from AEW.

We are immensely proud of Baldwin Village, its programming, plans, and amenities. We appreciate everyone's involvement to date, and we look forward to continued collaboration to complete this exciting, iconic, true 15-minute mixed-use PUD.

Very truly yours – ***Baldwin Village***

Gilbert 'Buzz' Silverman
RED Equities, LLC

Gabe Schuchman
ALRIG USA

Dominic Moceri
Moceri Companies

Scott Jacobson
S.R. Jacobson

CC:
Brittney Ellis; The Kelly Firm
James Stevens; OHM Advisors

ANDERSON, ECKSTEIN & WESTRICK, INC.
CIVIL ENGINEERS - SURVEYORS - ARCHITECTS
51301 Schoenherr Road, Shelby Township, MI 48315
586.726.1234 | www.aewinc.com

December 19, 2022

Tammy Girling, Director
Planning and Zoning
Orion Township
2323 Joslyn Road
Lake Orion, Michigan 48360

Reference: Baldwin Village
Traffic Impact Study
AEW Project No. 0361-0067

Dear Ms. Girling:

As you are aware, our office submitted a traffic study along with the Conceptual PUD package for this project in July 2022. We received a draft of OHM's comments on August 8, 2022. One of the major concerns they identified was that the location of the proposed driveway to the commercial development that was lined up with the existing northbound to southbound cross over south of the Judah Road round-a-bout would not be permitted.

Since that time, we have had several meetings with OHM and RCOC and are continuing to work closely with them on the review and analysis of the traffic impacts and any mitigation efforts. The latest analysis that we provided to OHM includes a new northbound to southbound cross over located south of the Judah Road round-a-bout in an effort to provide a secondary means for northbound traffic on Baldwin Road to access the commercial driveways without traveling through the roundabout. Our analysis shows that this alternative will provide an acceptable level of service with 1 standard deviation included in the traffic generation. Our office believes that this is the most feasible alternative for mitigating the traffic impacts resulting from this development, and the estimated increase of traffic volumes on this corridor, over the study period. This proposed cross over is depicted on the final PUD plans that have been submitted.

We will continue to work with OHM toward this final design solution and completion of the traffic study in an effort to secure approval by OHM prior to the January Planning commission meeting.

Sincerely,

Stephen V. Pangori, PE

cc: James Eppink, J. Eppink Partners, Inc.
Gabe Schuchman, Alrig USA
Mitchell Harvey, PE, Stonefield
Dominic J. Moceri, Moceri Companies
Manny Kianicky, SR Jacobson
Buzz Silverman, Silverman Properties
Jim Stevens, OHM
Mark Landis, OHM

\\aew-actdata\active\1684\1684-0001\Gen\Letters\TGirling_SVP121922.docx

`

PLANNED UNIT DEVELOPMENT AGREEMENT OF BALDWIN VILLAGE, A MIXED USE COMMERCIAL AND RESIDENTIAL DEVELOPMENT

Entered Into Between:

Charter Township of Orion, a Michigan municipal corporation

and

RED ADLER, LLC, a Michigan limited liability company

Dated: _____, 2023

DRAFT 12.19.2022

PLANNED UNIT DEVELOPMENT AGREEMENT

THIS PLANNED UNIT DEVELOPMENT AGREEMENT ("Agreement") is made and entered into the __day of _____, 2023, by and between the CHARTER TOWNSHIP OF ORION ("Township") a Michigan municipal corporation, with offices located at 2323 Joslyn Road, Orion, Michigan 48360, and RED ADLER, LLC, ("Proprietor"), a Michigan limited liability company, with offices located at 121 W. Long Lake Road, Suite 190, Bloomfield Hills, MI 48304, and its successors or assigns, as master proprietor of the Planned Unit Development known as Baldwin Village. Proprietor and Township may be collectively referred to herein as "parties", or individually as a "party."

RECITALS

The purpose and intent of these PUD standards and guidelines is to act as a unifying document to establish a community theme and regulate the placement of units and buildings within the real property described in attached Exhibit "A" ("Property"). The project will consist of a 58.70 acre mixed-use residential and commercial development. The residential portion of the Property comprising 46.83 acres, to be known as Baldwin Village, will be developed by Jacobson Moceri Orion, LLC, a Michigan limited liability company, whose address is 32400 Telegraph Road, Suite 200A, Bingham Farms, MI 48025, and its successors or assigns, as the Residential Developer. The commercial portion of the Property comprising 11.87 acres, to be known as the Plaza at Baldwin Village, will be developed by Alrig USA Acquisitions, LLC, a Michigan limited liability company, whose address is 30200 Telegraph Road, Suite 205, Bingham Farms, MI 48025, and its successors or assigns, as the Commercial Developer. The Proprietor shall assure that the residential and commercial Developers of the Project are subject to the requirements of this Agreement. Although the two components of the Property will have a common theme and synergies, they shall be independent of each other in regards to the obligations required by this Agreement. A Declaration of Easements, Covenants and Responsibilities will be prepared between the residential and commercial components of the Property defining private matters related to shared improvements and other matters.

The Project will provide a benefit to the community for the following reasons including: i) preservation of wetlands; ii) preservation of perimeter woodlands abutting the development to the south, west and north; iii) less intensive overall plan than if fully developed for maximum uses under the master plan; iv) landscaping, detention areas and walking paths; v) retail, grocers and restaurants for the benefit of the new residents and the surrounding community; vi) provide diversity of residential housing meeting the needs of the community; vii) infrastructure improvements to the Property including storm water management resulting in benefits to public health and safety; and viii) increase in the municipal tax base revenue to the Township.

The Property is currently zoned Suburban Farms and Brown Road Innovation Zone, subject to the Gingellville Village Center Overlay District, and will be rezoned to PUD.

N**OW, THEREFORE,** it is hereby agreed by the parties as follows:

1. SUMMARY DESCRIPTION OF THE PROJECT

The Project site is located on the west side of Baldwin Road north of Morgan Road. Proprietor proposes to develop the Project with the following uses:

a. The residential component of the Property will consist of 161 attached townhome units in approximately 32 buildings, 304 apartments in approximately 11 buildings, and a community building with swimming pool. Townhomes will be designed as 2-story units with 2 or 3 bedrooms each, 2-car attached garage, and a deck or patio for each residence. All townhomes shall in no instance be closer than fifty (50) feet to a perimeter property line, and all patios or decks in no instance shall project into the rear setback greater than ten (10) feet. Some units may, but are not required to, have daylight or walkout basements. Apartments will be designed as 3-story buildings containing either 38 or 19 units per building with studio, 1, 2 and 3 bedroom units. Apartment buildings will include 12 garage spaces on the first floor in 38-unit buildings and 6 garage spaces on the first floor in 19-unit buildings and have a maximum building height of Forty (49) feet to the midpoint of the roof. The community building and swimming pool will be available for use by all townhome and apartment residents and will contain approximately 5,753 square feet of conditioned space. The Final Site Plan attached as Exhibit B provides information regarding setbacks, parking, open spaces, density and other data pertaining to the residential component of the Project and is made a part of this Agreement. Building elevations and floor plans for the townhomes, apartment homes and community building are attached hereto as Exhibit C and are also made a part of this Agreement. All townhomes and apartment homes will be available for leases.

b. The commercial component of the Property will consist of several freestanding commercial retail and restaurant buildings ranging in size from approximately 3,500 square feet to 45,000 square feet. Users have been not identified for all of these buildings so it is possible that the size, number, and configuration of the buildings may change in the future depending on the specific user. The current plan for the commercial component of the PUD has been approved by the Township as depicted on the Final Site Plan and is made a part of this Agreement. Building elevations and floor plans for the proposed known commercial uses are attached to this Agreement as Exhibit D and are made a part of this Agreement. In the event that future individual users of the commercial sites differ from the approved Final Site Plan, they shall be required to submit a separate site plan to the Township for approval. A determination whether a proposed future use is a minor amendment requiring administrative approval or a major amendment to the Final Site Plan requiring a public hearing and approval from both the Township Planning Commission and Township Board of Trustees shall be governed by the Township's Zoning Ordinance and the provisions in Section 13(c),(d) and (e) of this Agreement.

2. ADHERENCE TO REQUIREMENTS FOR DEVELOPMENT

The Property shall be developed and improved in full compliance with the following ("Development Documents"):

a) All Ordinances and Codes of the Charter Township of Orion existing on the Effective Date of this Agreement ("Township Code and Ordinances") unless modified by the Ordinance Deviation Table attached as Exhibit E or by the approved Final Site Plan attached as Exhibit B or by this Agreement;

a) The Final Site Plan for the Project as prepared by Anderson, Eckstein and Westrick, Inc for the residential component of the Project and Stonefield Engineering & Design for the commercial component of the Project, attached as Exhibit B;

b) Architectural floor plans and elevations for the residential component of the Project prepared by Dominick Tringali Architects and Alexander Bogaerts & Associates, architects, attached as Exhibit C;

c) Architectural floor plans and elevations for the known users of the commercial component of the Project prepared by _____ are attached as Exhibit D;

d) This Agreement, its Exhibits, and any conditions imposed therein; and

e) The Orion Township Engineering Design Standards.

Relying solely upon assurances from the Residential Developer and the Commercial Developer, the Proprietor shall assure that all development of and improvements to the Property by its Residential Developer and Commercial Developer and all uses of the Property shall be subject to and in accordance with the Final Site Plan and all applicable Township Ordinances, and they shall also be subject to all other approvals and permits required under state laws for the respective components of the Project. To the extent that there are conflicts or discrepancies between respective provisions of this Agreement, or between provisions of this Agreement and Township Ordinances, this Agreement and its Exhibits shall control. In the event this Agreement is silent on any matters otherwise covered by the Final Site Plan or Township Ordinances or Regulations, the Final Site Plan shall control.

All future development of the Property shall be bound by the terms of this Agreement. It shall be the responsibility of the Proprietor to notify all Developers of the Property of the requirements contained within this Agreement and to obtain their written consent to abide by its provisions. Any successor Proprietor and all Developers, present or future, shall be subject to all portions of this Agreement applicable to their residential or commercial component or any amendment thereto, as the same may be expanded by the Township and their respective successors in title. It is the intent that the restrictions contained in this Agreement will run with the land, and this Agreement shall be recorded by the Proprietor with the Oakland County Register of Deeds.

3. <u>ADHERENCE TO ORDINANCES</u>

Proprietor and its Developers shall comply with the Zoning Ordinances of the Township in effect at the time of development, except where contrary to or modified by this Agreement or the Final Site Plan. Any reference herein to this Agreement shall also include its Exhibits, which

are incorporated in their entirety herein. Proprietor acknowledges that certain provisions of this Agreement may differ from the requirements of the Zoning Ordinance, and the Township acknowledges that items shown in the Final Site Plan may be less or more than the requirements of the Zoning Ordinance. Proprietor shall ensure that the development fully complies with all engineering and other local, county, state and federal codes and regulations in effect at the time of development of the Project, unless superseded or otherwise covered in this Agreement and the Final Site Plan.

Permitted and special land uses shall be reflected on the approved Final Site Plan with the understanding that all individual uses within the commercial component shall require future Township approval. All accessory uses shall be in compliance with the approved Final Site Plan and this Agreement. The Proprietor shall ensure that the planting of Phragmite or other invasive landscaping species is prohibited and that the ongoing control and removal of Phragmite from the developed areas of the Project shall be performed. The Proprietor shall ensure that all necessary and reasonable steps will be taken to remove Phragmite in an appropriate manner from the parts of the Property to be developed in connection with its grading and other development activities. The intent is to remove Phragmite in the appropriate manner so as to avoid the regrowth of the plant.

4. PERMITS AND AUTHORIZATIONS

The Township shall grant to Proprietor and to its Residential and Commercial Developers and/or its contractors and/or subcontractors all Township permits and authorizations necessary to modify the existing utilities including electric, telephone, gas, cable television, water, storm and sanitary sewer to the Property and to otherwise develop and improve the Property in accordance with the Final Site Plan, provided the Proprietor and/or its Developers have first made all requisite applications for permits, complied with the requirements for said permits, and paid all required fees. Any applications for permits from the Township will be processed in the customary manner, but the Township agrees to issue building permits expeditiously, upon full and complete application for each building having been accepted, not to exceed 3 weeks.

Upon the execution of this Agreement, building requirements, engineering requirements and building related fees applicable to the Project in effect on the date of the Agreement shall be vested and shall not be subject to change provided that construction of the project commences within 36 months of Final Site Plan approval.

The Township will cooperate with Proprietor or its Developers in connection with applications for any necessary county, state, federal or utility company approvals, permits or authorizations to the extent that such applications and/or discussions are consistent with the Final Site Plan and this Agreement. The Township agrees to permit one onsite marketing or leasing trailer for each component of the Property in a location on the Property to be selected by the Proprietor or its Developers, contingent upon obtaining a written determination from the Ordinance Enforcement Officer that the marketing or leasing trailers do not present any risk to the general health, safety, and welfare of Orion Township residents or other visitors to the Property.

5. PROJECT COMPLETION SCHEDULE

For purposes of this section, "infrastructure" shall be defined as land balancing, installation of sanitary sewer, water main, storm sewer, paving, roads, detention ponds, entrance features common area landscaping and improvements to Baldwin Road.

The infrastructure for the residential portion of the Property depicted in the Final Site Plan shall be completed within five (5) years from the first day infrastructure construction commences. The residential townhome and apartment units depicted in the Final Site Plan shall be completed within four (4) years after completion of the residential infrastructure. If not completed due to economic and market conditions that prevent completion of the project in that timeframe, the Township shall grant 2-year extensions for completion, for up to ten (10) years from the date construction begins for the infrastructure for the residential units depicted in the Final Site Plan. The Residential Developer shall request 2-year extensions at least 90 days prior to completion deadlines which the Township may grant or deny within its sole discretion but are not to be unreasonably withheld.

The infrastructure for the commercial portion of the Property depicted in the Final Site Plan shall be completed within three (3) years from the first day infrastructure construction for the commercial portion commences. The individual commercial and restaurant units shall be completed as quickly as market permits but within three (3) years after completion of the commercial infrastructure. If not completed due to economic and market conditions that prevent completion of the project in that timeframe, the Township shall grant 2-year extensions for completion, for up to ten (10) years from the date construction begins for the infrastructure for the residential units depicted in the Final Site Plan. The Commercial Developer shall request 2-year extensions at least 90 days prior to completion deadlines which the Township may grant or deny within its sole discretion but are not to be unreasonably withheld.

6. WATER, SANITARY SEWER AND STORM SEWER SYSTEMS

Proprietor shall cause its Residential and Commercial Developers to install, at their sole expense, all necessary connections tying into the municipal water and sanitary sewer systems. The franchise utilities shall not be located within the water main or sanitary sewer easement. A copy of the franchise utility final design for each component separately will be provided to the Township for review and approval once available. Water and sewer usage fees shall be in accordance with the standard fee schedule for Orion Township. No lateral charge for utilities shall apply to the Project in view of the Developers' undertaking to construct water and sewer extensions at their expense. The storm sewer system within the Property shall remain private and there shall be no Chapter 18 sewers and drains within the Property.

7. ROADS, DRIVES AND PARKING LOTS

The internal streets and drives in the Project shall be private and shall consist of asphalt pavement with concrete curbs and gutter as shown on the approved Final Site Plan. No right of way shall be provided for the private internal drives and streets. Driveways serving the townhome residences may be concrete or asphalt. An internal pedestrian circulation system shall be provided. Street maintenance, including snow plowing, shall be the responsibility of the Commercial or Residential Developers of the site as applicable. The Township reserves the right to require the

repair or maintenance of any road or internal drive that is dilapidated or otherwise represents a health or safety concern.

8. LANDSCAPING, LIGHTING, AND ARCHITECTURAL STANDARDS

The Proprietor shall cause the Residential and Commercial Developers to have the Project developed in full compliance with the Agreement, Final Site Plan, and the applicable PUD and zoning ordinances in effect at the time of development which shall govern the landscaping, lighting, signs, architectural and other standards applicable to the Project in the event such items are not addressed within the Agreement or Final Site Plan. Building elevation materials and colors will consist primarily of high-quality materials as shown on the building elevations and floor plans attached in Exhibits C and D. Due to the nature of the Project, street trees may be located within sanitary and water main easements provided that they are planted at least 3 feet away from the centerline of the mains and are in accordance with the approved Landscape Plan for the Project. The Township shall have the right to remove any landscaping within a sanitary or water main easement necessitated by a requirement for maintenance or repair and the Developers shall have the obligation for replacement of any such landscape material removed by the Township.

9. OPEN SPACE AND NATURAL FEATURES

For the purpose of insuring long-term preservation of open space and natural features within the Project, all open space areas shall be perpetually preserved as unimproved areas (other than improvements installed in accordance with the Final Site Plan) unless otherwise agreed to in writing by the Township. However, the Developers shall have the right to install unpaved hiking trails within the open space areas and to maintain such areas by the removal of dead materials in accordance with good forestry practices. Developers shall agree that the open space areas shall be accessible to the general public.

10. REIMBURSABLE COSTS

a. Proprietor shall ensure that the Township is reimbursed for the following costs:

   1. All reasonable, usual, and customary planning, engineering and any consultant fees incurred in connection with the review and approval of the Project, in accordance with the Township's applicable Planning Services Fee Schedule.

   2. All reasonable, usual, and customary planning, engineering and any consultant fees, along with applicable permit and inspection fees, which may be incurred throughout the construction of the Project as a result of any required inspections or actions taken to ensure compliance with this Agreement and the Final Site Plan.

b. In addition, Proprietor shall assure that all normal and customary costs associated with the submission to the Township and consideration of all plans and documents associated with the Project, including, but not limited to, site plans, landscaping plans, engineering plans, as-built plans, permits, inspections, etc. are paid. Further, Proprietor shall assure that all responsible usual and customary costs related to variance requests, special use requests, and review and approval of any other agreements associated with

the Project, including but not limited to, the Declaration of Easements, Covenants and Responsibilities, petitions for any special assessments district, and other similar documents, plans and costs, are paid.

11. PERFORMANCE BONDS

The Proprietor or the Residential and Commercial Developers shall be allowed to submit any performance guarantees required by the Zoning Ordinance to ensure completion of infrastructure improvements, contained in this Agreement or the Final Site Plan, in the form of performance bonds, executed by a surety company acceptable to the Township and authorized to do business in the state of Michigan. This provision shall supersede the form of performance guarantee required by Article XXX, Section 30.09 of the Zoning Ordinance. For clarity, the Residential Developer and Commercial Developer shall be permitted to submit separate performance guarantees covering only their respective developments.

12. ACCESS TO PROPERTY

At any time throughout the period of development and construction of any part of the Project, the Township, its contractors, representatives, consultants and agents, shall be permitted, and are hereby granted authority, to enter upon all or any portion of the Property for the purpose of inspecting for compliance with and enforcement of the Final Site Plan and this Agreement.

13. PHASING

The Township agrees that the residential component of the Project may be developed in phases. South Village, North Village and Uptown Village, or portions thereof, may be constructed at different times and in a sequence to be established. Upon determination by the Township engineer that a phase has been sufficiently constructed with water mains, sanitary sewers, storm drainage, streets and parking to support residential use, the Township shall make building permits available for construction of buildings within such phase. Final completion of all required improvements shall not be required for building permit availability. Residential units within completed buildings shall be available for lease as they are completed during the construction period of the Project and temporary certificates for occupancy shall be issued by the Township as units are completed. Temporary certificates of occupancy shall not expire but shall become final upon full completion of all required improvements within a phase.

14. MISCELLANEOUS

a) Binding Effect and Right of Assignment. This Agreement shall be binding upon and inure to the benefit of the parties and their heirs, successors and assigns. Proprietor shall have the right to assign all or any of its rights, title and obligations under this Agreement without consent of the Township to any corporate, partnership or limited liability company for any purpose related to the development of the Project. The Commercial and Residential Developers shall also have the right to assign all or any of their respective rights, title and obligations under this Agreement without consent of the Township to any corporate, partnership or limited liability company for financing or any purpose related to the development of their component of the Project. Any assignee shall be fully and

completely bound by the terms and requirements of this Agreement, their heirs, successors and assigns. The rights and obligations contained in this Agreement shall run with the Property.

b) Authority. This Agreement has been duly authorized by all necessary action of Proprietor and the Township, through the approval of the Township Board at a meeting in accordance with the laws of the State of Michigan, and the Ordinances of the Township. By the execution of this Agreement, the parties each warrant that they have the authority to execute this Agreement and bind the Property and the respective parties to its terms and conditions.

c) Final Site Plan Approval and Modifications. There may be a need in the future to make changes to the approved Final Site Plan for the Property as a result of a change in market conditions, and the Proprietor or the Residential and Commercial Developers may request such modifications (herein "modifications"). For purposes of expediency, minor modifications to such site plans shall be reviewed by the Township Supervisor, Township Planning and Zoning Director, and Township consultants and approved by the Township Supervisor, provided that the height, density and general location of buildings and uses as permitted under the Agreement and Final Site Plan shall not be modified except as provided herein. The cost for re-review by Township staff and consultants shall be at the applicant's sole cost. Minor modifications may include without limitation: (a) a reduction in the size and number of any building(s); (b) an increase in the size of any building, provided that the size of the other buildings(s) is/are decreased so that all buildings within the Project do not exceed the density shown in the approved Final Site Plan attached to this Agreement; or (c) minor adjustments in building locations that do not materially affect drives and parking areas; and (d) landscaping materials identified in the attached Final Site Plan may be replaced by similar types of landscaping materials of better or like quality.

d) Determination of Minor or Major Modifications. The initial determination whether a change is minor or major is within the discretion of the Township Supervisor. Any modifications sought, which in the judgment of the Township Supervisor, exceed the authority granted to Township Staff and Supervisor in this Section ("major modifications"), shall be submitted to the Planning Commission for review and approval. If the Planning Commission determines that the proposed change is major and not minor, the Proprietor or its Residential and/or Commercial Developers shall have the right to appeal the Planning Commission's determination to the Township Board. Any modifications determined to be major will require an amendment to the Agreement in accordance with the Township's Zoning Ordinance.

e) Modifications to be Independently Processed. Any proposed modifications to the commercial and residential components of the Project shall be considered independently by the Township and such modification shall not affect the component that is not being modified. For example, a required modification of the Commercial site plan to accommodate a new commercial use shall have no effect on the residential component of the Project and the Residential Developer shall not be required to amend the Agreement or Final Site Plan pertaining to its portion of the Project.

f) Other Governmental Approvals. It is understood that construction of some of the improvements included in the Project will require the approval of other governmental agencies. Modifications to the Final Site Plan required as the result of requirements by other governmental agencies shall be considered as minor modifications by the Township to the greatest extent possible.

g) Amendment. This Agreement may only be amended or modified pursuant to a written instrument executed by the Township and the Proprietor after mutual consent of the parties.

h) Notice. Unless later information is provided, notices under this Agreement will be provided to:

To Proprietor:
Red Adler, LLC
121 W. Long Lake Road, Suite 190
Bloomfield Hills, MI 48304.
Ph: (248) 310-3400
Email: Buzz Silverman <buzz@silverman.com>

To Orion Township:
Charter Township of Orion
Attention: Township Supervisor
2323 Joslyn Rd.
Orion Township, MI 48360
Ph: 248-391-0304; Fax: 248-393-6858
Email: cbarnett@oriontownship.org

i) Integration/Amendments. This Agreement and its Exhibits (which are made a part of and incorporated herein in their entirety), set forth the entire agreement between the parties relative to the subject matter hereof. No prior or contemporaneous oral or written representations, statements, promises, agreements or undertakings made by either party or agent of either party that are not contained in this Agreement shall be valid or binding. This Agreement may not be amended except in writing signed by the parties and recorded in the same manner as this Agreement.

j) Severability. It is understood and agreed by the parties that if any part, term or provision of this Agreement is held by the courts to be illegal or in conflict with any statute, ordinance, rule, regulation or other applicable law, the validity of the remaining portions or provisions of this Agreement shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if this Agreement did not contain the particular part, term or provisions held to be invalid. In the event any changes in applicable federal, state, or local laws or regulations enacted after the date of this Agreement operate to prevent compliance with parts of the Agreement, or render compliance impractical or unreasonably difficult, the inconsistent provisions of this Agreement shall be modified, deleted or suspended as necessary to conform to such changes in federal or state law.

k) Governing Law. This Agreement shall be governed by the laws of the State of Michigan, both as to interpretation and performance. Any and all suits for any and every breach of this Agreement may be instituted and maintained in any court of competent jurisdiction in Oakland County, Michigan.

l) Waiver. No waiver of any breach of this Agreement shall be held to be a waiver of any other or subsequent breach.

m) Remedies. In the event that a party believes that the other party is not acting reasonably, in good faith, or in conformity with this Agreement, then the aggrieved party may petition the Oakland County Circuit Court to resolve such dispute and the parties shall make themselves immediately available for a hearing on a date to be set by the Court. In the event that the Court finds that party has not acted in good faith or in conformity with this Agreement, then the Court may order costs and reasonable attorney fees incurred to the prevailing party. All remedies afforded in this Agreement shall be taken and construed as cumulative, that is, in addition to every other remedy provided by law and in equity.

n) Inconsistency. To the extent that the Agreement, Final Site Plan or its Exhibits conflict with Township Ordinances or Zoning Ordinance requirements, the terms of this Agreement, the Final Site Plan and its Exhibits will control. Any clerical errors or mistakes in this Agreement or its Exhibits may be corrected by any of the parties, and all parties agree to cooperate in making such corrections in order to effectuate the intent of the parties in entering into this Agreement. Remedial amendments to correct errors and omissions may be approved and executed by the Township Supervisor so long as they are consistent with the spirit and intent of this Agreement, in the Supervisor's reasonable judgment. In all events any reference to the Township Ordinances, Zoning Ordinances and PUD Ordinance, shall mean the existing Ordinances of the Township as of the date of this Agreement.

o) Limitation of Township's Liability. This Project is a private undertaking, and the parties understand and agree that: (a) this Project is a private development; (b) the Township has no interest or responsibilities for or duty to third parties concerning any improvements on the Property except and only until such time that the Township accepts any public improvements pursuant to this Agreement and the Final Site Plan; (c) the Proprietor shall have full and exclusive control of the Property subject to the limitations and obligations of the Proprietor under this Agreement; and (d) the contractual relationship between the Township and the Proprietor is such that the Proprietor is an independent contractor and not an agent, partner or joint venture of or with the Township.

p) Replacement of Residential Developer or Commercial Developer. If Residential Developer or Commercial Developer elects not to proceed with the acquisition and/or development of their respective portion of the Property, Proprietor shall have the right to replace the Residential Developer or Commercial Developer, as applicable, with a new residential developer or commercial developer.

q) Assignment by Proprietor. The parties understand and agree that Proprietor intends to assign all of its rights, duties and obligations hereunder to the Residential Developer and the Commercial Developer upon conveyance of those portions of the Property to the Residential Developer and the Commercial Developer, as applicable.

15. DEFAULT

The parties to this Agreement reserve the right to cure any non-health or safety default hereunder within thirty (30) days from written notice of such default by certified mail, or such additional time as may be reasonably required to cure the default as long as the cure of default is commenced within said thirty (30) days, and efforts to effect such cure of default are diligently prosecuted to completion.

No party shall be deemed in default of this Agreement for any delay or failure to fulfill any obligation so long as and to the extent to which any delay or failure in the fulfillment of such obligation is prevented or delayed as a consequence of circumstances of Force Majeure. In the event of any such delay, the time for performance of such shall be extended for a period equal to the time lost by reason of the delay. A party claiming the benefit of this provision shall, as soon as reasonably practicable after the occurrence of any such event, (a) provide written notice to the other party of the nature and extent of any such Force Majeure condition; and (b) use commercially reasonable efforts to remove any such causes and resume performance under this Agreement as soon as reasonably practicable.

16. BINDING EFFECT. This Agreement shall become effective upon execution by all parties. The Agreement shall be recorded in the office of the Oakland County Register of Deeds and a certified copy of the recorded Agreement shall be delivered to the Township. This Agreement shall run with the Property and bind the parties, their heirs, successors, and assigns. It is also understood that the members of the Township Board, Planning Commission, Zoning Board of Appeals, or the township departments may change, but the Township shall nonetheless remain bound by this Agreement.

[Signatures contained on following page]

DRAFT

The parties herein have caused this Agreement to be executed on the day and year recited above.

CHARTER TOWNSHIP OF ORION
a Michigan municipal corporation

_____
By: Chris Barnett
Its: Supervisor

_____
By: Penny Shults
Its: Clerk

STATE OF MICHIGAN) ss
COUNTY OF OAKLAND)

The foregoing Agreement was acknowledged before me by Chris Barnett, the duly elected Supervisor, and Penny Shults, the duly elected Clerk of the Charter Township of Orion, on the __ day of _____, 2023.

_____
_____, Notary Public
Oakland County, Michigan
My Commission Expires: _____
Acting in Oakland County, Michigan.

DRAFT

RED ADLER, LLC,
a Michigan limited liability company

_____
By: Gilbert "Buzz" Silverman
Its: Manager

STATE OF MICHIGAN) ss
COUNTY OF OAKLAND)

The foregoing Agreement was acknowledged before me by _____, the Manager of RED ADLER, LLC, a Michigan limited liability company, on the ____ day of _____, 2023.

_____
_____, Notary Public
Oakland County, Michigan
My Commission Expires: _____
Acting in Oakland County, Michigan.

DRAFT

TABLE OF EXHIBITS

Exhibit A: Property Legal Description

Exhibit B: Final Site Plans

Exhibit C: Residential Building Elevations and Floor Plans

Exhibit D: Commercial Building Elevations and Floor Plans

Exhibit E: Deviation Table

DRAFT

ANDERSON, ECKSTEIN & WESTRICK, INC.
CIVIL ENGINEERS - SURVEYORS - ARCHITECTS
51301 Schoenherr Road, Shelby Township, MI 48315
586.726.1234 | www.aewinc.com

RECEIVED
JAN 10 2023
Orion Township
Planning & Zoning

ADDENDUM

TO: **Tammy Girling**
Planning and Zoning Director
Charter Township of Orion

FROM: **Mohammad Lutfi, P.E., PTOE**
Carlie DelaPaz

CC: **ALRIG USA**
JACOBSON MOCERI ORION, LLC

DATE: **January 9, 2023**

SUBJECT: **Baldwin Village**
Orion Township
Traffic Impact Study Addendum

This addendum presents the results of the evaluation of an additional mitigation strategy for the Judah Road and Baldwin Road roundabout as requested by your traffic consultant, OHM Advisors. In the Baldwin Village Traffic Impact Study dated January 2023, two alternatives were evaluated to mitigate possible traffic impacts associated with the proposed development. Alternative A consisted of no improvements to the adjacent roadway network, and Alternative B consisted of adding a proposed cross-over, south of the roundabout, with no changes to the existing roundabout configuration. The LOS was calculated and presented below in **Table 6.1**

Table 6.1 – Alternative (A & B) Build Level of Service Peak Hour Analysis

Intersection	Approach	Lane Group	2030 Background (LOS)		2030 Build (LOS) Alt A No Crossover Existing Roundabout Geometric Circulation		2030 Build (LOS) Alt B Proposed Crossover Existing Roundabout Geometric Circulation	
			AM-Peak LOS/Delay	PM Peak LOS/Delay	AM-Peak LOS/Delay	PM Peak LOS/Delay	AM-Peak LOS/Delay	PM-Peak LOS/Delay
Baldwin Road & Judah Road	Westbound	1-Left/Thru/Right	A/3.26	A/5.65	A/3.54	A/9.88	A/3.49	A/9.15
	Northbound	2-Left/Thru/Right	A/1.75	A/4.29	A/2.75	E/35.87	A/2.49	C/21.18
	Southbound	2-Left/Thru/Right	A/2.94	A/2.17	A/4.54	A/3.49	A/4.31	A/3.22
Roundabout Rodel	Eastbound	1-Left/Thru/Right	A/3.26	A/5.65	A/6.41	A/5.58	A/6.23	A/5.28
	Intersection Overall		**A/2.66**	**A/3.62**	**A/4.07**	**C/24.73**	**A/4.01**	**B/14.91**

Alternative C, presented in this addendum, evaluates a two-lane circulation roundabout at Judah Road and Baldwin Road, without any other roadway improvements. The level of service (LOS) and queue length were evaluated in Rodel. **Table 6.1a**, below, presents the results of the LOS results of Alternative C, utilizing the 2030 Build Condition traffic volumes.

Table 6.1a - Alternative (C) 2030 Build Condition LOS

Intersection	Approach	Lane Group	2030 Background (LOS)		2030 Build (LOS) Alt C No Crossover Proposed 2-Lanes Roundabout Geometric Circulation	
			AM-Peak LOS/Delay	PM Peak LOS/Delay	AM-Peak LOS/Delay	PM Peak LOS/Delay
Baldwin Road & Judah Road Roundabout Rodel	Westbound	1-Left/Thru/Right	A/3.26	A/5.65	A/4.29	A/3.49
	Northbound	2-Left/Thru/Right	A/1.75	A/4.29	A/2.73	D/25.85
	Southbound	2-Left/Thru/Right	A/2.94	A/2.17	A/4.10	A/3.13
	Eastbound	2-Left/Thru/Right	A/3.26	A/5.65	A/3.96	A/3.62
	Intersection Overall		**A/2.66**	**A/3.62**	**A/3.85**	**C/17.98**

Table 7.1 and 7.1a, below, presents the 95th percentile queue length at the roundabout, utilizing the 2030 build traffic volumes.

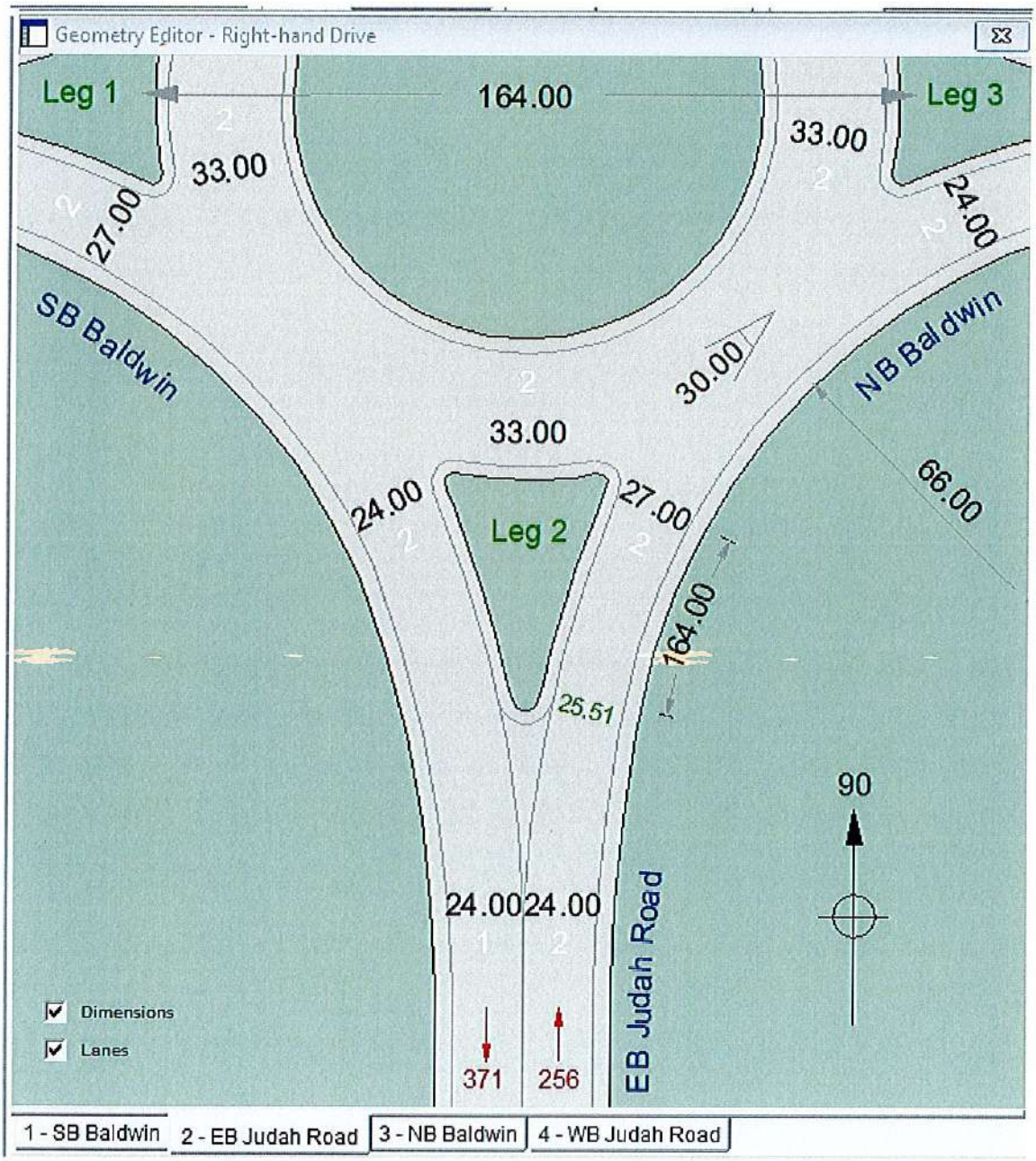
Table 7.1 - Alternative (A & B) 2030 Build Condition Queue Analysis

Intersection	Approach	Lane Group	2030 Background		2030 Alt A Build		2030 Alt B Build	
			AM-Peak Queue Length (ft)	PM-Peak Queue Length (ft)	AM-Peak Queue Length (ft)	PM-Peak Queue Length (ft)	AM-Peak Queue Length (ft)	PM-Peak Queue Length (ft)
Baldwin Road & Judah Road Roundabout	Eastbound	Entry Lane	n/a	n/a	19	26	19	24
	Westbound	Entry Lane	1	2	1	5	1	5.4
	Northbound	Entry Lane	11	62	26	967	22	565
	Southbound	Entry Lane	62	26	111	51	105	48

Table 7.1a - Alternative (C) 2030 Build Condition Queue Analysis With 2-lanes Circulation

Intersection	Approach	Lane Group	2030 Background		2030 Alt C Build	
			AM-Peak Queue Length (ft)	PM-Peak Queue Length (ft)	AM-Peak Queue Length (ft)	PM-Peak Queue Length (ft)
Baldwin Road & Judah Road Roundabout	Eastbound	Entry Lane	n/a	n/a	10	20
	Westbound	Entry Lane	1	2	1	10
	Northbound	Entry Lane	11	62	12	730
	Southbound	Entry Lane	62	26	105	23

Alt C Level of Service (LOS)
AM Peak


Geometry Editor - Right-hand Drive
Leg 1
164.00
Leg 3
33.00
33.00
27.00
24.00
SB Baldwin
NB Baldwin
30.00
33.00
24.00
27.00
Leg 2
66.00
164.00
25.51
90
24.00
24.00
EB Judah Road
Dimensions
Lanes
371
256
1 - SB Baldwin
2 - EB Judah Road
3 - NB Baldwin
4 - WB Judah Road

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah 2030	2030 PHF Flow Profile (veh)
2030 Build Alt-C	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	Judah	90	0	24.00	2	27.00	2	164.00	66.00	30.00
3	Baldwin	180	0	24.00	2	27.00	2	164.00	66.00	30.00
4	Judah	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Baldwin	164.00	33.00	2	24.00	2	24.00	2
2	Judah	164.00	33.00	2	24.00	2	24.00	1
3	Baldwin	164.00	33.00	2	24.00	2	24.00	2
4	Judah	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	Judah	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2030 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	Baldwin	1	1	1306	85	0	3.0	1.00	0.900
2	Judah	0	38	3	121	0	3.0	1.00	0.900
3	Baldwin	59	98	399	2	0	3.0	1.00	0.900
4	Judah	0	3	4	6	0	3.0	1.00	0.900

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	1393		164		444	2217		0.6285	
2	Judah	None	162		1370		187	1331		0.1217	
3	Baldwin	None	558		43		1489	2305		0.2420	
4	Judah	None	13		595		6	990		0.0131	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	4.29		4.29	5.56		A		A
2	Judah	None	3.96		3.96	0.59		A		A
3	Baldwin	None	2.73		2.73	1.28		A		A
4	Judah	None	3.54		3.54	0.04		A		A

2030 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	1548		182		493	2203		0.7025	
2	Judah	None	180		1521		208	1220		0.1475	
3	Baldwin	None	620		48		1653	2302		0.2693	
4	Judah	None	14		661		7	965		0.0150	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	4.74		4.74	5.56		A		A
2	Judah	None	4.15		4.15	0.59		A		A
3	Baldwin	None	2.72		2.72	1.28		A		A
4	Judah	None	3.50		3.50	0.04		A		A

Approach Flow Profile

2030 AM Peak - Approach Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	167.68	19.50	67.17	1.56
7.5 - 15.0	167.68	19.50	67.17	1.56
15.0 - 22.5	167.68	19.50	67.17	1.56
22.5 - 30.0	193.47	22.50	77.50	1.81
30.0 - 37.5	193.47	22.50	77.50	1.81
37.5 - 45.0	167.68	19.50	67.17	1.56
45.0 - 52.5	167.68	19.50	67.17	1.56
52.5 - 60.0	167.68	19.50	67.17	1.56
Peak 15 min	193.47	22.50	77.50	1.81
Peak 60 min	174.12	20.25	69.75	1.63

Exit Flow Profile

2030 AM Peak - Exit Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	53.42	22.49	179.03	0.72
7.5 - 15.0	53.44	22.51	179.22	0.72
15.0 - 22.5	53.44	22.51	179.23	0.72
22.5 - 30.0	61.63	25.94	206.45	0.83
30.0 - 37.5	61.67	25.97	206.79	0.83
37.5 - 45.0	53.48	22.54	179.59	0.72
45.0 - 52.5	53.45	22.51	179.24	0.72
52.5 - 60.0	53.44	22.51	179.23	0.72
0-60	444	187	1489	6
%Trucks	3.00	3.00	3.00	3.00

Economics

Economic Input Data

2030 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2030 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2030 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	739.26	11089	Vehicles Injury	0.00	0	Vehicle Delay Cost	88937
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	5189.90	77849	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	5929.16	88937	Totals	0.00	0	TOTAL COST	88937

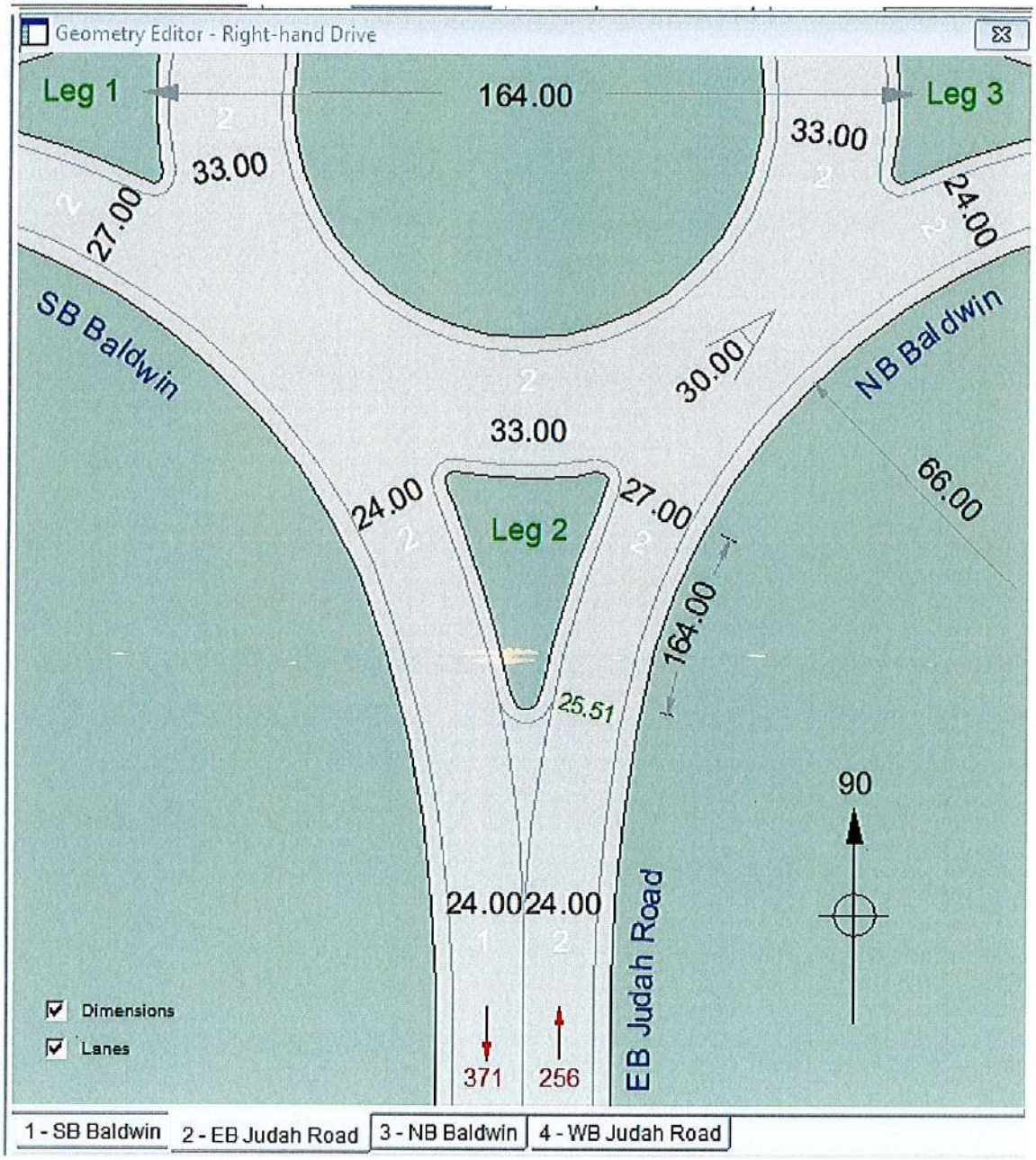
Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2126		2126
Capacity	veh/hr	6843		6843
Average Delay	sec/veh	3.85		3.85
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.27		2.27

Alt C Level of Service (LOS)
PM Peak


Geometry Editor - Right-hand Drive
Leg 1
164.00
Leg 3
33.00
33.00
27.00
24.00
SB Baldwin
NB Baldwin
30.00
33.00
24.00
27.00
Leg 2
66.00
164.00
25.51
90
24.00
24.00
EB Judah Road
Dimensions
Lanes
371
256
1 - SB Baldwin
2 - EB Judah Road
3 - NB Baldwin
4 - WB Judah Road

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah 2030	2030 PHF Flow Profile (veh)
2030 Build Alt-C	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	Judah	90	0	24.00	2	27.00	2	164.00	66.00	30.00
3	Baldwin	180	0	24.00	2	27.00	2	164.00	66.00	30.00
4	Judah	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Baldwin	164.00	33.00	2	24.00	2	24.00	2
2	Judah	164.00	33.00	2	24.00	2	24.00	1
3	Baldwin	164.00	33.00	2	24.00	2	24.00	2
4	Judah	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	Judah	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
3	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2030 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	Baldwin	11	6	758	61	0	3.0	1.00	0.900
2	Judah	0	173	4	79	0	3.0	1.00	0.900
3	Baldwin	136	304	1617	18	0	3.0	1.00	0.900
4	Judah	0	9	6	15	0	3.0	1.00	0.900

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	836		453		1808	2004		0.4171	
2	Judah	None	256		919		370	1662		0.1540	
3	Baldwin	None	2075		194		981	2195		0.9455	
4	Judah	None	30		2231		28	375		0.0800	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	3.13		3.13	2.30		A		A
2	Judah	None	3.62		3.62	0.81		A		A
3	Baldwin	None	25.85		25.85	72.82		D		D
4	Judah	None	10.06		10.06	0.29		B		B

2030 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	929		478		1916	1986		0.4677	
2	Judah	None	284		1013		393	1593		0.1785	
3	Baldwin	None	2306		215		1082	2179		1.0582	
4	Judah	None	33		2361		30	326		0.1022	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	3.24		3.24	2.30		A		A
2	Judah	None	3.69		3.69	0.81		A		A
3	Baldwin	None	37.63		37.63	72.82		E		E
4	Judah	None	10.71		10.71	0.29		B		B

Approach Flow Profile

2030 PM Peak - Approach Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	100.63	30.81	249.77	3.61
7.5 - 15.0	100.63	30.81	249.77	3.61
15.0 - 22.5	100.63	30.81	249.77	3.61
22.5 - 30.0	116.11	35.56	288.19	4.17
30.0 - 37.5	116.11	35.56	288.19	4.17
37.5 - 45.0	100.63	30.81	249.77	3.61
45.0 - 52.5	100.63	30.81	249.77	3.61
52.5 - 60.0	100.63	30.81	249.77	3.61
Peak 15 min	116.11	35.56	288.19	4.17
Peak 60 min	104.50	32.00	259.38	3.75

Exit Flow Profile

2030 PM Peak - Exit Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	217.09	44.37	118.00	3.35
7.5 - 15.0	218.32	44.61	118.18	3.37
15.0 - 22.5	218.47	44.63	118.19	3.37
22.5 - 30.0	239.21	49.07	135.08	3.74
30.0 - 37.5	239.86	49.20	135.35	3.75
37.5 - 45.0	236.96	48.12	119.94	3.58
45.0 - 52.5	219.59	44.85	118.30	3.38
52.5 - 60.0	218.83	44.70	118.23	3.37
0-60	1808	370	981	28
%Trucks	3.00	3.00	3.00	3.00

Economics

Economic Input Data

2030 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2030 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2030 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	739.26	11089	Vehicles Injury	0.00	0	Vehicle Delay Cost	88937
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	5189.90	77849	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	5929.16	88937	Totals	0.00	0	TOTAL COST	88937

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3197		3197
Capacity	veh/hr	6236		6236
Average Delay	sec/veh	17.98		17.98
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	C		C
Total Delay	veh.hrs	15.97		15.97

RECEIVED
January 6, 2023
Orion Township
Planning & Zoning

TRAFFIC IMPACT STUDY

Baldwin Village
Orion Township, Michigan

Prepared for

ALRIG USA
30200 Telegraph Rd
Bigham Farms, MI 48025

Jacobson Moceri Orion, LLC
3005 University Drive
Auburn Hills, MI 48326

January, 2023

STATE OF MICHIGAN
MOHAMMED T. LUTFI
LICENSE No. 6201050959
LICENSED PROFESSIONAL ENGINEER

AEW Project No. 1684-0001

Prepared by: Mohammad Lutfi, P.E., PTOE

Carlie delaPaz

ANDERSON, ECKSTEIN & WESTRICK, INC.
CIVIL ENGINEERS - SURVEYORS - ARCHITECTS
51301 Schoenherr Road, Shelby Township, MI 48315
586.726.1234 | www.aewinc.com

Engineering Strong Communities Since 1968

EXECUTIVE SUMMARY

This report presents the methodologies, analyses, and results of the Traffic Impact Study (TIS) for the multi-use land development, Baldwin Village, Baldwin Village consist of:

- 465 units of multi-family housing
- One (1) Chick-Fil-A restaurant
- Two (2) Multi-Tenant Commercial Buildings
- One (1) Fast Food Restaurant
- One (1) supermarket

The project site is situated on the west side of Baldwin road between Morgan Road and north of Judah Road. The proposed access plan includes five (5) access points along Baldwin Road. The access points are the following:

- Full movement drive north of Judah Road
- Right-in, right-out drive north of the southbound to northbound Baldwin Road crossover
- Right-in, right-out drive between the southbound to northbound Baldwin Road crossover and the northbound to southbound Baldwin Road crossover
- Exit only driveway south of the northbound to southbound Baldwin Road crossover

Existing traffic data was collected on May 10, 2022, and signal timing was obtained from the Road Commission for Oakland County (RCOC). Analysis of the existing conditions indicate that most of the study intersections operate at an acceptable level of service (LOS), with the exception of the westbound approach on Baldwin Road & Brown Road and the northbound approach of Baldwin Road & Baldwin Commons – East Side. The existing traffic conditions were simulated, utilizing SimTraffic11 and Rodel, and were analyzed for queue lengths. The analysis resulted in no significant queues.

The background condition was calculated by applying a growth rate of 1.69% (0.21% annually) and including future developments within the study area vicinity. Analysis of the background conditions indicate that most of the study intersections operate at an acceptable level of service, with the exception of the northbound approach of Baldwin Road & Baldwin Commons – East Side and the overall intersection of Baldwin Road & Brown Road. The background traffic conditions were simulated, utilizing SimTraffic11 and Rodel, and were analyzed for queue lengths. The analysis resulted in no significant queues.

Trip generation estimates were developed for the proposed development for analysis of future build condition.

- ITE land use codes 220, 820, 850, and 934 were selected for the trip generation.
- Local trip generation data was utilized for Chick-Fil-A restaurant
- Pass-by trips were applied for the proposed restaurant developments.
- The development is estimated to generate an adjusted volume of 641 trips in the AM peak hour, and 925 trips in the PM peak hour.
- The development is estimated to generate an unadjusted volume of 960 trips in the AM peak hour, and 1,219 trips in the PM peak hour.

Two alternatives were evaluated for this study. Alternative A is based on Baldwin Village being developed and making no changes to the existing roadway network. Alternative B includes a proposed northbound to southbound crossover on Baldwin Road, south of the roundabout. Alternative B provides an additional access point to the development for northbound traffic, and is considered the mitigation alternative.

- Analysis of the build conditions for Alternative A indicate that most of the study intersections would continue to operate at an acceptable level of service, with the exception of the northbound approach at the Baldwin Road and Judah Road roundabout, and the intersections failing under existing and background conditions.

To reduce delay and improve the LOS, and to reduce queue lengths, it is recommended that Alternative B is implemented as a mitigation strategy. The analysis of Alternative B resulted in no additional failing intersections, and a shorter queue length at the northbound approach of the Baldwin Road & Judah Road roundabout. The proposed crossover will have approximately 300-foot storage, and a 75-foot taper.

EXECUTIVE SUMMARY **2**
1.0 INTRODUCTION **6**
1.1 Project Overview 6
1.2 Scope of Study 9
2.0 STUDY AREA CHARACTERISTICS **11**
2.1 Roadway Characteristics 11
2.2 Non-Motorized Characteristics 11
3.0 EXISTING TRAFFIC ANALYSIS **11**
3.1 Existing Traffic Conditions 11
3.2 Traffic Operations Analysis Methodology 15
3.3 Existing LOS Analysis 15
4.0 BACKGROUND AND FUTURE TRAFFIC GROWTH **17**
4.1 Background Traffic Volumes 17
4.2 Background Level of Service 19
5.0 PROPOSED BUILD CONDITIONS **20**
5.1 Trip Generation 20
5.2 Trip Distribution 22
6.0 BUILD CONDITIONS **28**
7.0 QUEUE ANALYSIS **30**
8.0 CRASH ANALYSIS **32**
9.0 RIGHT TURN DECELERATION LANE WARRANT **33**
11.0 CONCLUSION AND RECOMMENDATIONS **35**

FIGURES

Figure 1.1 – Proposed Development Location 6
Figure 1.2 – Preliminary Site Plan 7
Figure 1.2a – Preliminary Site Plan 8
Figure 1.3 - Study Intersections 10
Figure 3.1 - 2022 Existing Peak Hour Volumes 13
Figure 3.2 - Existing Lane Configuration & Traffic Control 14
Figure 4.1 – 2030 Background Conditions Traffic Volumes 18
Figure 5.1 – Trip Distribution 23
Figure 5.2 – Alternative A Trip Generation Distribution 24
Figure 5.3 – Alternative B Trip Generation Distribution 25
Figure 5.4 – Alternative A Build Conditions Volumes 26
Figure 5.5 – Alternative B Build Conditions Volumes 27
Figure 9.1 – North Driveway Right-Turn Lane/Taper Analysis 34
Figure 9.2 – Mid Driveway Right-Turn Lane/Taper Analysis 34
Figure 9.3 – South Driveway Right-Turn Lane/Taper Analysis 35
Figure 11.1 – Proposed Crossover 36
Figure 11.2 – Proposed West Leg: Baldwin & Judah Roundabout 37

TABLES

Table 2.1 - Roadway Characteristics 11
Table 3.1 - Level of Service Definitions and Criteria 15

Table 3.2 - 2022 Existing Condition Level of Service (LOS) 16
Table 4.3 – 2030 Background Level of Service Peak Hour Analysis 19
Table 5.1 – Proposed Trip Generation (Average Rate plus Standard Deviation)..... 21
Table 5.2 – Proposed Build Trip Generation (Average Rate)..... 22
Table 5.3 – Driveway Trip Distribution 28
Table 6.1 – Build Level of Service Peak Hour Analysis 29
Table 7.1 – Existing, Background and Build Queue Length Peak Hour Analysis 31
Table 8.1 - Crash Type Summary 32

APPENDICES

Appendix A – Existing Data Collected
Appendix B – Existing Condition Reports LOS & Queue Analysis
Appendix C – Background Condition Reports LOS & Queue Analysis
Appendix D – Alternative A Build Condition Reports LOS & Queue Analysis
Appendix E – Alternative B Build Condition Reports LOS & Queue Analysis
Appendix F – Crash Data

1.0 INTRODUCTION

1.1 Project Overview

This report presents the methodologies, analyses, and results of the Traffic Impact Study (TIS) for the multi-use land development, Baldwin Village. Baldwin Village consists of multi-family housing, One (1) Fast-Food restaurants with a drive through, a Chick-Fil-A restaurant, two (2) multi-tenant retail shopping centers, and a grocery store. The project site is situated on the west side of Baldwin Road, between Morgan Road and north of Judah Road. The proposed development location and the preliminary site plan can be found in **Figure 1.1 and 1.2**, respectively. The proposed access plan includes a proposed west leg off the existing roundabout and three (3) full-movement driveways off Baldwin Road, and one (1) exit only driveway making a total of five (5) access points. The 4 proposed driveways, separate from the proposed roundabout leg, are the following:

- Full movement drive north of Judah Road
- Right-in, right-out drive north of the southbound to northbound Baldwin Road crossover
- Right-in, right-out drive south of the southbound to northbound Baldwin Road crossover and north of the northbound to southbound Baldwin Road crossover
- Exit only driveway south of the northbound to southbound Baldwin Road crossover

Figure 1.1 – Proposed Development Location

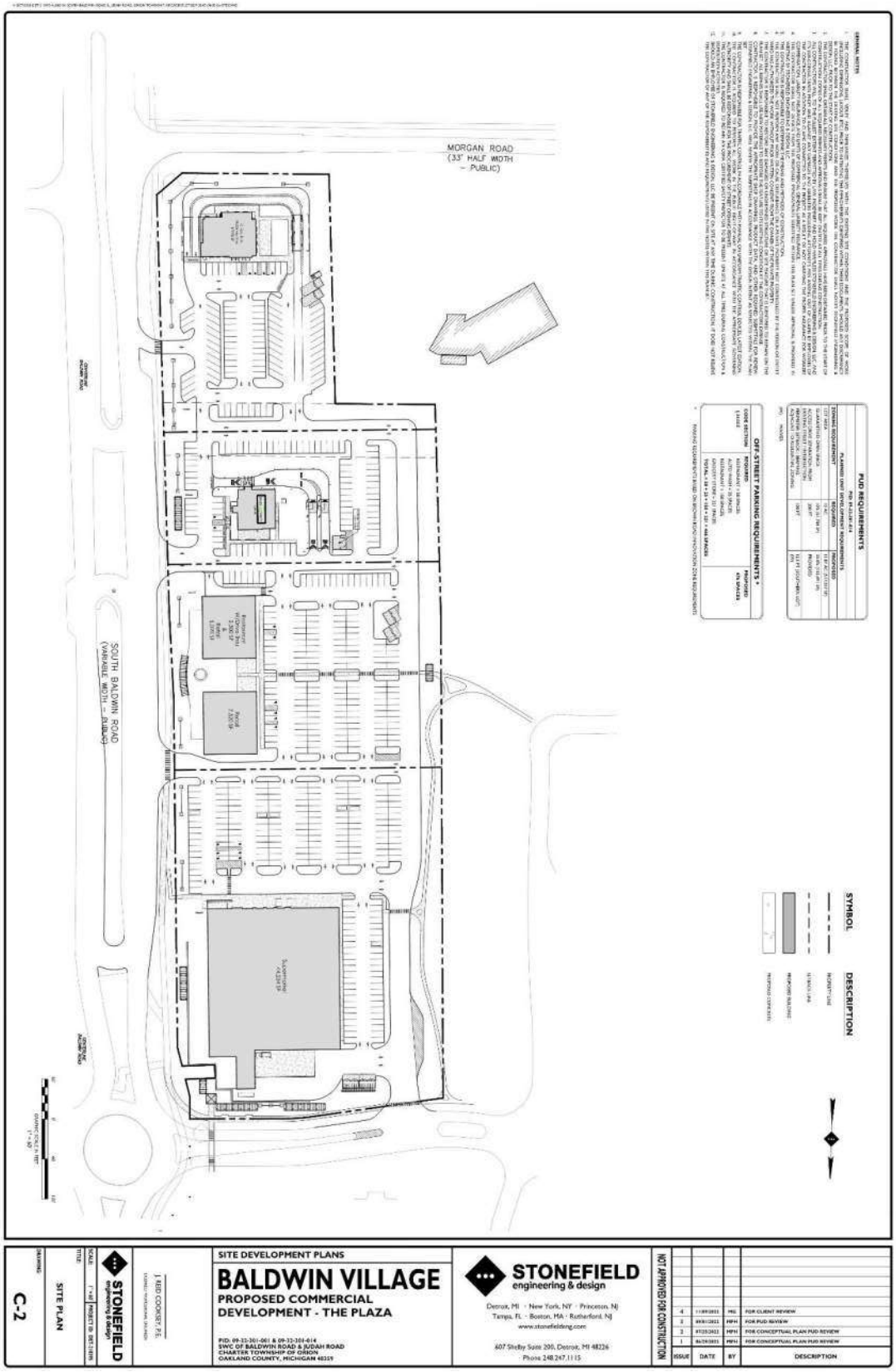


Figure 1.2 – Preliminary Site Plan

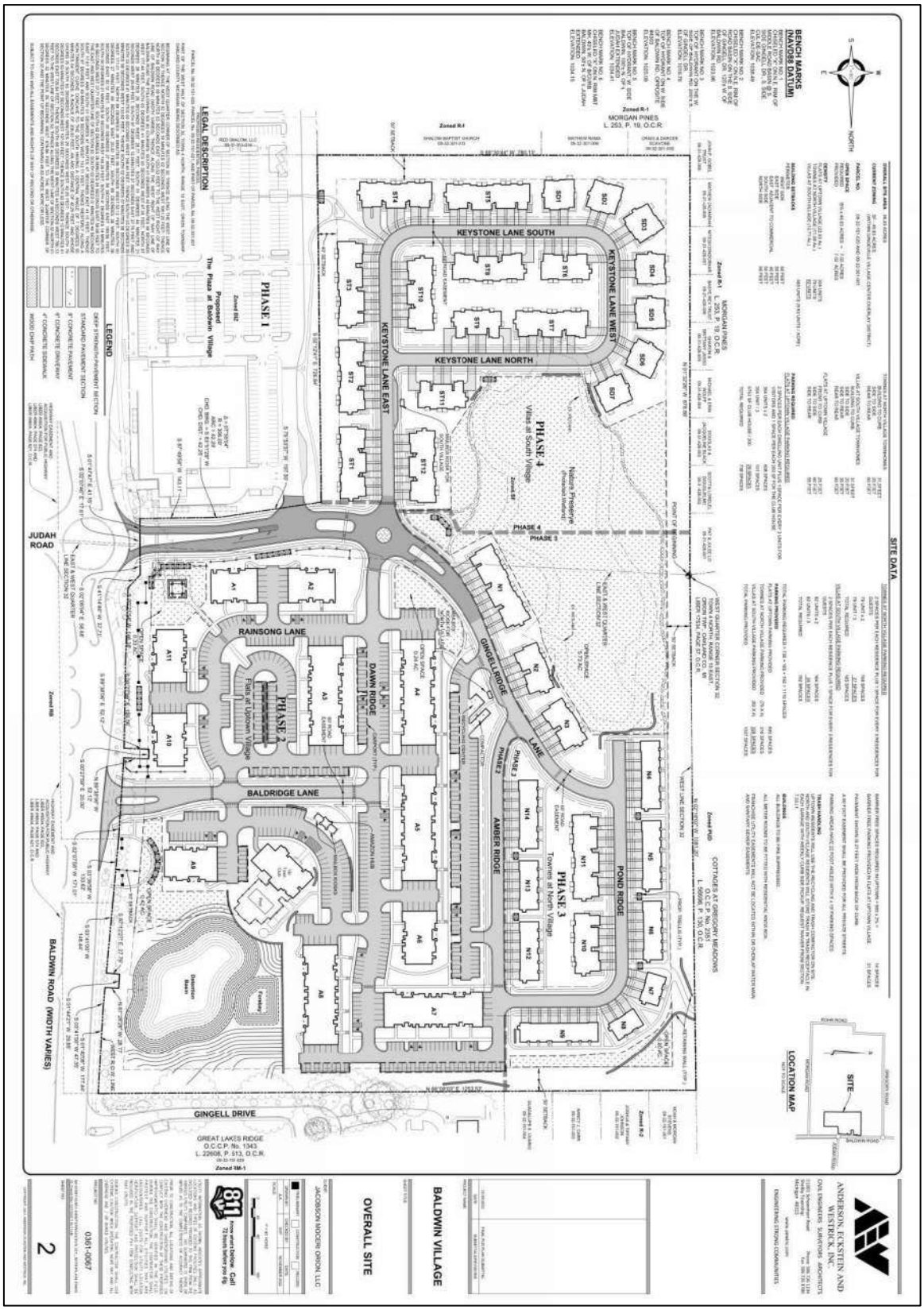


Figure 1.2a – Preliminary Site Plan

The scope of this study was developed in coordination with Orion Township's engineering consultant based on Anderson, Eckstein & Westrick, Inc.'s (AEW) knowledge of the study area, accepted traffic engineering practice, and information published by the Institute of Transportation Engineers (ITE). The study analyses were completed using Synchro and SimTraffic, Version 11 traffic analysis software and Rodel roundabout analysis software.

The specific objectives of the study are to:

- Quantify existing traffic volumes and operations.
- Develop a trip generation for the proposed multi-use development.
- Calculate the future traffic volumes utilizing a growth rate (No-Build Condition) and include the trips generated by the proposed development (Build Condition).
- Calculate and evaluate the level of service for the study intersections for each condition and conduct a queue analysis.
- Perform a right-turn deceleration lane analysis for each of the proposed driveways.

1.2 Scope of Study

The overall scope of the traffic study is to identify and evaluate the impacts the new development will have on the typical traffic patterns.

The intersections analyzed for this study area are presented in **Figure 1.3** and include:

1. Judah Road & Baldwin Road (Roundabout)
2. Southbound to Northbound Baldwin Road Crossover (Unsignalized)
3. Northbound to Southbound Baldwin Road Crossover (Unsignalized)
4. Morgan Road & Baldwin Road (Unsignalized)
5. Jordan Road & Baldwin Road (Unsignalized)
6. Baldwin Commons & Baldwin Road (Signalized)
7. Brown Road & Baldwin Road (Signalized)

Figure 1.3 - Study Intersections

2.0 STUDY AREA CHARACTERISTICS

2.1 Roadway Characteristics

The project traffic study area includes:

- Baldwin Road
- Judah Road
- Morgan Road
- Jordan Road
- Brown Road

Table 2.1 – Roadway Characteristics presents the functional classification, controlling jurisdiction, average daily traffic (ADT), posted speed and general lane description for each of the study area roadways.

Table 2.1 - Roadway Characteristics

Road	Functional Classification	Controlling Jurisdiction	ADT	Posted Speed	Lane Description
Baldwin Road	Minor Arterial	RCOC	28,947	45 MPH	4 lane divided highway North of Baldwin Commons 5 lane divided highway South of Baldwin Commons
Judah Road	Local	RCOC	446	35 MPH	2 lane gravel road
Morgan Road	Local	RCOC	1,406	40 MPH	2 lanes
Jordan Road	Local	RCOC	N/A	25 MPH	2 lanes
Brown Road	Minor Arterial	RCOC	17,730	40 MPH	5 lanes w/ CLTL

(Traffic Sources: 2022 SEMCOG National Functional Classification Map, MDOT Transportation Data Management System Traffic Volumes)

2.2 Non-Motorized Characteristics

Currently there is a sidewalk on the east and west side of Baldwin Road throughout the study area. Crosswalks are located at all legs of the roundabout at Baldwin Road and Judah Road and on the west side of Baldwin Commons and Baldwin Road.

No bus stops are located within the study area.

3.0 EXISTING TRAFFIC ANALYSIS

3.1 Existing Traffic Conditions

Existing turning movement data was obtained on May 10, 2022 at the following intersections:

- Baldwin Road & Baldwin Commons
- Baldwin Road Northbound to Southbound Crossover
- Baldwin Road Southbound to Northbound Crossover
- Baldwin Road & Judah Road

The collected data was used to develop the existing conditions and can be found in Appendix A.

A traffic study incorporating the same intersection was conducted in 2019 by OHM Advisors (OHM). To evaluate the effect the COVID-19 pandemic had on traffic volumes, the 2019 turning movement counts at Baldwin Commons were compared to the 2022 collected data, per OHM's request. Due to the similarities in volume before and after the COVID-19 pandemic, a COVID-19 factor was not applied. AEW's collected data was utilized for this study due to the total volume being greater than the turning movement counts taken in 2019.

The collected peak hour volume for each intersection was used for this study and volumes were balanced upward through the study network. At locations where access is provided between study intersections, "dummy" intersections were used to account for sink and source volumes, and through volumes were carried along the main study roadways. The 2022 peak hour traffic volumes are presented below in **Figure 3.1** and the roadway network lane configuration and traffic control is presented in **Figure 3.2**.

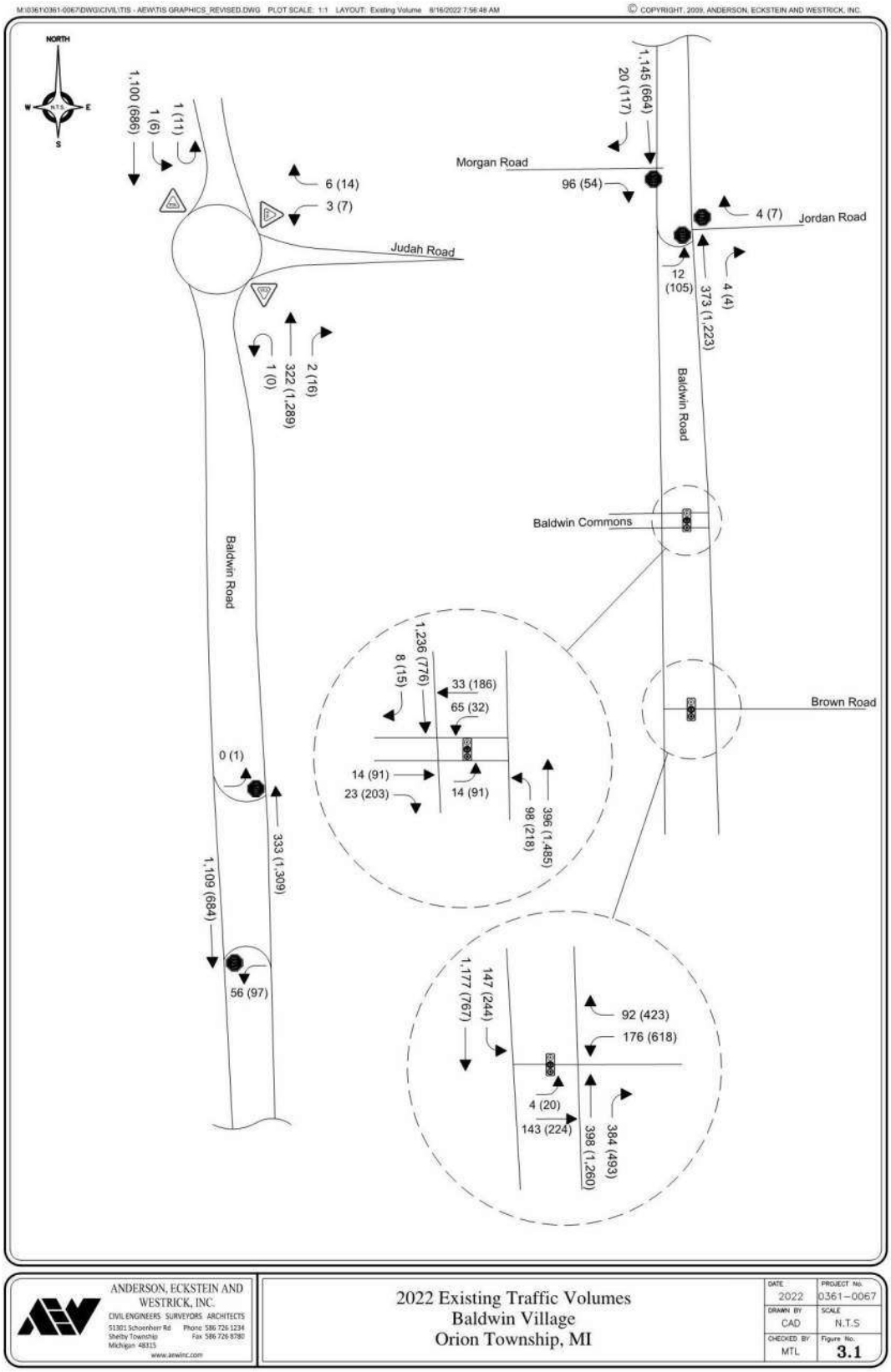


Figure 3.1 - 2022 Existing Peak Hour Volumes

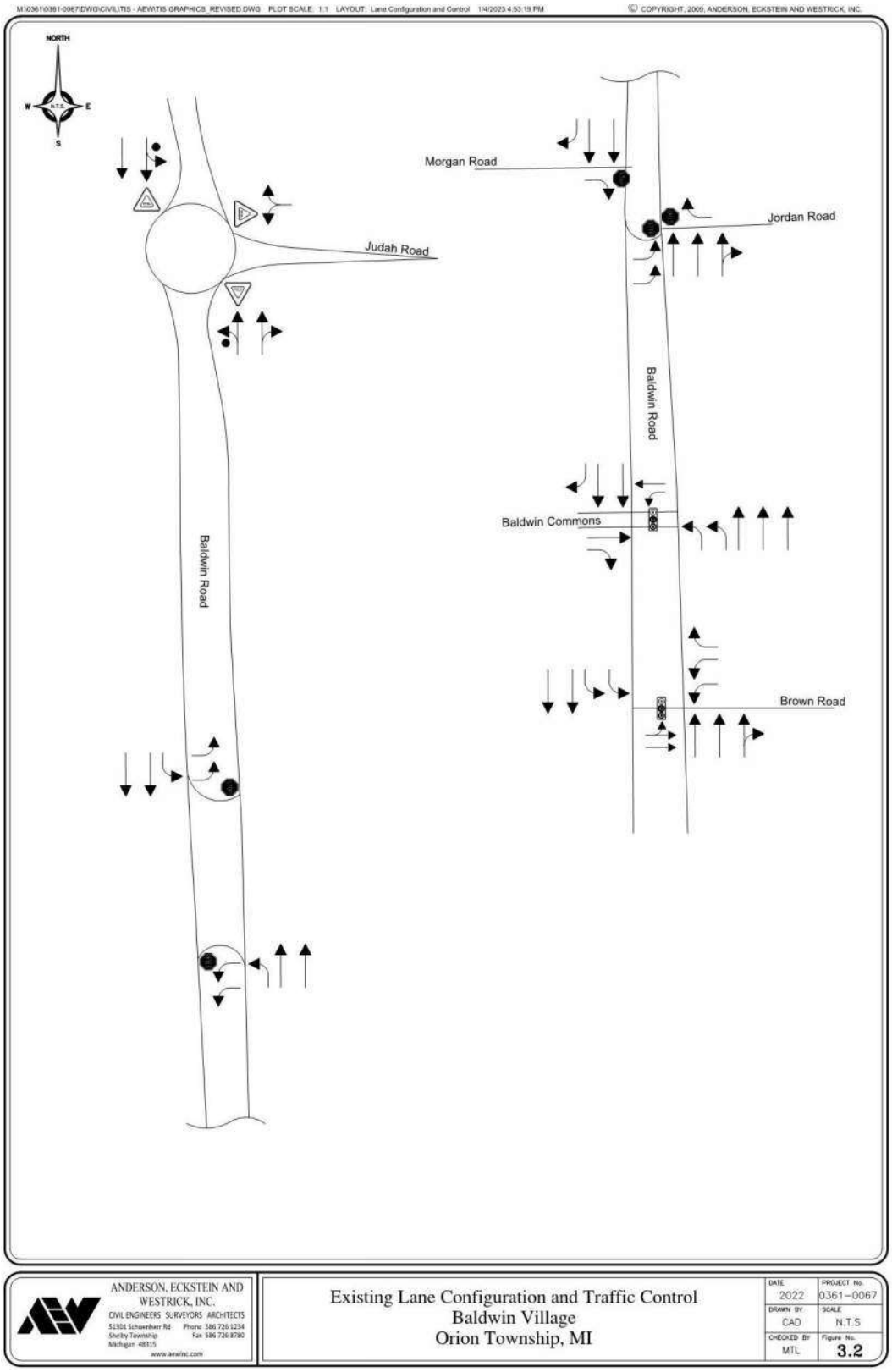


Figure 3.2 - Existing Lane Configuration & Traffic Control

3.2 Traffic Operations Analysis Methodology

Trafficware's Synchro 11 was used to perform intersection capacity analysis and assign Levels of Service (LOS) for the study intersections and lane group movements based on the Highway Capacity Manual, 6th Edition (HCM6) methodologies. LOS is a letter grade that describes traffic operations based on the amount of delay experienced by vehicles at an intersection, along an intersection approach (e.g., eastbound, westbound), or in a specific lane group (e.g., eastbound right turn, eastbound through-left). LOS can range from A-F with A representing the conditions in which vehicles experience the least amount of delay, and F representing the conditions in which vehicles experience the most delay. The LOS D is typically used as a threshold for "acceptable" operations and is sometimes described as being "near capacity". The LOS E is often described as operations "at capacity", while LOS F describes conditions "over capacity". Additionally, LOS for the stop-controlled intersections was reported by approach. **Table 3.1** provides information regarding the delay thresholds for LOS.

Table 3.1 - Level of Service Definitions and Criteria

Level-of-Service (LOS)	Signalized Intersections Delay (seconds)	Un-Signalized Intersections Delay (seconds)
A	< 10.0	< 10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	> 80.0	> 50.0

3.3 Existing LOS Analysis

The peak hour intersection volumes, existing approach peak hour factors (PHF), truck percentages, and default lane utilization factors were used for the Existing and Background analyses. Existing LOS is reported in **Table 3.2**, below. The detailed existing conditions calculated in HCS2022, Synchro 11 and SimTraffic11 are included in Appendix B – Existing Condition Reports LOS & Queue Analysis shows the detailed existing conditions calculated in HCS2022, Synchro 11 and SimTraffic11. Rodel was utilized to calculate the LOS for the roundabout located at Baldwin Road and Judah Road, Synchro11 was utilized for the remaining study intersections.

Table 3.2 - 2022 Existing Condition Level of Service (LOS)

Intersection	Approach	Lane Group	2022 Existing (LOS)	
			AM-Peak LOS/Delay	PM Peak LOS/Delay
Baldwin Road & Judah Road Roundabout	Westbound	1-Left/Thru/Right	A/3.22	A/4.91
	Northbound	2-Left/Thru/Right	A/1.72	A/3.32
	Southbound	2-Left/Thru/Right	A/2.70	A/2.05
	Intersection Overall		**A/2.54**	**A/2.93**
Southbound to Northbound Crossover Unsignalized	Eastbound	2-Left	A/0.0	C.15.0
	Northbound	3-Thru	Free Flow	Free Flow
	Intersection Overall		**A/0.0**	**A/0.0**
Northbound to Southbound Crossover Unsignalized	Westbound	2-Left	B/14.0	B/11.1
	Southbound	2-Thru	Free Flow	Free Flow
	Intersection Overall		**A/0.7**	**B/1.5**
Baldwin Road & Baldwin Commons – West Side Signalized	Eastbound	Thru	D/41.7	D/37.2
		Right	D/41.5	D/37.3
	Westbound	Thru & Thru/Left	A/3.2	C/22.9
	Southbound	2-Thru	B/15.9	C/27.2
		Right	B/10.3	C/21.7
	Intersection Overall		**B/15.7**	**C/29.1**
Baldwin Road & Baldwin Commons – East Side Signalized	Eastbound	Left	A/1.8	A/1.7
	Northbound	2-Left	E/61.8	E/59.8
		3-Thru	A/4.4	A/3.8
	Intersection Overall		**B/17.0**	**B/14.3**
Jordan Road & Baldwin Road Unsignalized	Eastbound	2-Left	A/9.4	A/9.0
	Westbound	Right	A/9.0	A/8.8
	Northbound	2-Thru&Thru/Right	Free Flow	Free Flow
	Intersection Overall		**A/0.5**	**A/0.2**
Morgan Road & Baldwin Road Unsignalized	Eastbound	Right	C/16.3	B/11.4
	Southbound	Thru&Thru/Right	Free Flow	Free Flow
	Intersection Overall		**A/1.2**	**A/0.8**
Baldwin Road & Brown Road – West Side	Westbound	2-Left	C/33.9	C/25.7
	Southbound	2-Left	D/38.3	A/8.6
		2-Thru	A/2.1	A/9.1
	Intersection Overall		**C/20.4**	**B/15.6**
Baldwin Road & Brown Road – East Side	Eastbound	Thru/Right & Thru	A/0.6	A/1.2
	Westbound	2-Left	D/51.7	F/87.4
		Right	D/48.6	D/45.0
	Northbound	2-Thru &Thru/Right	B/12.6	C/33.2
	Intersection Overall		**B/19.1**	**D/43.4**

The results of the existing condition analysis indicate that most of the study intersections overall and intersection movement levels of service currently operate at a LOS D or better with the exception of:

- Baldwin Road & Baldwin Commons – East Side: AM & PM Peak – Northbound Left
- Baldwin Road & Brown Road – East Side: PM Peak – Westbound Left

4.0 BACKGROUND AND FUTURE TRAFFIC GROWTH

4.1 Background Traffic Volumes

Background traffic represents future volumes without the traffic generated by the proposed Baldwin Village development. The target for completion of this project is December 2030; therefore, eight (8) years growth was applied to the existing 2022 traffic volumes. AEW reviewed the population growth rate for Oakland County and Township of Orion provided by the Southeast Michigan Council of Governments (SEMCOG) and reviewed the growth rate used in to a previous traffic study conducted by OHM in 2019. As a result, a growth rate of 1.69% (0.21% annually) was used to project volumes to 2030. The background traffic volumes can be found in **Figure 4.1**.

Three (3) new developments were identified in the near vicinity of the proposed Baldwin Village development, which will be included in the study as background developments. The following are the developments included in the background condition:

- Cottages at Gregory located on Gregory Road, west of Baldwin Road. Trip generation value were obtained from OHM traffic Study.
- Gregory Meadows located on Gregory Road, west of Baldwin Road. Trip generation value were obtained from OHM traffic Study.
- Porritt located on Baldwin Road, north of Brown Road. Trip generation value were obtained from OHM traffic study.
    - In the OHM study a Chick-Fil-A is included in the Porritt development under land use code 934. These generated trips were still included in the background volume, but as a general fast food restaurant, not a Chick-Fil-A.

Development/Land Use	ITE Land Use (Units)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Cottages at Gregory	210 (72 units	13	40	53	45	26	71
Gregory of Meadows	210 (103 units)	19	57	76	64	38	102
Porrit: Mixed-Land Use	435, 857, 934 820	216	187	403	463	455	918
	Total	248	284	532	572	519	1092

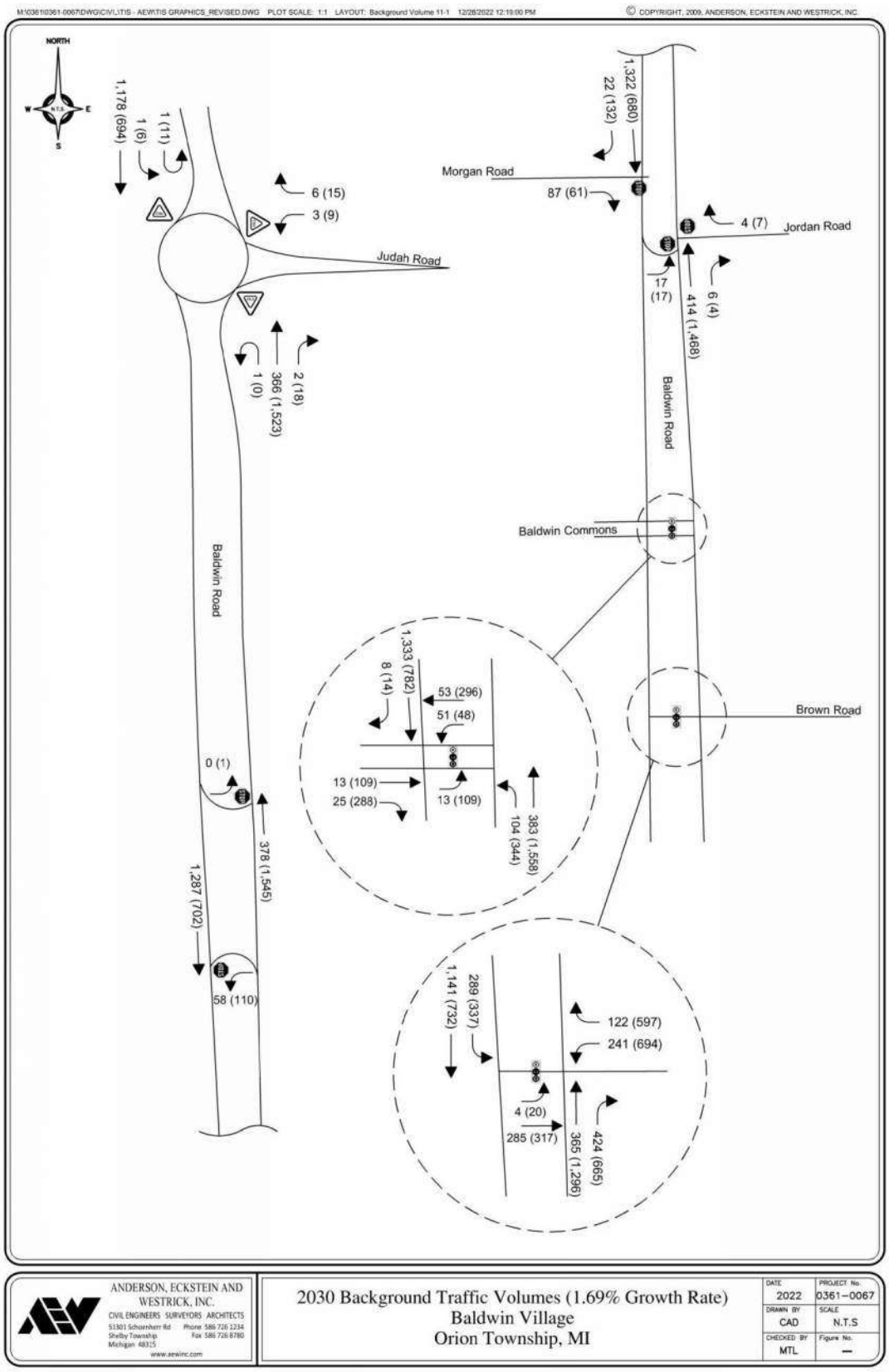


Figure 4.1 – 2030 Background Conditions Traffic Volumes

4.2 Background Level of Service

In **Table 4.3**, below, the 2022 existing LOS and the background 2030 condition LOS is shown for each of the study intersections. The LOS was evaluated in Synchro11 and Rodel. Appendix C presents the detailed background conditions reports from Synchro 11 and Rodel using the new traffic volumes adjusted by the aforementioned growth factor.

Table 4.3 – 2030 Background Level of Service Peak Hour Analysis

Intersection	Approach	Lane Group	2022 Existing (LOS)		2030 Background (LOS)	
			AM-Peak LOS/Delay	PM Peak LOS/Delay	AM-Peak LOS/Delay	PM Peak LOS/Delay
Baldwin Road & Judah Road Roundabout Rodel	Westbound	1-Left/Thru/Right	A/3.22	A/4.91	A/3.26	A/5.65
	Northbound	2-Left/Thru/Right	A/1.72	A/3.32	A/1.75	A/4.29
	Southbound	2-Left/Thru/Right	A/2.70	A/2.05	A/2.94	A/2.17
	Intersection Overall		**A/2.54**	**A/2.93**	**A/2.66**	**A/3.62**
Southbound to Northbound Crossover Unsignalized	Eastbound	2-Left	A/0.0	C/15.0	A/0.0	C/17.2
	Northbound	3-Thru	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**A/0.0**	**A/0.0**	**A/0.0**	**A/0.0**
Northbound to Southbound Crossover Unsignalized	Westbound	2-Left	B/14.0	B/11.1	B/14.4	B/11.7
	Southbound	2-Thru	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**A/0.7**	**B/1.5**	**A/0.7**	**A/1.6**
Baldwin Road & Baldwin Commons – West Side Signalized	Eastbound	Thru	D/41.7	D/37.2	D/41.0	D/36.0
		Right	D/41.5	D/37.3	D/40.7	D/37.2
	Westbound	Thru & Thru/Left	A/3.2	C/22.9	A/3.4	C/33.3
	Southbound	2-Thru	B/15.9	C/27.2	B/18.5	C/28.6
		Right	B/10.3	C/21.7	B/10.8	C/21.7
	Intersection Overall		**B/12.1**	**C/29.4**	**B/18.1**	**C/31.8**
Baldwin Road & Baldwin Commons – East Side Signalized	Eastbound	Left	A/1.8	A/1.7	A/1.7	A/1.6
	Northbound	2-Left	E/61.8	E/59.8	E/60.1	E/57.5
		3-Thru	A/4.4	A/3.8	A/5.3	A/4.2
	Intersection Overall		**B/17.0**	**B/14.3**	**B/16.6**	**B/13.2**
Jordan Road & Baldwin Road Unsignalized	Eastbound	2-Left	A/9.4	A/9.0	A/9.3	A/9.2
	Westbound	Right	A/9.0	A/8.8	A/9.0	A/9.0
	Northbound	2-Thru&Thru/Right	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**A/0.5**	**A/0.8**	**A/0.5**	**A/0.9**
Morgan Road & Baldwin Road Unsignalized	Eastbound	Right	C/16.3	B/11.4	C/18.8	B/12.2
	Southbound	Thru & Thru/Right	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**A/1.2**	**C/20.4**	**A/1.2**	**A/0.8**
Baldwin Road & Brown Road – West Side	Westbound	2-Left	A/2.5	C/33.9	A/3.0	F/133.2
	Southbound	2-Left	D/38.3	D/38.3	D/48.7	D/37.6
		2-Thru	A/2.1	A/2.1	A/1.0	A/1.7
	Intersection Overall		**C/20.4**	**B/15.6**	**A/9.5**	**E/60.3**
Baldwin Road & Brown Road – East Side	Eastbound	Thru/Right & Thru	A/0.6	A/1.2	A/0.6	A/1.4
	Westbound	2-Left	D/51.7	F/87.4	D/50.3	F/166.7
		Right	D/48.6	D/45.0	D/46.3	F/149.1
	Northbound	2-Thru&Thru/Right	B/12.6	C/33.2	B/14.7	C/34.9
	Intersection Overall		**B/19.1**	**D/43.4**	**C/20.5**	**E/78.3**

The results of the background condition analysis indicate that most of the study intersections and intersection movements would operate at a LOS D or better, with the exception of a few intersection and lane groups operating at unacceptable LOS as shown in Table 4.3. The following movements operate at a LOS E or F:

- Baldwin Road & Baldwin Commons – East Side: AM & PM Peak – Northbound Left
- Baldwin Road & Brown Road – West Side: PM Peak – Westbound Left
- Baldwin Road & Brown Road – West Side: PM Peak – Overall
- Baldwin Road & Brown Road – East Side: PM Peak – Westbound Thru
- Baldwin Road & Brown Road – East Side: PM Peak – Overall

5.0 PROPOSED BUILD CONDITIONS

5.1 Trip Generation

Trips are defined as a single or one directional movement with either the origin or destination of the trip inside the study site. Thus, a car entering and leaving a site would be recorded as generating two trips. Trip generation estimates are often the most critical factors in assessing impacts and needs of a proposed development. The 11th Edition contains more than 4,800 data sets from individual trip generation studies. The report also includes discussions on the application and use of trip generation rates and equations, descriptions of the characteristics of each land use, maximum/minimum average rates for weekdays, weekends, and peak hours of the generator and adjacent street traffic, and additional statistical data regarding data variability.

For comparison purposed, we forecasted the AM and PM peak hour vehicle trips that would be generated by the proposed development based on the requirements of the Township of Orion Zoning Ordinance (ITE trip Generation Manual 11th Edition Average Rate Plus One Standard Deviation) using land use codes 220, 820, 850, and 934. We are providing this information for reference only and are not using the average rate plus one standard deviation in our trip generation calculation for this study.

Due to the unique trip generating characteristic of Chick-Fil-A restaurants, the ITE Trip Generation Manual 11th Edition was referenced, along with a previous traffic study of existing Chick-Fil-A restaurants in Caledonia, Michigan and Okemos, Michigan. These locations were chosen due to the similar business times and suburban locales. The AM, PM, and Saturday MD peak trip ratios were calculated by utilizing the square-footage of the existing restaurants and the traffic counts taken at the same peak hours as the proposed development. The AM peak trip ratio resulted in fewer generated trips when compared to the ITE land use code 934. To conduct a conservative study, the ITE trip generation was utilized for the AM peak hour. Due to the Saturday MD peak hour being the critical peak hour, the Saturday MD peak was used in place of the PM peak hour.

Pass-by trips were applied for the restaurant developments. Pass-by trips are a portion of the site generated trips that are already present on the adjacent roadway network and are interrupted to visit the site. The trips result in turning movements at the site driveways, but do not increase traffic volumes on the adjacent road network. Utilizing pass-by trips result in an adjusted and unadjusted trip generation volumes. The adjusted volume eliminates the pass-by trips from the total volume and the unadjusted volume includes the pass-by trips.

The development is estimated to generate an adjusted volume of 847 trips in the AM peak and 1,204 trips in the PM peak, due to the use of the Saturday peak hour trip generation in place of the PM peak for the proposed Chick-Fil-A. The unadjusted trip generation resulted in 1,248 trips in the AM peak, and 1,556 trips in the PM peak. The detailed trip generation can be found below in **Table 5.1**.

Table 5.1 – Proposed Trip Generation (Average Rate plus Standard Deviation)

Land Use	Units		Land Use Code	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
	Average Rate + Standard Deviation				0.52			0.66	
	Trip Distribution			24%	76%		63%	37%	
Multifamily Housing (Low Rise)	465 Units		220	58	184	242	193	114	307
	Average Rate + Standard Deviation				1.26			4.66	
	Trip Distribution			62%	38%		48%	52%	
Shopping Center (>150k)	12,540 Sft		820	10	6	16	28	30	58
	Average Rate + Standard Deviation				4.3			12.27	
	Trip Distribution			59%	41%		50%	50%	
Supermarket	44,234 Sft		850	112	78	190	271	271	542
	Average Rate + Standard Deviation				71.75			50.62	
	Trip Distribution			51%	49%		52%	48%	
Fast Food Restaurant w/ Drive Thru A	2,500 Sft		934	91	88	179	66	61	127
	Pass-By Trips: 50%/55%			46	44	90	36	34	70
	Average Rate + Standard Deviation				71.75			50.62	
	Trip Distribution			51%	49%		52%	48%	
Fast Food Restaurant w/ Drive Thru B	3,503 Sft		934	128	123	251	92	85	177
	Pass-By Trips: 50%/55%			64	62	126	51	47	98
				ITE Land Use Code			ROWE CFA Study		
	Trip Distribution			51%	49%	*ITE	51%	49%	Trip Ratio
Chick-Fil-A	4,978 Sft			189	181	370	176	169	345
	Pass-By Trips: 50%/55%			95	90	185	92	92	184
	Adjusted Trips			**383**	**464**	**847**	**647**	**557**	**1,204**
	Unadjusted Trips			**588**	**660**	**1,248**	**826**	**730**	**1,556**

*ITE land use code utilized for Chick-Fil-A in the AM Peak due to the estimation being greater than the trip ratio observed from the previous traffic study. The maximum value was used in the study for a conservative result.

Based upon our professional experience, commonly used practice in our industry in this geographic area, and recommended practices in ITE Trip Generation Handbook, we have also calculated trip generation for the development based on weighted average rates in the ITE Trip Generation Manual 11th Edition without the addition of one standard deviation for this study. Noting that the *2021 Baldwin, Joslyn, Brown and I-75 Corridor Study* prepared by OHM did not include the addition of one standard deviation to average trip rates when calculating trip generation. We felt this approach would allow for direct comparisons to the findings presented in that accepted traffic study.

Based on this methodology, the development is estimated to generate an adjusted volume of 641 trips in the AM peak and 925 trips in the PM peak, due to the use of the Saturday peak hour trip generation in place of the PM peak for the proposed Chick-Fil-A.

The unadjusted trip generation resulted in 960 trips in the AM peak, and 1,219 trips in the PM peak. The detailed trip generation can be found below in **Table 5.2**.

Table 5.2 – Proposed Build Trip Generation (Average Rate)

Land Use	Units	Land Use Code	Weekday AM Peak Hour			Weekday PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
		Average Rate		0.40			0.51	
		Trip Distribution	24%	76%		63%	37%	
Multifamily Housing (Low Rise)	465 Units	220	45	141	186	149	88	237
		Average Rate		0.84			3.4	
		Trip Distribution	62%	38%		48%	52%	
Shopping Center (>150k)	12,540 Sft	820	7	4	10	20	23	42
		Average Rate		2.86			8.95	
		Trip Distribution	59%	41%		50%	50%	
Supermarket	44,234 Sft	850	74	52	126	198	198	396
		Average Rate		44.61			33.03	
		Trip Distribution	51%	49%		52%	48%	
Fast Food Restaurant w/ Drive Thru A	2,500 Sft	934	57	55	112	43	40	83
		Pass-By Trips: 50%/55%	29	27	56	24	22	46
		Average Rate		44.61			33.03	
		Trip Distribution	51%	49%		52%	48%	
Fast Food Restaurant w/ Drive Thru B	3,503 Sft	934	79	77	156	60	56	116
		Pass-By Trips: 50%/55%	40	38	78	33	31	64
			ITE Land Use Code			ROWE CFA Study		
		Trip Distribution	51%	49%	*ITE	51%	49%	Trip Ratio
Chick-Fil-A	4,978 Sft		189	181	370	176	169	345
		Pass-By Trips: 50%/55%	95	90	185	92	92	184
		Adjusted Trips	**287**	**355**	**641**	**497**	**429**	**925**
		Unadjusted Trips	**451**	**510**	**960**	**646**	**574**	**1,219**

*ITE land use code utilized for Chick-Fil-A in the AM Peak due to the estimation being greater than the trip ratio observed from the previous traffic study. The maximum value was used in the study for a conservative result.

5.2 Trip Distribution

The trip distribution was calculated based on the existing traffic patterns. Trips entering and exiting the study area were based proportionally on the existing volumes entering and exiting through Baldwin Road, Baldwin Commons, Morgan Road, Jordan Road, and Judah Road. A trip distribution map can be found below in **Figure 5.1**.

Two alternatives were evaluated for this study. **Alternative A** is based on Baldwin Village being developed and making no changes to the existing roadway network. **Alternative B** includes a proposed northbound to southbound crossover on Baldwin Road, south of the roundabout. Alternative B provides an additional access point to the development for northbound traffic, and is considered the mitigation alternative.

Based on these distributions the generated trips were distributed throughout the traffic network. The trip generation volume distribution for **Alternative A** and **B** can be found in **Figure 5.2 and Figure 5.3,** respectively. The trip generation volumes were added to the background volumes to simulate the build conditions. The total volumes for alternative A and alternative B can be found in **Figure 5.3 and Figure 5.4,** respectively. Based on the preliminary site plan the trips entering through each driveway were estimated. The driveway distribution can be found in **Table 5.3**. The driveway distribution was created in collaboration with OHM and based on driver expectations.

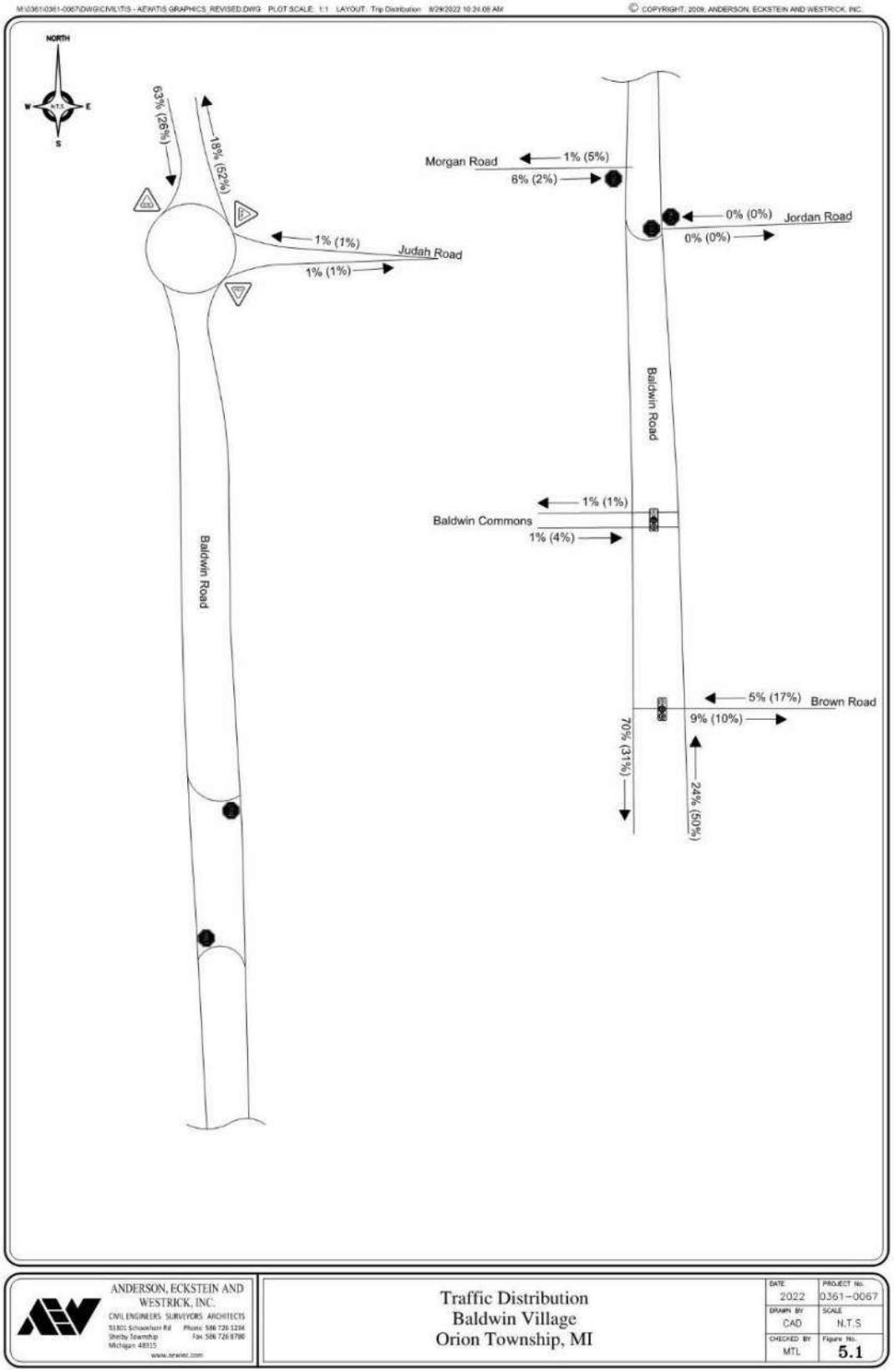


Figure 5.1 – Trip Distribution

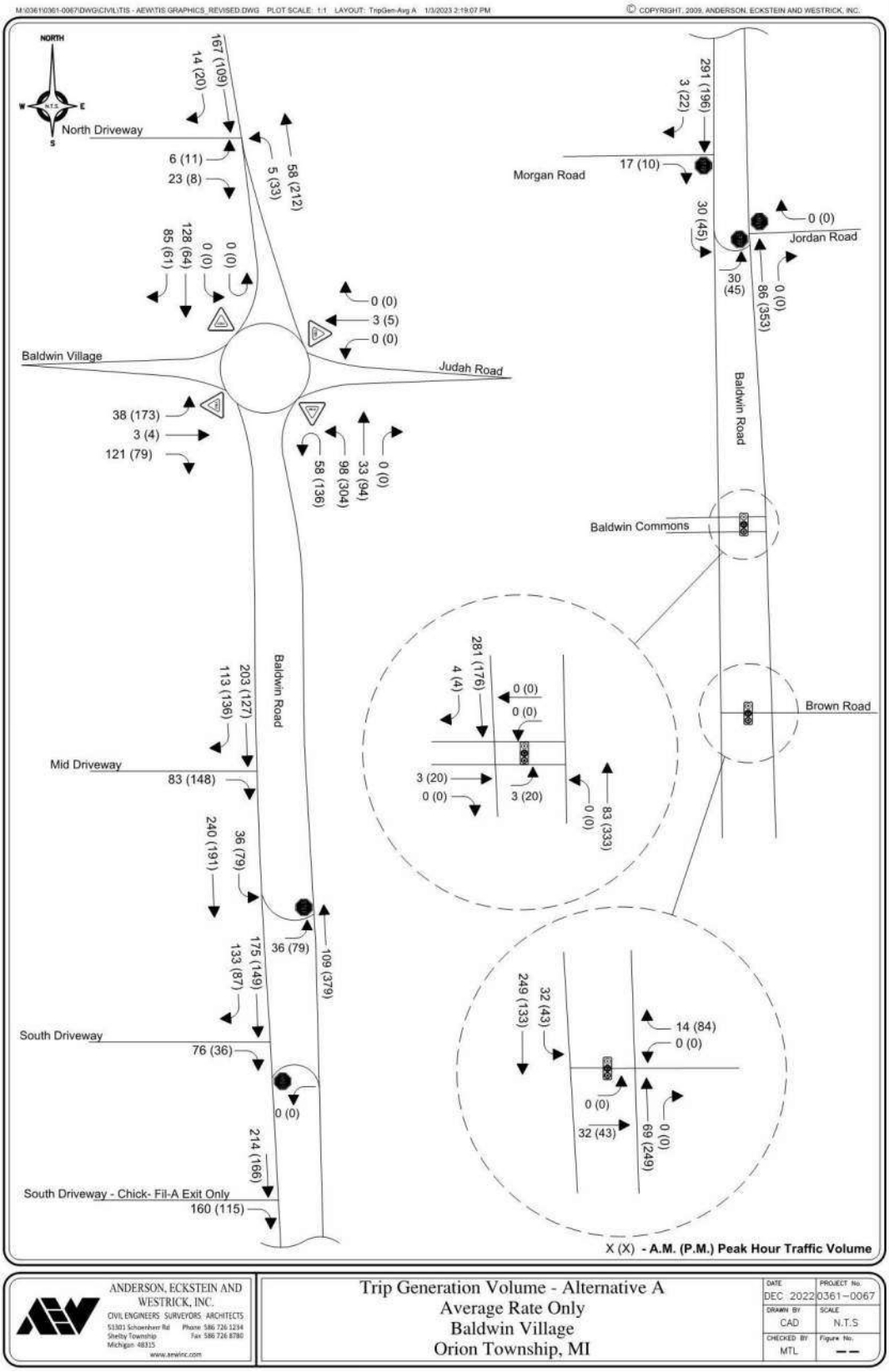


Figure 5.2 – Alternative A Trip Generation Distribution

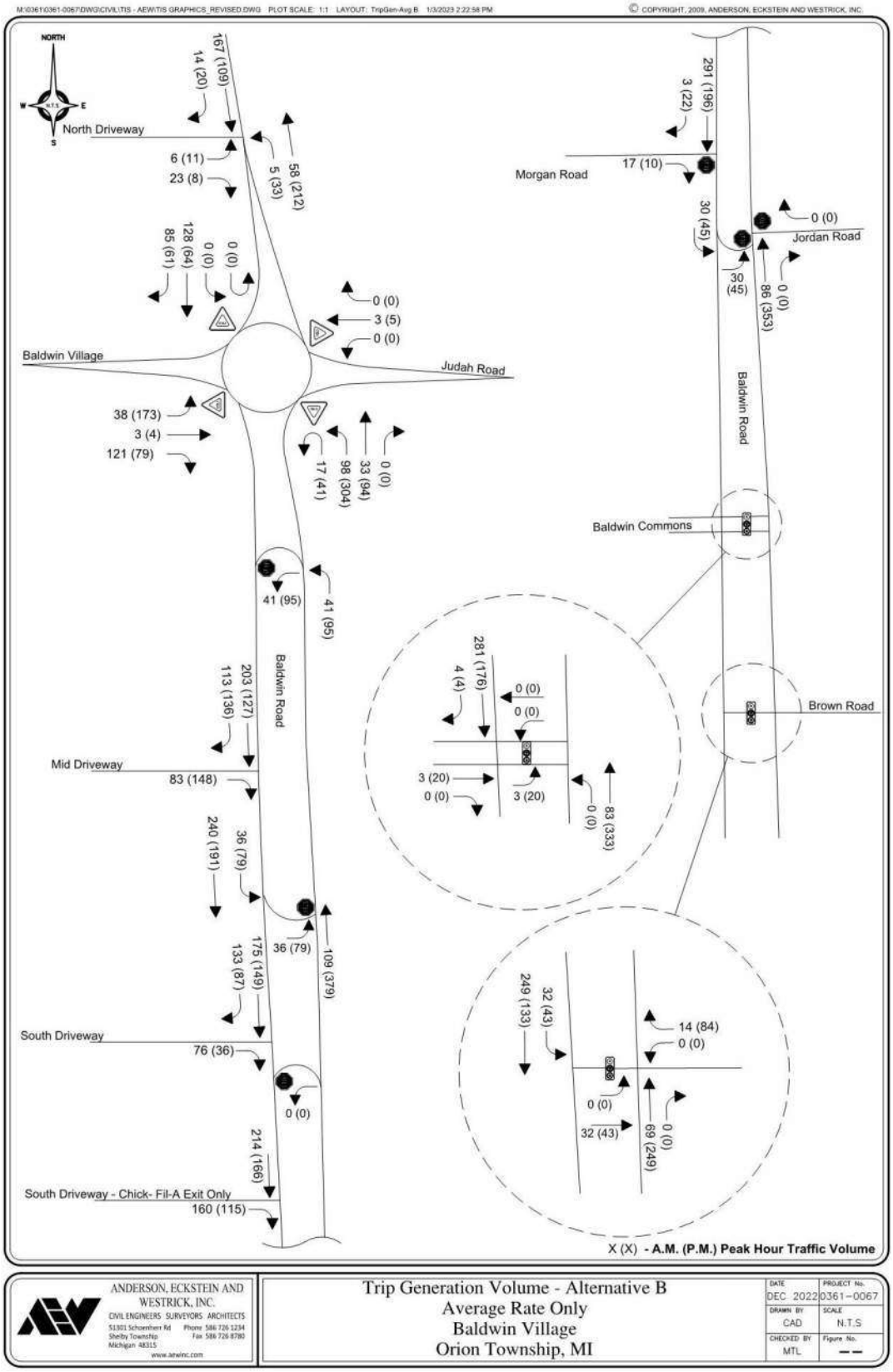


Figure 5.3 – Alternative B Trip Generation Distribution

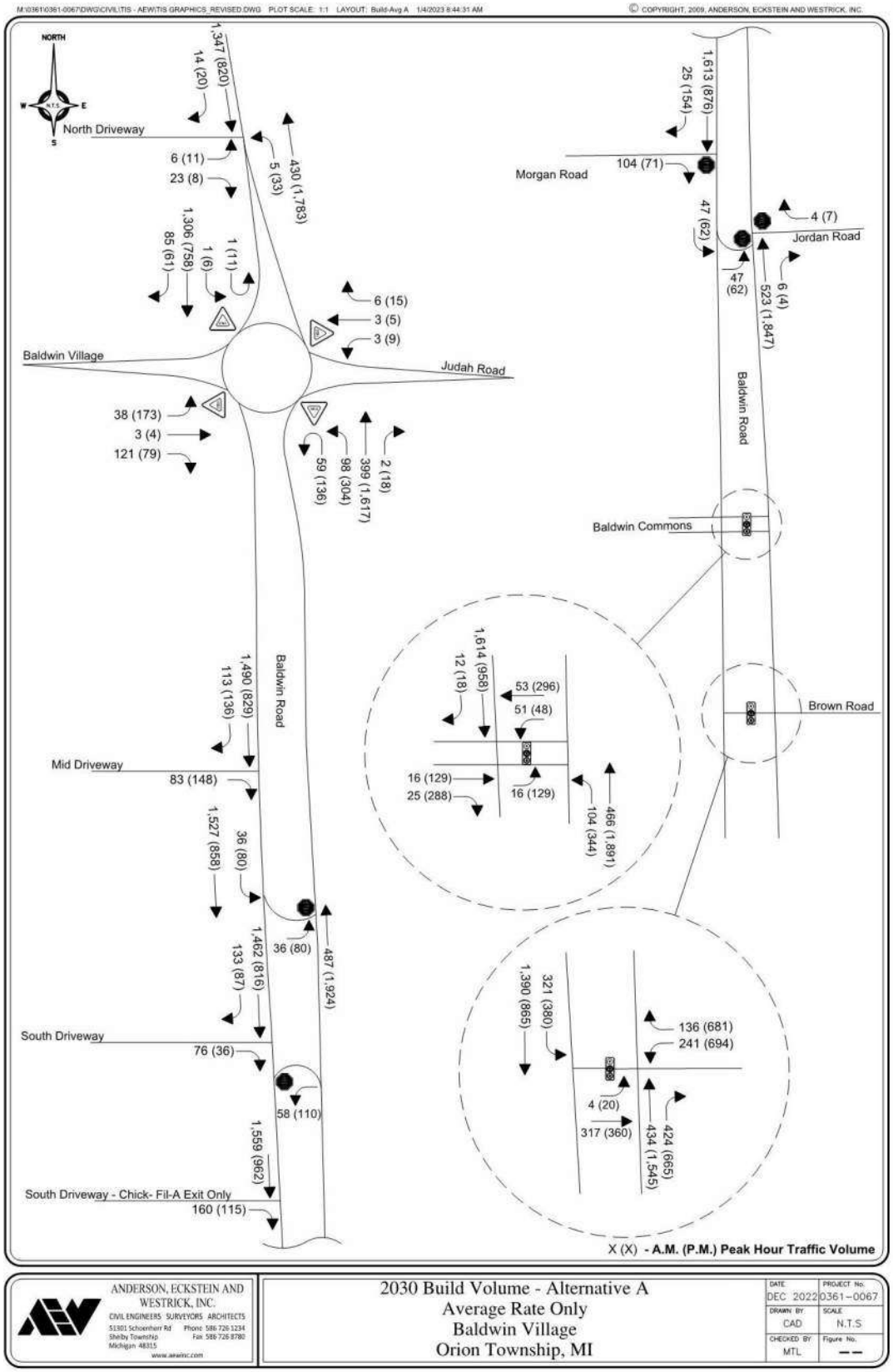


Figure 5.4 – Alternative A Build Conditions Volumes

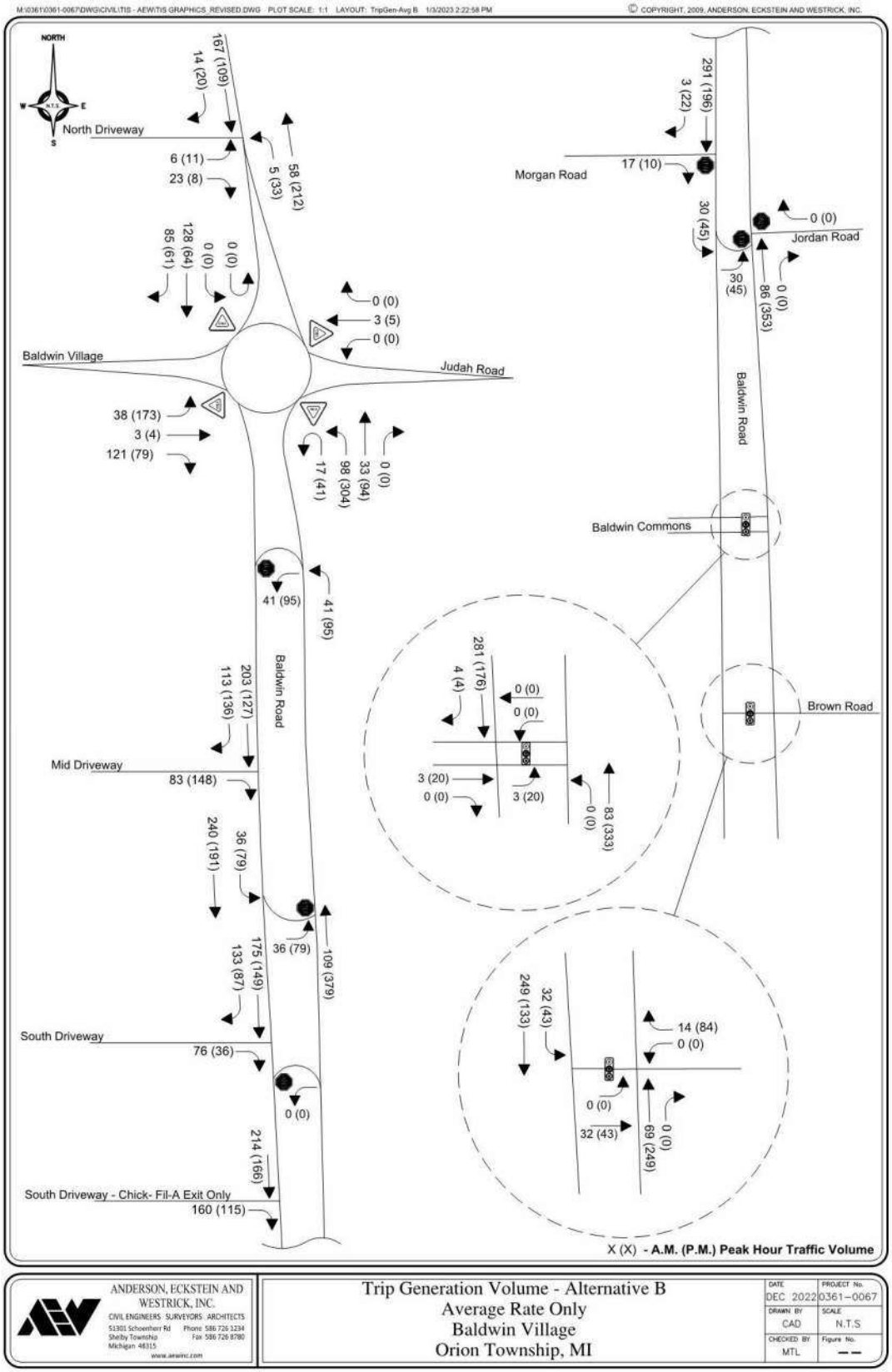


Figure 5.5 – Alternative B Build Conditions Volumes

Table 5.3 – Driveway Trip Distribution

Driveway Distribution					
Entry Trips					
Development	**Direction**	**South Drive**	**Mid Drive**	**Roundabout**	**North Drive**
Chick Fil-A	From South (NB)	30%	10%	60%	-
	From North (SB)	80%	10%	10%	-
Supermarket	From South (NB)	-	33%	67%	-
	From North (SB)	-	50%	50%	-
Restaurant with Drive Through A	From South (NB)	10%	30%	60%	-
	From North (SB)	10%	45%	45%	-
Restaurant with Drive Through B	From South (NB)	10%	30%	60%	-
	From North (SB)	15%	55%	30%	-
Restaurant/Retail	From South (NB)	-	40%	60%	-
	From North (SB)	-	50%	50%	-
Residential	From South (NB)	-	-	70%	30%
	From North (SB)	-	-	50%	50%
Exit Trips					
Development	**Direction**	**South Drive**	**Mid Drive**	**Roundabout**	**North Drive**
Chick Fil-A	To South (SB)	100% (exclusive drive)	-	-	-
	To North (NB)	40%	30%	30%	-
Supermarket	To South (SB)	-	60%	40%	-
	To North (NB)	-	15%	85%	-
Restaurant with Drive Through A	To South (SB)	70%	20%	10%	-
	To North (NB)	-	80%	20%	-
Restaurant with Drive Through B	To South (SB)	70%	20%	10%	-
	To North (NB)	-	70%	30%	-
Restaurant/Retail	To South (SB)	34%	33%	33%	-
	To North (NB)	-	15%	85%	-
Residential	To South (SB)	-	-	80%	20%
	To North (NB)	-	-	75%	25%

6.0 BUILD CONDITIONS

The build conditions for both alternatives were implemented in Synchro11 and simulated using SimTraffic11. The LOS was calculated and presented below in **Table 6.1**. Table 6.1 also presents the background LOS for comparison. The full reports for the **Alternative A** build conditions and **Alternative B** build conditions can be found in Appendix D and Appendix E, respectively.

Table 6.1 – Build Level of Service Peak Hour Analysis

Intersection	Approach	Lane Group	2030 Background (LOS)		2030 Build (LOS) Alt A		2030 Build (LOS) Alt B	
			AM-Peak LOS/Delay	PM Peak LOS/Delay	AM-Peak LOS/Delay	PM Peak LOS/Delay	AM-Peak LOS/Delay	PM-Peak LOS/Delay
Baldwin Road & Judah Road Roundabout Rodel	Westbound	1-Left/Thru/Right	A/3.26	A/5.65	A/3.54	A/9.88	A/3.49	A/9.15
	Northbound	1-Left/Thru/Right	A/1.75	A/4.29	A/2.75	E/35.87	A/2.49	C/21.18
	Southbound	2-Left/Thru/Right	A/2.94	A/2.17	A/4.34	A/3.49	A/4.12	A/3.22
	Eastbound	1-Left/Thru/Right	A/3.26	A/5.65	A/6.41	A/5.58	A/6.23	A/5.28
	Intersection Overall		**A/2.66**	**A/3.62**	**A/4.07**	**C/24.73**	**A/3.88**	**B/14.91**
Southbound to Northbound Crossover Unsignalized	Eastbound	2-Left	A/0.0	C/17.2	B/10.3	C/24.9	B/10.3	C/24.9
	Northbound	3-Thru	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**A/0.0**	**A/0.0**	**A/0.7**	**B/12.5**	**A/0.7**	**A/1.0**
Northbound to Southbound Crossover Unsignalized	Westbound	2-Left	B/14.4	B/11.7	C/19.3	B/13.8	C/19.3	B/13.8
	Southbound	2-Thru	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**A/0.7**	**A/1.6**	**B/0.7**	**A/1.6**	**A/0.7**	**A/1.6**
Baldwin Road & Baldwin Commons – West Side Signalized	Eastbound	Thru	D/41.0	D/36.0	D/43.4	D/35.8	D/43.4	D/35.8
		Right	D/40.7	D/37.2	D/43.0	D/35.9	D/43.0	D/35.9
	Westbound	Thru &Thru/Left	A/3.4	C/33.3	A/0.6	B/14.6	A/0.6	B/14.6
	Southbound	2-Thru	B/18.5	C/28.6	B/19.4	D/39.5	B/19.4	D/39.5
		Right	B/10.8	C/21.7	A/9.4	C/25.8	A/9.4	C/25.8
	Intersection Overall		**B/18.1**	**C/31.8**	**B/18.8**	**C/33.7**	**B/18.8**	**C/33.7**
Baldwin Road & Baldwin Commons – East Side Signalized	Eastbound	Left	A/1.7	A/1.6	A/1.3	A.1.7	A/1.3	A/1.7
	Northbound	2-Left	E/60.1	E/57.5	E/60.6	C/22.7	E/60.6	C/22.7
		3-Thru	A/5.3	A/4.2	A/4.9	B/14.4	A/4.9	B/14.4
	Intersection Overall		**B/16.7**	**B/13.2**	**B/14.6**	**B/14.9**	**B/14.6**	**B/14.9**
Jordan Road & Baldwin Road Unsignalized	Eastbound	2-Left	A/9.3	A/9.2	A/9.0	B/10.5	A/9.0	B/10.5
	Westbound	Right	A/9.0	A/9.0	A/9.4	B/10.4	A/9.4	B/10.4
	Northbound	2-Thru&Thru/Right	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**A/0.5**	**A/0.9**	**A/6.1**	**A/6.9**	**A/0.8**	**A/0.4**
Morgan Road & Baldwin Road Unsignalized	Eastbound	Right	C/18.8	B/12.2	D/25.6	B/14.1	D/25.6	B/14.1
	Southbound	Thru &Thru/Right	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**A/1.2**	**A/0.8**	**A/1.5**	**A/0.9**	**A/1.5**	**A/0.9**
Baldwin Road & Brown Road – West Side Signalized	Westbound	2-Left	A/3.0	F/133.2	A/2.0	F/160.9	A/2.0	F/160.9
	Southbound	2-Left	D/48.7	D/37.6	D/50.5	E/55.9	D/50.5	E/55.9
		2-Thru	A/1.0	A/1.7	A/1.6	B/11.4	A/1.6	B/11.4
	Intersection Overall		**A/9.5**	**E/60.3**	**A/9.7**	**E/73.6**	**A/9.7**	**E/73.6**
Baldwin Road & Brown Road -East Side Signalized	Eastbound	Thru/Right & Thru	A/0.6	A/1.4	A/4.3	A/1.3	A/4.3	A/1.3
	Westbound	2-Thru	D/50.3	F/166.7	D/48.0	F/198.0	D/48.0	F/198.0
		Right	D/46.3	F/149.1	D/44.7	F/313.6	D/44.7	F/313.6
	Northbound	Thru &Thru&Thru/Right	B/14.7	C/34.9	B/14.7	E/70.6	B/14.7	E/70.6
	Intersection Overall		**C/D43.4**	**F/100.9**	**C/20.3**	**F/128.0**	**C/20.3**	**F/128.0**
Baldwin Road & Baldwin Village North Driveway Unsignalized	Eastbound	Left/Right	n/a	n/a	C/19.0	C/17.9	C/19.0	C/18.0
	Northbound	Left	n/a	n/a	B/13.1	B/10.1	B/13.1	B/10.1
		2-Thru	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
	Southbound	Thru/Right	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
		Thru	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**n/a**	**n/a**	**A/0.3**	**A/0.3**	**A/0.3**	**A/0.3**
Baldwin Road & Baldwin Village South Driveway Unsignalized	Eastbound	Right	n/a	n/a	C/21.8	B/12.4	C/21.8	B/12.4
	Southbound	2-Thru/Right	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**n/a**	**n/a**	**A/1.0**	**A/0.5**	**A/1.0**	**A/0.5**
Baldwin Road & Baldwin Village Mid Driveway Unsignalized	Eastbound	Right	n/a	n/a	C/22.6	B/14.1	C/22.6	B/14.1
	Southbound	2-Thru/Right	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**n/a**	**n/a**	**A/1.1**	**A/1.9**	**A/1.1**	**A/1.9**
Baldwin Road & Baldwin Village South Driveway – Exit Unsignalized	Eastbound	Right	n/a	n/a	D/31.4	B/14.6	D/31.4	B/14.6
	Southbound	2-Thru	n/a	n/a	Free Flow	Free Flow	Free Flow	Free Flow
	Intersection Overall		**n/a**	**n/a**	**A/2.9**	**A/1.6**	**A/2.9**	**A/1.6**
Proposed Northbound to Southbound Crossover Unsignalized	Westbound	Left	n/a	n/a	n/a	n/a	C/17.4	B/13.7
	Southbound	2-Thru	n/a	n/a	n/a	n/a	Free Flow	Free Flow
	Intersection Overall		**n/a**	**n/a**	**n/a**	**n/a**	**A/0.5**	**A/1.3**

The results of the build analysis indicate that most of the study intersections overall and intersection movement levels of service currently operate at a LOS D or better with a few exceptions operating at unacceptable LOS as shown in Table 6.1. The following intersections/intersection movements operate at a LOS E or F:

- Baldwin Road & Baldwin Commons – East Side: Alt A & Alt BAM Peak – Northbound Left
- Baldwin Road & Brown Road – West Side: Alt A & Alt B PM Peak – Westbound Left
- Baldwin Road & Brown Road – West Side: Alt A & Alt B Pm Peak – Southbound Left
- Baldwin Road & Brown Road – West Side: Alt A & Alt B PM Peak – Overall
- Baldwin Road & Brown Road – East Side: Alt A & Alt B PM Peak – Westbound 2-Thru
- Baldwin Road & Brown Road – East Side: Alt A & Alt B PM Peak – Westbound Right
- Baldwin Road & Brown Road – East Side: Alt A & Alt B PM Peak – Northbound Thru&Thru&Thru/Right
- Baldwin Road & Brown Road – East Side: Alt A & Alt B PM Peak – Overall

7.0 QUEUE ANALYSIS

A queueing analysis was conducted to determine the 95th percentile queues at the study area intersections to determine the impacts generated due to the proposed development to the study intersections. SimTraffic11 was utilized to simulate 5 runs of the peak hours, which were evaluated to find the most accurate queue length. Data from all 5 runs were used to find the 95th percentile queues at each study intersection. Rodel was used to obtain the 95th percentile queue at the roundabout. **Table 7.1** presents the queueing results.

Table 7.1 – Existing, Background and Build Queue Length Peak Hour Analysis

Intersection	Approach	Lane Group	2030 Background		2030 Alt A Build		2030 Alt B Build	
			AM-Peak Queue Length (ft)	PM-Peak Queue Length (ft)	AM-Peak Queue Length (ft)	PM-Peak Queue Length (ft)	AM-Peak Queue Length (ft)	PM-Peak Queue Length (ft)
Baldwin Road & Judah Road Roundabout	Eastbound	Entry Lane	n/a	n/a	19	26	19	24
	Westbound	Entry Lane	1	2	1	5	1	5.4
	Northbound	Entry Lane	11	62	26	967	22	565
	Southbound	Entry Lane	62	26	111	51	105	48
Baldwin Road & Southbound to Northbound Crossover Unsignalized	Eastbound	Left	-	7	43	68	40	60
		Left	-	-	9	49	14	48
	Northbound	Thru	-	-	-	94	-	-
		Thru	-	-	-	90	-	-
	Southbound	Left	-	-	-	-	-	14
		Thru	-	-	-	-	-	-
		Thru	-	-	-	-	-	-
Baldwin Road & Northbound to Southbound Crossover Unsignalized	Westbound	Left	25	34	72	64	69	66
		Left	67	56	-	-	-	-
	Northbound	Left	42	-	12	11	10	5
		Thru	-	-	-	41	-	-
		Thru	-	-	-	46	-	-
	Southbound	Thru	4	-	-	-	-	-
		Thru	-	-	-	-	-	-
Baldwin Road & Baldwin Village Outward South Driveway - Unsignalized	Eastbound	Right	n/a	n/a	144	70	127	74
	Southbound	Thru	n/a	n/a	-	8	-	-
		Thru	n/a	n/a	-	-	-	-
Baldwin Road & Baldwin Commons – West Side Signalized	Eastbound	Thru	35	162	34	149	35	146
		Right	40	200	31	165	30	179
	Westbound	Thru/Left	6	7	-	21	-	19
		Thru	-	20	-	35	-	36
	Southbound	Thru	142	211	304	323	322	332
		Thru	479	404	314	319	337	329
		Right	38	75	67	102	74	81
Baldwin Road & Baldwin Commons – East Side Signalized	Eastbound	Left	8	12	7	25	5	23
	Northbound	Left	96	182	93	113	95	121
		Left	93	200	94	129	90	128
		Thru	52	252	51	146	57	148
		Thru	36	150	39	150	34	147
		Thru	71	63	83	176	78	172
Jordan Road & Baldwin Road Unsignalized	Eastbound	Left	33	35	40	44	42	45
		Left	9	9	23	39	22	38
	Westbound	Right	14	20	22	139	23	30
	Northbound	Thru	-	7	77	4	79	17
		Thru	-	-	-	18	-	19
		Thru/Right	-	5	4	19	-	21
Morgan Road & Baldwin Road Unsignalized	Eastbound	Right	312	51	94	56	92	47
	Southbound	Thru	14	-	-	-	-	-
		Thru/Right	128	-	-	3	-	11
Baldwin Village North Driveway & Baldwin Road Unsignalized	Eastbound	Left/Right	n/a	n/a	53	42	47	37
	Northbound	Left	n/a	n/a	20	35	18	41
	Southbound	Thru	n/a	n/a	-	4	-	-
		Thru/Right	n/a	n/a	6	4	4	-
Baldwin Village Mid Driveway & Baldwin Road Unsignalized	Eastbound	Right	n/a	n/a	67	72	71	77
	Southbound	Thru	n/a	n/a	4	-	-	-
		Thru/Right	n/a	n/a	12	-	12	-

Baldwin Road & Brown Road – West Side Signalized	Westbound	Left	21	85	21	49	20	47
		Left	9	73	8	41	6	38
	Southbound	Left	144	134	180	198	185	200
		Left	137	142	198	219	194	231
		Thru	46	46	121	253	128	257
		Thru	95	88	97	231	121	224
Baldwin Road & Brown Road – East Side Signalized	Eastbound	Thru/Left	23	59	25	69	21	73
		Thru	29	30	46	25	43	31
	Westbound	Thru	193	431	195	333	192	308
		Right	160	508	158	525	148	521
		Right	154	471	161	417	164	418
	Northbound	Thru	176	309	236	316	214	308
		Thru	87	305	132	312	123	322
		Thru/Right	182	316	160	292	156	288
Baldwin Road & Baldwin Village South Driveway Unsignalized	Eastbound	Right	n/a	n/a	56	50	67	49
	Southbound	Thru	n/a	n/a	3	2	6	4
		Thru/Right	n/a	n/a	7	10	8	9
Proposed Crossover & Baldwin Road Unsignalized	Westbound	Left	n/a	n/a	n/a	n/a	56	56
	Southbound	Thru	n/a	n/a	n/a	n/a	15	10
		Thru	n/a	n/a	n/a	n/a	8	7

The analysis of the queue study resulted in the queues not increasing significantly under the build conditions when compared to the background conditions, with the exception of the Alternative A northbound approach at Baldwin Road & Judah Road roundabout.

8.0 CRASH ANALYSIS

A crash analysis was conducted throughout the roadway network. Five years of crash data was collected and reviewed (2017-2021). Traffic crash reports and summaries were obtained from the Transportation Improvement Association's Traffic Crash Analysis Tool (TCAT) website. A radius of 100 feet was utilized at each intersection. A summary of crashes by type is provided in **Table 8.1**, copies of crash report summaries and UD-10 reports for the injury causing accidents can be found in Appendix F.

Table 8.1 - Crash Type Summary

Intersection	Crash Type	Crashes	% of Total	KAB Crashes	%KAB
Baldwin Road & Judah Road	Single	6	32%	1	50%
	Head-on	0	0%	0	0%
	Angle	1	5%	0	0%
	Rear-end	3	16%	0	0%
	Sideswipe	9	47%	1	50%
	Back	0	0%	0	0%
	Other includes, Bike, Ped, Motorcycle	0	0%	0	0%
	Total	**19**	**100%**	**2**	**100%**
Baldwin Road & Baldwin Commons	Single	0	0%	0	-
	Head-on	1	10%	0	-
	Angle	0	0%	0	-
	Rear-end	6	60%	0	-
	Sideswipe	3	30%	0	-
	Back	0	0%	0	-
	Other includes, Bike, Ped, Motorcycle	0	0%	0	-
	Total	**10**	**100%**	**0**	**-**

Baldwin Road & Morgan Road	Single	5	28%	0	-
	Head-on	0	0%	0	-
	Angle	2	11%	0	-
	Rear-end	6	33%	0	-
	Sideswipe	5	28%	0	-
	Back	0	0%	0	-
	Other includes, Bike, Ped, Motorcycle	0	0%	0	-
	Total	**18**	**100%**	**0**	**-**
Baldwin Road & Jordan Road	Single	0	0%	0	-
	Head-on	0	0%	0	-
	Angle	0	0%	0	-
	Rear-end	4	57%	0	-
	Sideswipe	3	43%	0	-
	Back	0	0%	0	-
	Other includes, Bike, Ped, Motorcycle	0	0%	0	-
	Total	**7**	**100%**	**0**	**-**
Baldwin Road & Brown Road	Single	4	4%	0	0%
	Head-on	6	5%	2	29%
	Angle	20	18%	2	29%
	Rear-end	46	41%	3	42%
	Sideswipe	36	32%	0	0%
	Back	0	0%	0	0%
	Other includes, Bike, Ped, Motorcycle	0	0%	0	0%
	Total	**112**	**100%**	**7**	**100%**

Note: KAB Crashes are fatal and severe crashes as noted by the KABCO scale: K= fatal crash, A=incapacitating injury, B=non-incapacitating injury, C=possible injury, and O= no injury.

Within the last 5 years 166 crashes have occurred at the study intersections. 9 crashes resulted in an injury, with 11 people being injured.

9.0 RIGHT TURN DECELERATION LANE WARRANT

An analysis for a right-turn lane or taper requirement was conducted for the proposed drives located on Baldwin Road. The current speed limit on Baldwin Road is 45 miles per hour.

The Warrant for Right Turn Deceleration Lane published by the Michigan Department of Transportation (MDOT) was utilized for this analysis. This analysis considers the peak hour directional traffic volumes and the peak hour right turns. **Figure 9.1, 9.2, and 9.3**, below, shows the MDOT graphs with the projected build volumes of each driveway.

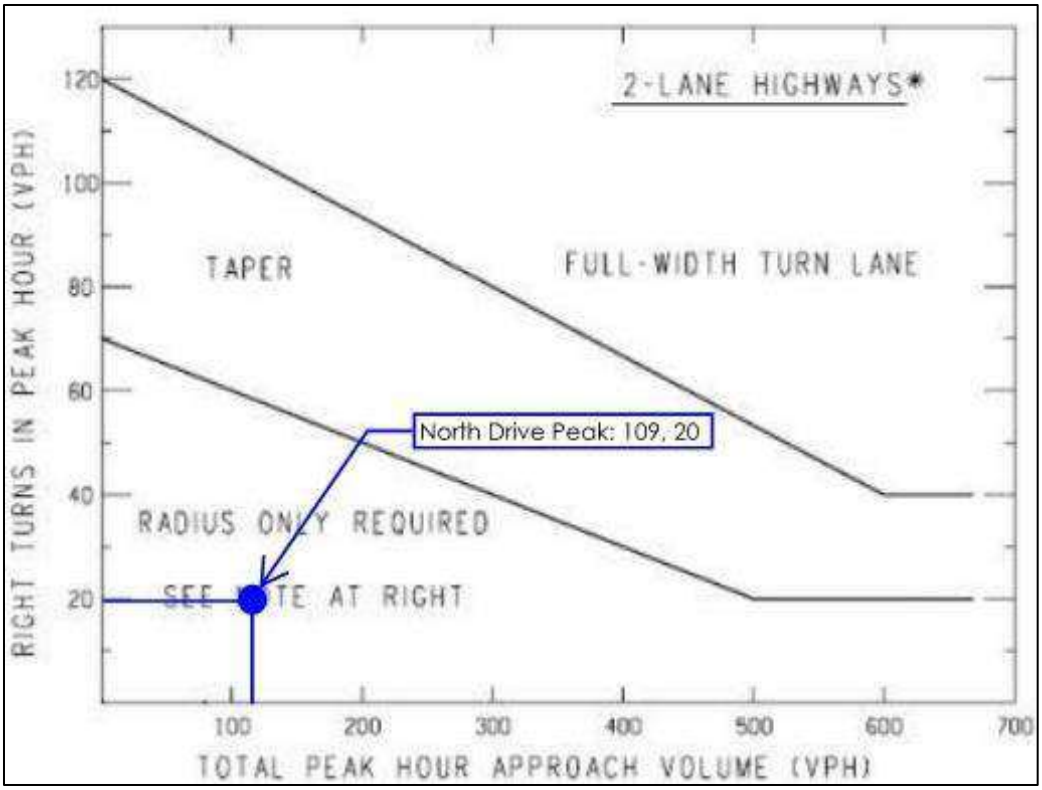


Figure 9.1 – North Driveway Right-Turn Lane/Taper Analysis

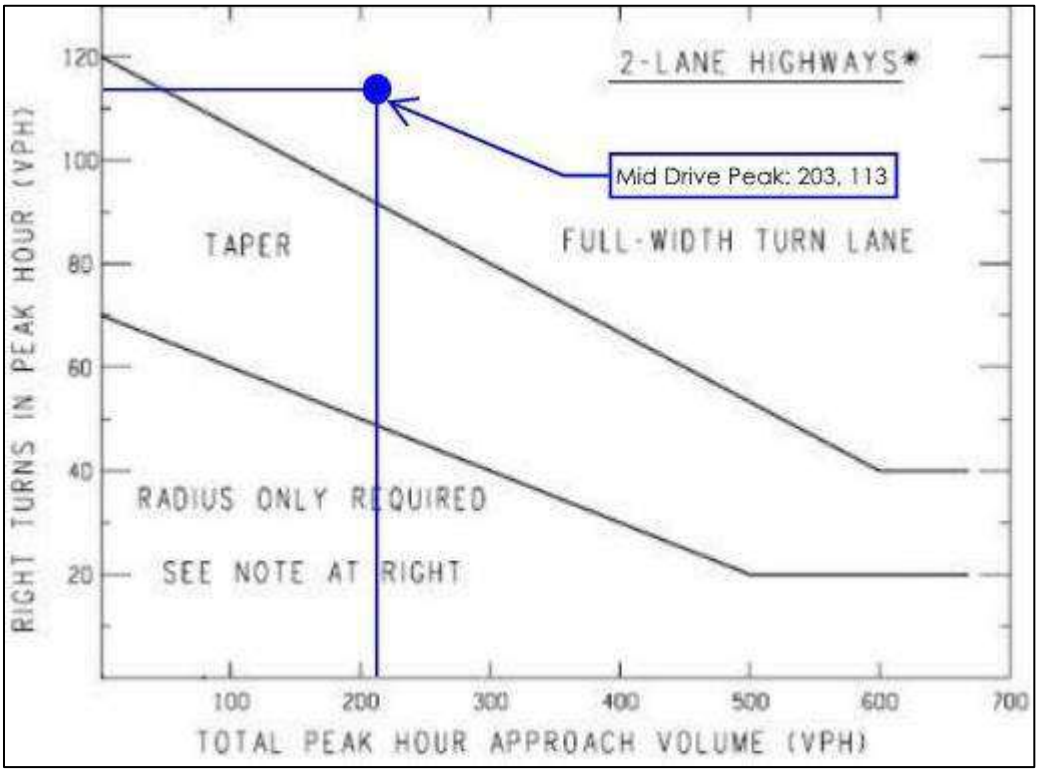


Figure 9.2 – Mid Driveway Right-Turn Lane/Taper Analysis

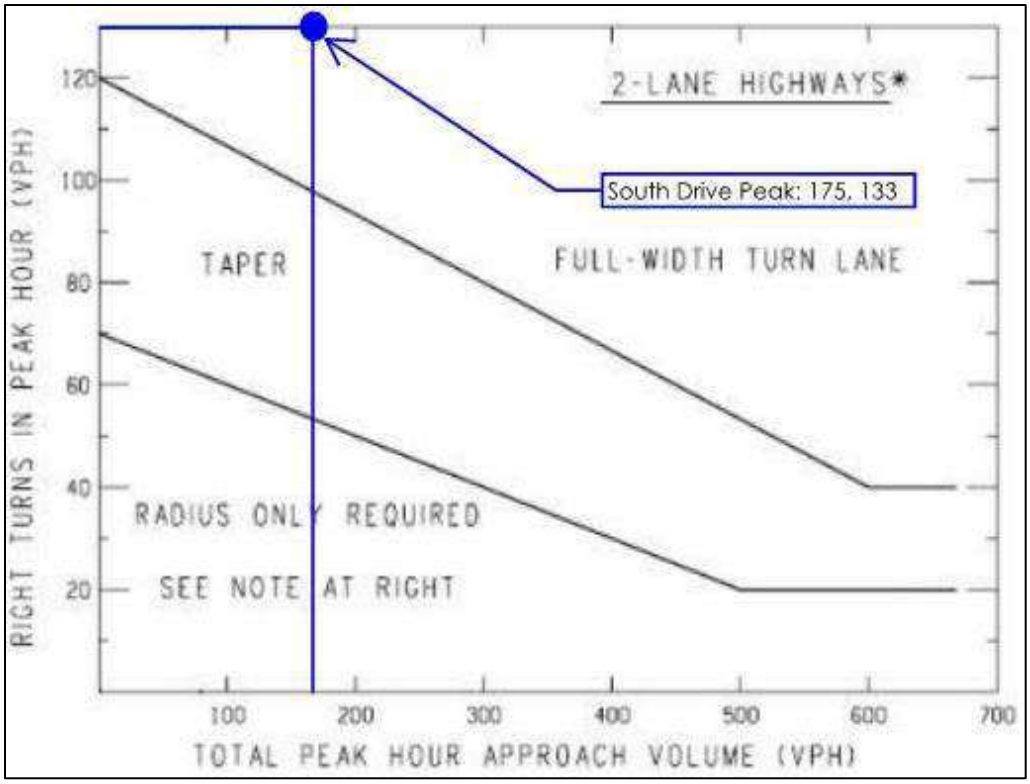


Figure 9.3 – South Driveway Right-Turn Lane/Taper Analysis

The results of the analysis concluded that a full-width right-turn lane is warranted for the mid and south driveway and no right-turn treatment is required for the north driveway.

11.0 CONCLUSION AND RECOMMENDATIONS

Traffic counts were taken on May 10, 2022 to obtain the existing conditions of the study site. The existing conditions were simulated in Synchro11 and the level of service was calculated. The existing conditions concluded that most of the intersections have an acceptable level of service, with the exception of Baldwin Road & Brown Road and Baldwin Road & Baldwin Commons – East Side.

The background data was calculated by applying a growth rate of 1.69% (0.21% per year) to project the traffic volumes to the horizon year of 2030. Additional proposed developments within the study area were added to the background traffic.

Analysis of the background conditions indicate that most of the study intersections operate at an acceptable level of service, with the exception of the northbound approach of Baldwin Road & Baldwin Commons – East Side and the overall intersection of Baldwin Road & Brown Road. The background traffic conditions were simulated, utilizing SimTraffic11 and Rodel, and were analyzed for queue lengths. The analysis resulted in no significant queues.

Two alternatives were evaluated for this study. Alternative A is based on Baldwin Village being developed and making no changes to the existing roadway network. Alternative B includes a proposed northbound to southbound crossover on Baldwin Road, south of the roundabout. Alternative B provides an additional access point to the development for northbound traffic, and is considered the mitigation alternative.

Analysis of the build conditions for Alternative A indicate that most of the study intersections operate at an acceptable level of service, with the exception of (excluding the intersections failing in the existing conditions) the northbound approach at the Baldwin Road and Judah Road roundabout.

Right turn lane deceleration warrant were conducted for the three (3) entry driveways. A full-width right turn lane is warranted for the mid driveway and the south driveway. The north driveway does not warrant a right-turn treatment.

To reduce delay and improve the LOS and queue length, it is recommended that Alternative B is implemented as a mitigation strategy. The analysis of Alternative B resulted in no additional failing intersections, and a shorter queue length at the northbound approach of the Baldwin Road & Judah Road roundabout. The proposed crossover will have approximately 300-foot storage, and a 75-foot taper. The proposed design of the crossover can be found in **Figure 11.1**. The proposed west leg of the roundabout is shown below in **Figure 11.2**.

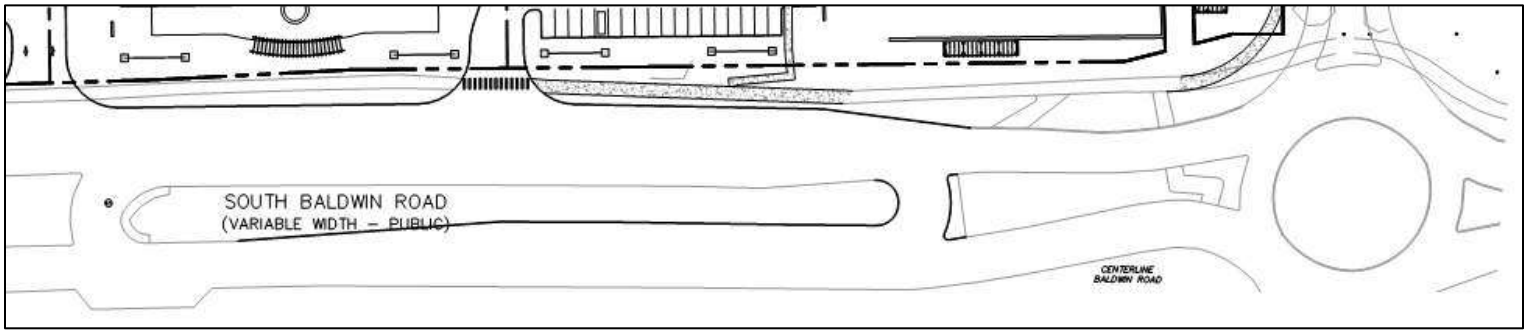


Figure 11.1 – Proposed Crossover

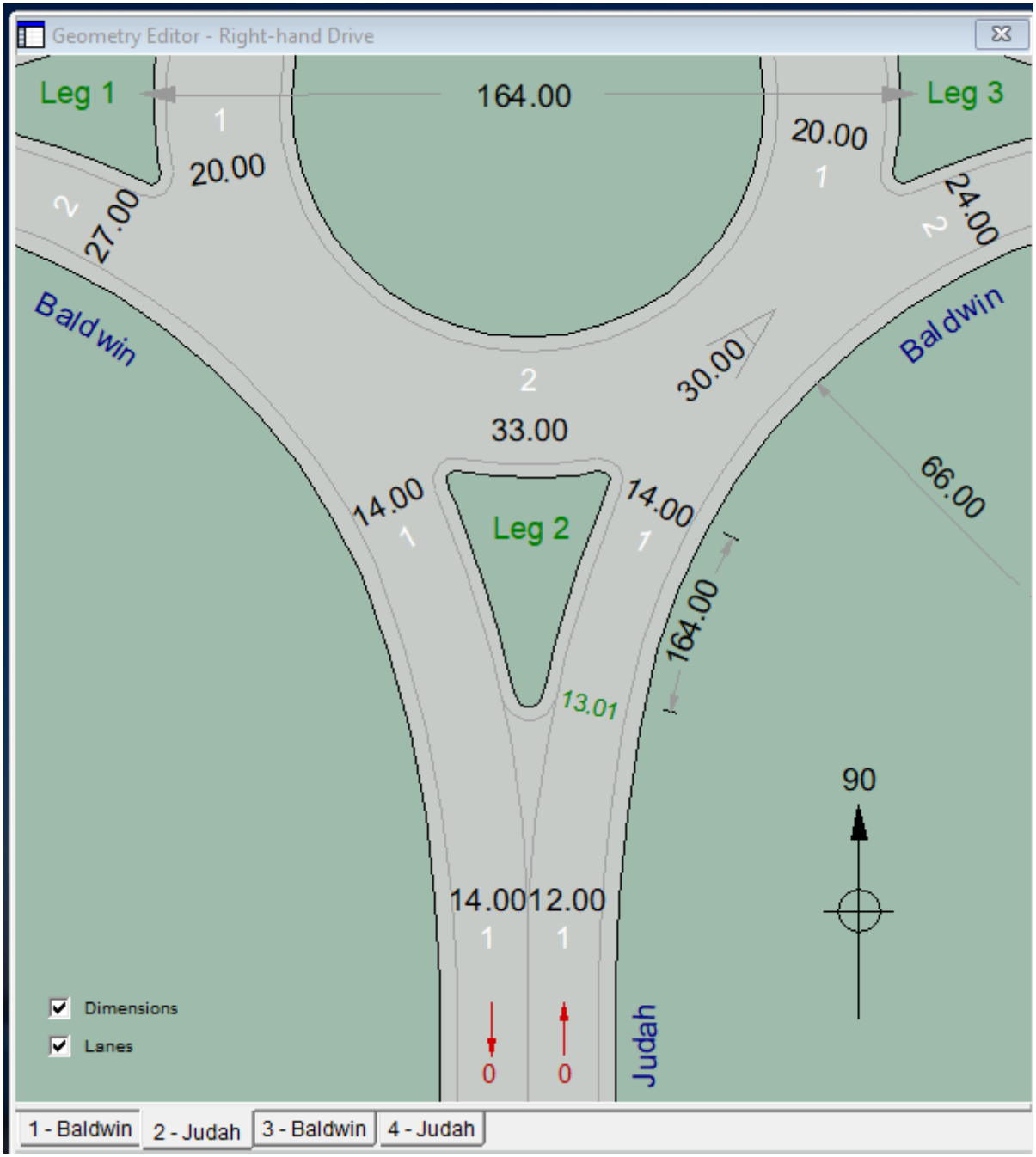


Figure 11.2 – Proposed West Leg: Baldwin & Judah Roundabout

APPENDIX A: EXISTING DATA COLLECTED

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU8EY SW, SCU5RA NW & SCU5DV NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_1 Judah & Baldwin Roundabout_5-10-22
Site Code: TMC_1
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 1

Turning Movement Data

Start Time	Baldwin Road Southbound						Judah Road Westbound						Baldwin Road Northbound						Field Driveway Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
7:00 AM	0	226	1	1	0	228	1	0	2	0	0	3	0	54	0	1	0	55	0	0	0	0	0	0	286
7:15 AM	0	290	0	0	0	290	2	0	1	0	1	3	0	60	0	0	0	60	0	0	0	0	0	0	353
7:30 AM	0	292	0	0	0	292	3	0	2	0	0	5	2	80	0	0	0	82	0	0	0	0	0	0	379
7:45 AM	0	289	1	0	0	290	1	0	0	0	0	1	0	80	0	1	0	81	0	0	0	0	0	0	372
Hourly Total	0	1097	2	1	0	1100	7	0	5	0	1	12	2	274	0	2	0	278	0	0	0	0	0	0	1390
8:00 AM	0	229	0	1	0	230	0	0	0	0	0	0	0	102	0	0	0	102	0	0	0	0	0	0	332
8:15 AM	0	232	0	0	0	232	1	0	0	0	0	1	3	115	0	0	0	118	0	0	0	0	0	0	351
8:30 AM	0	218	0	1	0	219	4	1	2	0	0	7	1	104	0	0	0	105	0	0	1	0	0	1	332
8:45 AM	0	191	1	1	0	193	0	0	1	0	0	1	2	105	0	0	0	107	0	0	0	0	0	0	301
Hourly Total	0	870	1	3	0	874	5	1	3	0	0	9	6	426	0	0	0	432	0	0	1	0	0	1	1316
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	171	2	1	0	174	3	0	0	0	2	3	6	265	0	0	0	271	0	0	1	0	0	1	449
4:15 PM	0	157	0	2	0	159	5	0	4	0	0	9	2	295	0	0	1	297	0	0	1	0	0	1	466
4:30 PM	0	155	1	1	0	157	3	0	3	0	0	6	0	278	0	0	0	278	0	0	1	0	0	1	442
4:45 PM	0	143	0	4	0	147	6	0	1	0	0	7	5	312	0	0	2	317	0	0	2	0	0	2	473
Hourly Total	0	626	3	8	0	637	17	0	8	0	2	25	13	1150	0	0	3	1163	0	0	5	0	0	5	1830
5:00 PM	0	187	1	3	0	191	3	0	2	0	1	5	4	334	0	0	0	338	0	0	1	0	0	1	535
5:15 PM	0	171	3	2	0	176	2	1	3	0	3	6	4	355	0	0	0	359	0	0	1	0	0	1	542
5:30 PM	0	185	2	2	0	189	3	1	1	0	1	5	3	288	0	0	0	291	0	0	0	0	0	0	485
5:45 PM	0	142	3	0	0	145	4	0	8	0	5	12	2	285	0	2	0	289	0	0	0	0	0	0	446
Hourly Total	0	685	9	7	0	701	12	2	14	0	10	28	13	1262	0	2	0	1277	0	0	2	0	0	2	2008
Grand Total	0	3278	15	19	0	3312	41	3	30	0	13	74	34	3112	0	4	3	3150	0	0	8	0	0	8	6544
Approach %	0.0	99.0	0.5	0.6	-	-	55.4	4.1	40.5	0.0	-	-	1.1	98.8	0.0	0.1	-	-	0.0	0.0	100.0	0.0	-	-	-
Total %	0.0	50.1	0.2	0.3	-	50.6	0.6	0.0	0.5	0.0	-	1.1	0.5	47.6	0.0	0.1	-	48.1	0.0	0.0	0.1	0.0	-	0.1	-
Lights	0	3208	13	19	-	3240	39	3	29	0	-	71	32	3061	0	4	-	3097	0	0	8	0	-	8	6416
% Lights	-	97.9	86.7	100.0	-	97.8	95.1	100.0	96.7	-	-	95.9	94.1	98.4	-	100.0	-	98.3	-	-	100.0	-	-	100.0	98.0
Buses	0	8	0	0	-	8	0	0	0	0	-	0	0	5	0	0	-	5	0	0	0	0	-	0	13
% Buses	-	0.2	0.0	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.2	-	0.0	-	0.2	-	-	0.0	-	-	0.0	0.2
Single-Unit Trucks	0	46	1	0	-	47	2	0	1	0	-	3	2	34	0	0	-	36	0	0	0	0	-	0	86
% Single-Unit Trucks	-	1.4	6.7	0.0	-	1.4	4.9	0.0	3.3	-	-	4.1	5.9	1.1	-	0.0	-	1.1	-	-	0.0	-	-	0.0	1.3
Articulated Trucks	0	16	1	0	-	17	0	0	0	0	-	0	0	12	0	0	-	12	0	0	0	0	-	0	29
% Articulated Trucks	-	0.5	6.7	0.0	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.4	-	0.0	-	0.4	-	-	0.0	-	-	0.0	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	23.1	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	76.9	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-

Traffic Data Collection

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

05/10/2022 7:00 AM
Ending At
05/10/2022 6:00 PM

Lights
Buses
Single-Unit Trucks
Articulated Trucks
Other

Baldwin Road [SB]

Out	In	Total
3127	3240	6367
5	8	13
36	47	83
12	17	29
0	0	0
3180	**3312**	**6492**

R	T	L	U	P
0	3208	13	19	0
0	8	0	0	0
0	46	1	0	0
0	16	1	0	0
0	0	0	0	0
0	**3278**	**15**	**19**	**0**

Field Driveway [EB]

Out	In	Total
3	8	11
0	0	0
0	0	0
0	0	0
0	0	0
3	**8**	**11**

U	L	T	R	P
0	8	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	**8**	**0**	**0**	**0**

Judah Road [WB]

Out	In	Total
45	71	116
0	0	0
3	3	6
1	0	1
0	0	0
49	**74**	**123**

R	T	L	U	P
39	3	29	0	0
0	0	0	0	0
2	0	1	0	0
0	0	0	0	0
0	0	0	0	13
41	**3**	**30**	**0**	**13**

Baldwin Road [NB]

U	L	T	R	P
4	0	3061	32	0
0	0	5	0	0
0	0	34	2	0
0	0	12	0	0
0	0	0	0	3
4	**0**	**3112**	**34**	**3**

Out	In	Total
3241	3097	6338
8	5	13
47	36	83
16	12	28
0	0	0
3312	**3150**	**6462**

Turning Movement Data Plot

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU8EY SW, SCU5RA NW & SCU5DV NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_1 Judah & Baldwin Roundabout_5-10-22
Site Code: TMC_1
Traffic Data Collection, LLC
Start Date: 05/10/2022

Approach Data

Start Time	Sb Street Southbound						Wb Street Westbound						Nb Street Northbound						Eb Street Eastbound					
	Peds CCW	Peds CW	Circulating	Out	In	Next	Peds CCW	Peds CW	Circulating	Out	In	Next	Peds CCW	Peds CW	Circulating	Out	In	Next	Peds CCW	Peds CW	Circulating	Out	In	Next
7:00 AM	0	0	3	56	227	0	0	0	56	1	3	2	0	0	2	229	55	54	0	0	230	0	0	0
7:15 AM	0	0	1	63	289	0	1	0	62	0	3	1	0	0	0	292	62	60	0	0	290	0	0	0
7:30 AM	0	0	2	83	292	0	0	0	81	2	5	2	0	0	1	295	83	80	0	0	294	0	0	0
7:45 AM	0	0	1	83	289	0	0	0	82	1	1	0	0	0	1	290	82	80	0	0	290	0	0	0
Hourly Total	0	0	7	285	1097	0	1	0	281	4	12	5	0	0	4	1106	282	274	0	0	1104	0	0	0
8:00 AM	0	0	0	104	230	0	0	0	101	0	0	0	0	0	0	228	101	102	0	0	230	0	0	0
8:15 AM	0	0	1	116	233	0	0	0	116	3	1	0	0	0	0	233	119	115	0	0	233	0	0	0
8:30 AM	0	0	3	111	219	0	0	0	105	1	7	2	0	0	2	220	105	104	0	0	221	1	1	0
8:45 AM	0	0	1	107	193	0	0	0	107	2	1	1	0	0	1	192	108	105	0	0	194	0	0	0
Hourly Total	0	0	5	438	875	0	0	0	429	6	9	3	0	0	3	873	433	426	0	0	878	1	1	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	271	174	0	1	1	264	8	3	0	0	0	2	172	270	265	0	0	174	0	0	0
4:15 PM	0	0	5	308	160	0	0	0	291	3	8	4	0	1	2	162	293	295	0	0	164	0	0	0
4:30 PM	0	0	2	285	155	0	0	0	277	2	5	3	0	0	3	160	276	278	0	0	157	0	0	0
4:45 PM	0	0	1	331	147	0	0	0	306	6	7	1	0	2	2	144	310	312	0	0	148	0	0	0
Hourly Total	0	0	8	1195	636	0	1	1	1138	19	23	8	0	3	9	638	1149	1150	0	0	643	0	0	0
5:00 PM	0	0	2	345	192	0	1	0	333	6	4	2	0	0	4	189	335	334	0	0	194	0	0	0
5:15 PM	0	0	4	362	177	0	1	2	353	7	6	3	0	0	5	175	356	355	0	0	181	1	0	0
5:30 PM	0	0	2	294	191	0	0	1	289	4	5	1	0	0	2	184	291	288	0	0	193	0	0	0
5:45 PM	0	0	10	289	145	0	3	2	288	5	12	8	0	0	3	152	290	285	0	0	156	0	0	0
Hourly Total	0	0	18	1290	705	0	5	5	1263	22	27	14	0	0	14	700	1272	1262	0	0	724	1	0	0
Grand Total	0	0	38	3208	3313	0	7	6	3111	51	71	30	0	3	30	3317	3136	3112	0	0	3349	2	1	0
Approach %	-	-	0.6	48.9	50.5	0.0	-	-	95.3	1.6	2.2	0.9	-	-	0.3	34.6	32.7	32.4	-	-	99.9	0.1	0.0	0.0
Total %	-	-	0.2	14.1	14.6	0.0	-	-	13.7	0.2	0.3	0.1	-	-	0.1	14.6	13.8	13.7	-	-	14.7	0.0	0.0	0.0
Lights	-	-	37	3152	3238	0	-	-	3052	48	68	29	-	-	29	3242	3075	3061	-	-	3273	2	1	0
% Lights	-	-	97.4	98.3	97.7	-	-	-	98.1	94.1	95.8	96.7	-	-	96.7	97.7	98.1	98.4	-	-	97.7	100.0	100.0	-
Buses	-	-	0	5	8	0	-	-	5	0	0	0	-	-	0	8	5	5	-	-	8	0	0	0
% Buses	-	-	0.0	0.2	0.2	-	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.2	0.2	0.2	-	-	0.2	0.0	0.0	-
Single-Unit Trucks	-	-	1	36	47	0	-	-	40	3	3	1	-	-	1	53	42	34	-	-	48	0	0	0
% Single-Unit Trucks	-	-	2.6	1.1	1.4	-	-	-	1.3	5.9	4.2	3.3	-	-	3.3	1.6	1.3	1.1	-	-	1.4	0.0	0.0	-
Articulated Trucks	-	-	0	15	20	0	-	-	14	0	0	0	-	-	0	14	14	12	-	-	20	0	0	0
% Articulated Trucks	-	-	0.0	0.5	0.6	-	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.4	0.4	0.4	-	-	0.6	0.0	0.0	-
Bicycles on Road	-	-	0	0	0	0	-	-	0	0	0	0	-	-	0	0	0	0	-	-	0	0	0	0
% Bicycles on Road	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-
Bicycles on Crosswalk	0	0	-	-	-	-	3	0	-	-	-	-	0	3	-	-	-	-	0	0	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	42.9	0.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-
Pedestrians	0	0	-	-	-	-	4	6	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-
% Pedestrians	-	-	-	-	-	-	57.1	100.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU8EY SW, SCU5RA NW & SCU5DV NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_1 Judah & Baldwin Roundabout_5-10-22
Site Code: TMC_1
Traffic Data Collection, LLC
Start Date: 05/10/2022

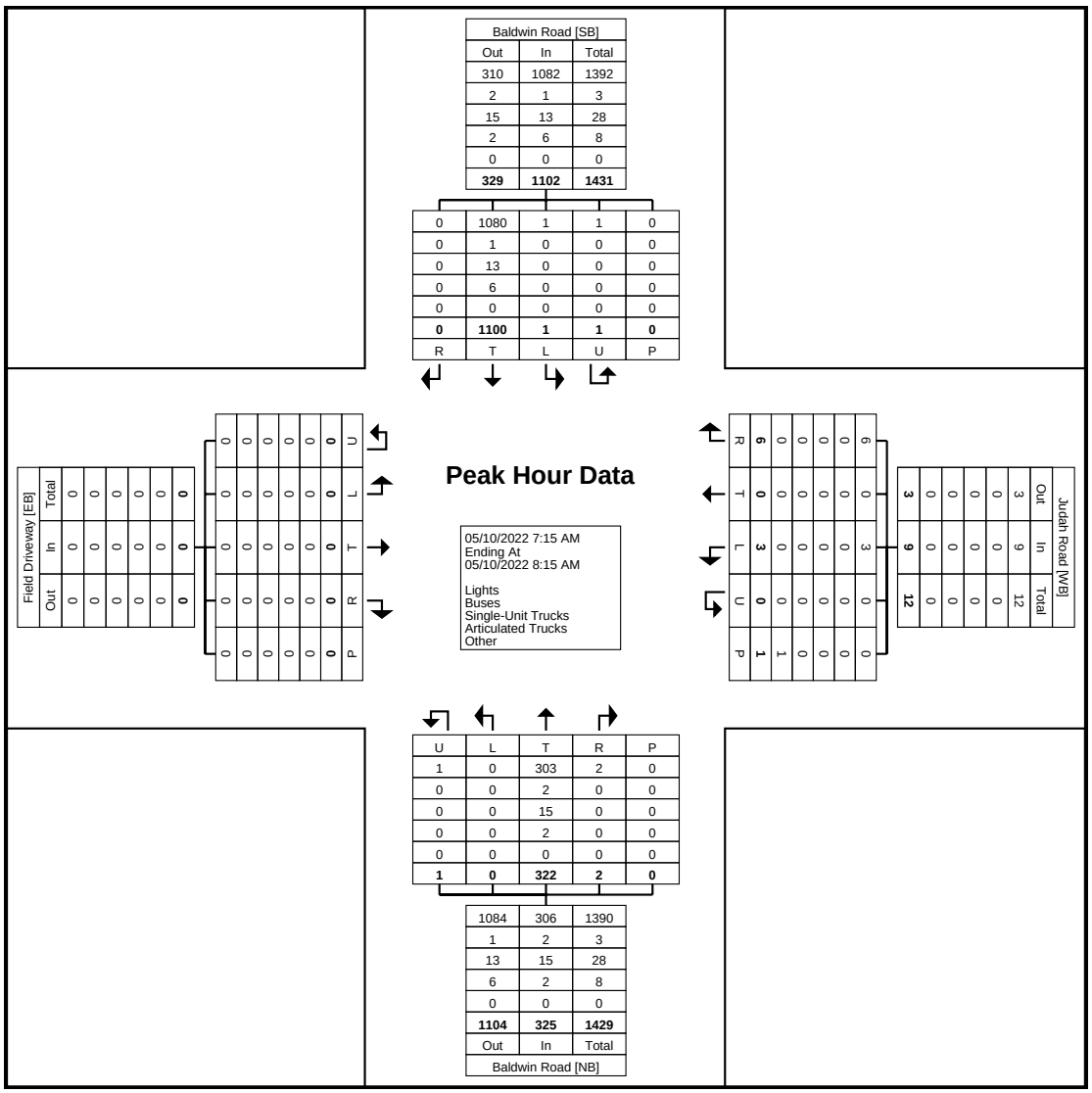
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Baldwin Road Southbound						Judah Road Westbound						Baldwin Road Northbound						Field Driveway Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
7:15 AM	0	290	0	0	0	290	2	0	1	0	1	3	0	60	0	0	0	60	0	0	0	0	0	0	353
7:30 AM	0	292	0	0	0	292	3	0	2	0	0	5	2	80	0	0	0	82	0	0	0	0	0	0	379
7:45 AM	0	289	1	0	0	290	1	0	0	0	0	1	0	80	0	1	0	81	0	0	0	0	0	0	372
8:00 AM	0	229	0	1	0	230	0	0	0	0	0	0	0	102	0	0	0	102	0	0	0	0	0	0	332
Total	0	1100	1	1	0	1102	6	0	3	0	1	9	2	322	0	1	0	325	0	0	0	0	0	0	1436
Approach %	0.0	99.8	0.1	0.1	-	-	66.7	0.0	33.3	0.0	-	-	0.6	99.1	0.0	0.3	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	0.0	76.6	0.1	0.1	-	76.7	0.4	0.0	0.2	0.0	-	0.6	0.1	22.4	0.0	0.1	-	22.6	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.942	0.250	0.250	-	0.943	0.500	0.000	0.375	0.000	-	0.450	0.250	0.789	0.000	0.250	-	0.797	0.000	0.000	0.000	0.000	-	0.000	0.947
Lights	0	1080	1	1	-	1082	6	0	3	0	-	9	2	303	0	1	-	306	0	0	0	0	-	0	1397
% Lights	-	98.2	100.0	100.0	-	98.2	100.0	-	100.0	-	-	100.0	100.0	94.1	-	100.0	-	94.2	-	-	-	-	-	-	97.3
Buses	0	1	0	0	-	1	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	3
% Buses	-	0.1	0.0	0.0	-	0.1	0.0	-	0.0	-	-	0.0	0.0	0.6	-	0.0	-	0.6	-	-	-	-	-	-	0.2
Single-Unit Trucks	0	13	0	0	-	13	0	0	0	0	-	0	0	15	0	0	-	15	0	0	0	0	-	0	28
% Single-Unit Trucks	-	1.2	0.0	0.0	-	1.2	0.0	-	0.0	-	-	0.0	0.0	4.7	-	0.0	-	4.6	-	-	-	-	-	-	1.9
Articulated Trucks	0	6	0	0	-	6	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	8
% Articulated Trucks	-	0.5	0.0	0.0	-	0.5	0.0	-	0.0	-	-	0.0	0.0	0.6	-	0.0	-	0.6	-	-	-	-	-	-	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU8EY SW, SCU5RA NW & SCU5DV NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_1 Judah & Baldwin Roundabout_5-10-22
Site Code: TMC_1
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 5



Turning Movement Peak Hour Data Plot (7:15 AM)

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU8EY SW, SCU5RA NW & SCU5DV NE

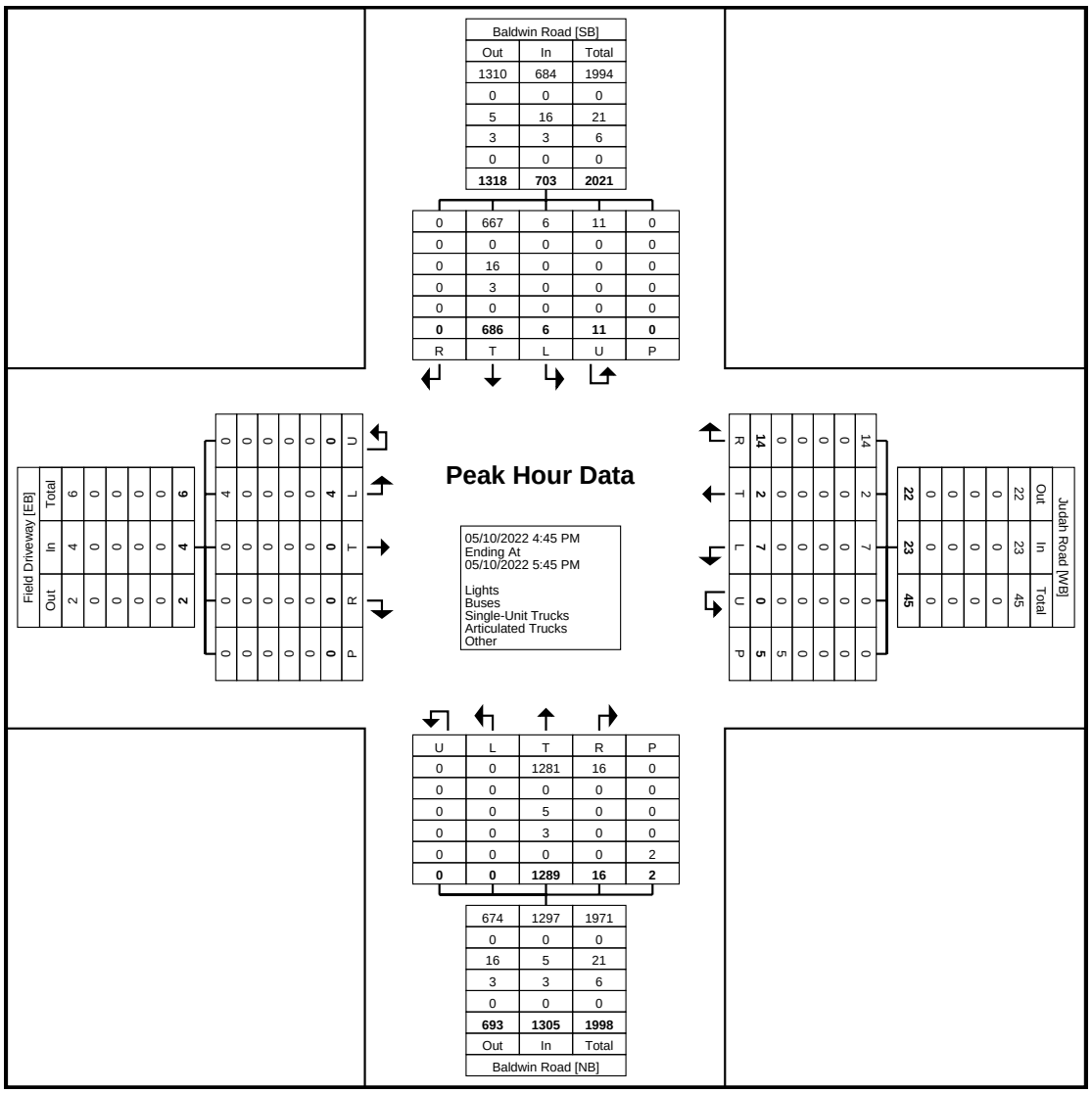
Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_1 Judah & Baldwin Roundabout_5-10-22
Site Code: TMC_1
Traffic Data Collection, LLC
Start Date: 05/10/2022

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Baldwin Road Southbound						Judah Road Westbound						Baldwin Road Northbound						Field Driveway Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
4:45 PM	0	143	0	4	0	147	6	0	1	0	0	7	5	312	0	0	2	317	0	0	2	0	0	2	473
5:00 PM	0	187	1	3	0	191	3	0	2	0	1	5	4	334	0	0	0	338	0	0	1	0	0	1	535
5:15 PM	0	171	3	2	0	176	2	1	3	0	3	6	4	355	0	0	0	359	0	0	1	0	0	1	542
5:30 PM	0	185	2	2	0	189	3	1	1	0	1	5	3	288	0	0	0	291	0	0	0	0	0	0	485
Total	0	686	6	11	0	703	14	2	7	0	5	23	16	1289	0	0	2	1305	0	0	4	0	0	4	2035
Approach %	0.0	97.6	0.9	1.6	-	-	60.9	8.7	30.4	0.0	-	-	1.2	98.8	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	-
Total %	0.0	33.7	0.3	0.5	-	34.5	0.7	0.1	0.3	0.0	-	1.1	0.8	63.3	0.0	0.0	-	64.1	0.0	0.0	0.2	0.0	-	0.2	-
PHF	0.000	0.917	0.500	0.688	-	0.920	0.583	0.500	0.583	0.000	-	0.821	0.800	0.908	0.000	0.000	-	0.909	0.000	0.000	0.500	0.000	-	0.500	0.939
Lights	0	667	6	11	-	684	14	2	7	0	-	23	16	1281	0	0	-	1297	0	0	4	0	-	4	2008
% Lights	-	97.2	100.0	100.0	-	97.3	100.0	100.0	100.0	-	-	100.0	100.0	99.4	-	-	-	99.4	-	-	100.0	-	-	100.0	98.7
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	16	0	0	-	16	0	0	0	0	-	0	0	5	0	0	-	5	0	0	0	0	-	0	21
% Single-Unit Trucks	-	2.3	0.0	0.0	-	2.3	0.0	0.0	0.0	-	-	0.0	0.0	0.4	-	-	-	0.4	-	-	0.0	-	-	0.0	1.0
Articulated Trucks	0	3	0	0	-	3	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	6
% Articulated Trucks	-	0.4	0.0	0.0	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.2	-	-	-	0.2	-	-	0.0	-	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	20.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	80.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data



Turning Movement Peak Hour Data Plot (4:45 PM)

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

TDC Traffic Comments: 4 hour video multi-modal intersection vehicle classification turning movement count conducted during typical weekday (Tuesday) from 7:00-9:00 AM morning & 4:00-6:00 PM afternoon peak hours, while school was in session. Daily peak hour reports provided for morning & afternoon peak hour study periods.

TMC was performed with Miovision video VCU scout recording cameras for Kalama Wolf In Binden Sheep, Lake Orion Traffic Impact Study for AEW.
Roundabout yield controlled intersection. Push button HAWK ped. signals for SB & NB Baldwin legs. Baldwin Road is a divided roadway south of intersection. VCU cameras were located within SE, NW &NE intersection quadrants. All intersection shared video files have been uploaded to Miovision DataLink cloud platform.

Classification Summary Details & Percentages: Six (6) Groupings:
1) Lights Includes: FHWA Classes 1-3 (Motorcycles, Pick Up Trucks, Vans, Light Goods Vehicles)
2) Buses Includes: FHWA Class 4 (School Buses & Regional Transportation Metro Buses)
3) Single-Unit Trucks Includes: FHWA Classes 5-7 (2-4 Axle SU Medium Trucks)
4) Articulated Trucks Includes: FHWA Classes 8-12 (Heavy Trucks W/Single & Multi Unit Trailers)
5) Bicycles On Road Includes: All bicycles on the roadway
6) Bicycles On Crosswalk Includes: All bicycles using sidewalk
7) Pedestrians Includes: All pedestrians using crosswalk

TMC_1 Judah & Baldwin Roundabout_5-10-22 - TMC

Tue May 10, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948428, Location: 42.715226, -83.307533, Site Code: TMC_1 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

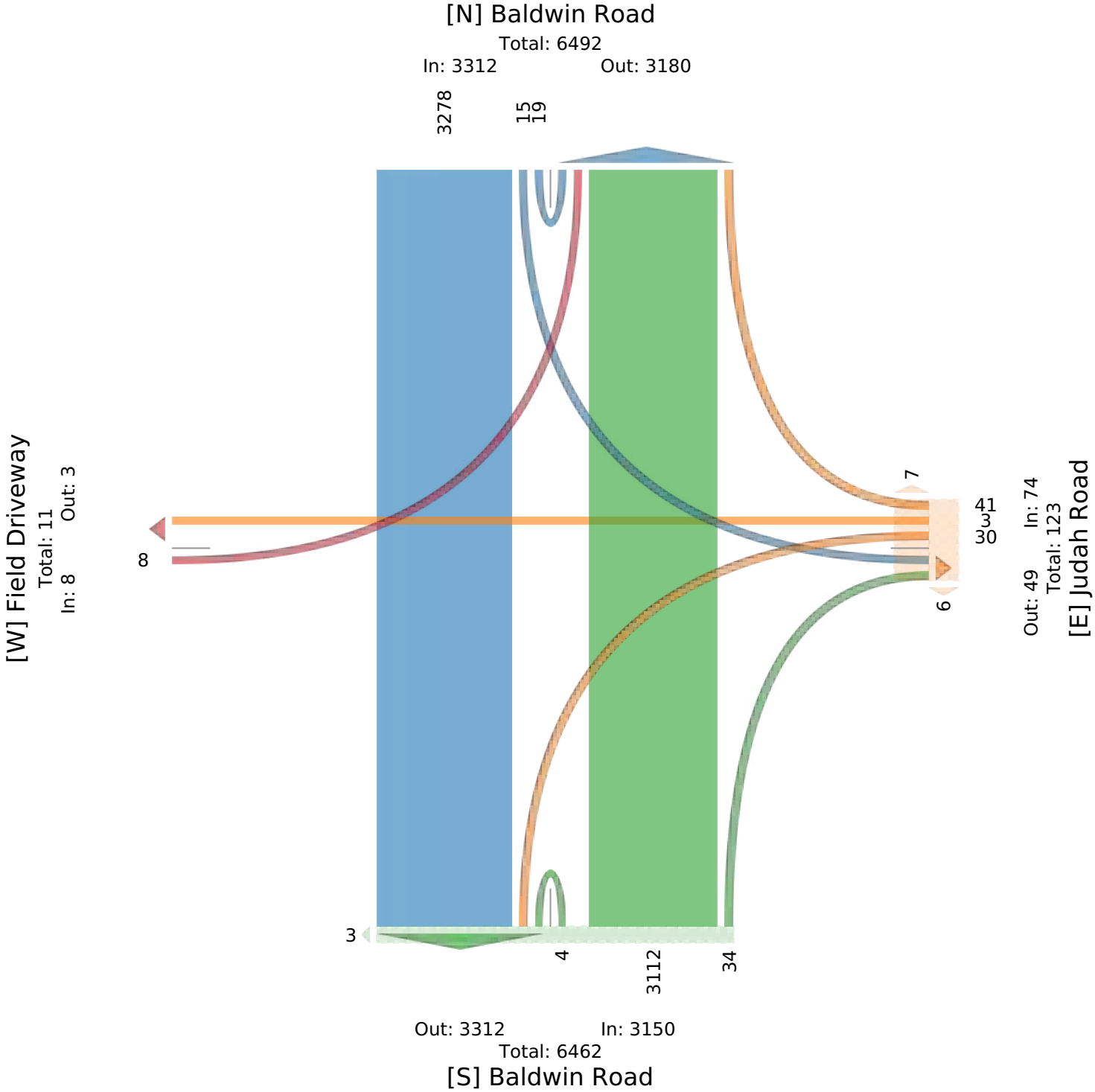
Leg	Baldwin Road						Judah Road						Baldwin Road						Field Driveway						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-05-10 7:00AM	0	226	1	1	**228**	0	1	0	2	0	**3**	0	0	54	0	1	**55**	0	0	0	0	0	**0**	0	**286**
7:15AM	0	290	0	0	**290**	0	2	0	1	0	**3**	1	0	60	0	0	**60**	0	0	0	0	0	**0**	0	**353**
7:30AM	0	292	0	0	**292**	0	3	0	2	0	**5**	0	2	80	0	0	**82**	0	0	0	0	0	**0**	0	**379**
7:45AM	0	289	1	0	**290**	0	1	0	0	0	**1**	0	0	80	0	1	**81**	0	0	0	0	0	**0**	0	**372**
Hourly Total	0	1097	2	1	**1100**	0	7	0	5	0	**12**	1	2	274	0	2	**278**	0	0	0	0	0	**0**	0	**1390**
8:00AM	0	229	0	1	**230**	0	0	0	0	0	**0**	0	0	102	0	0	**102**	0	0	0	0	0	**0**	0	**332**
8:15AM	0	232	0	0	**232**	0	1	0	0	0	**1**	0	3	115	0	0	**118**	0	0	0	0	0	**0**	0	**351**
8:30AM	0	218	0	1	**219**	0	4	1	2	0	**7**	0	1	104	0	0	**105**	0	0	0	1	0	**1**	0	**332**
8:45AM	0	191	1	1	**193**	0	0	0	1	0	**1**	0	2	105	0	0	**107**	0	0	0	0	0	**0**	0	**301**
Hourly Total	0	870	1	3	**874**	0	5	1	3	0	**9**	0	6	426	0	0	**432**	0	0	0	1	0	**1**	0	**1316**
4:00PM	0	171	2	1	**174**	0	3	0	0	0	**3**	2	6	265	0	0	**271**	0	0	0	1	0	**1**	0	**449**
4:15PM	0	157	0	2	**159**	0	5	0	4	0	**9**	0	2	295	0	0	**297**	1	0	0	1	0	**1**	0	**466**
4:30PM	0	155	1	1	**157**	0	3	0	3	0	**6**	0	0	278	0	0	**278**	0	0	0	1	0	**1**	0	**442**
4:45PM	0	143	0	4	**147**	0	6	0	1	0	**7**	0	5	312	0	0	**317**	2	0	0	2	0	**2**	0	**473**
Hourly Total	0	626	3	8	**637**	0	17	0	8	0	**25**	2	13	1150	0	0	**1163**	3	0	0	5	0	**5**	0	**1830**
5:00PM	0	187	1	3	**191**	0	3	0	2	0	**5**	1	4	334	0	0	**338**	0	0	0	1	0	**1**	0	**535**
5:15PM	0	171	3	2	**176**	0	2	1	3	0	**6**	3	4	355	0	0	**359**	0	0	0	1	0	**1**	0	**542**
5:30PM	0	185	2	2	**189**	0	3	1	1	0	**5**	1	3	288	0	0	**291**	0	0	0	0	0	**0**	0	**485**
5:45PM	0	142	3	0	**145**	0	4	0	8	0	**12**	5	2	285	0	2	**289**	0	0	0	0	0	**0**	0	**446**
Hourly Total	0	685	9	7	**701**	0	12	2	14	0	**28**	10	13	1262	0	2	**1277**	0	0	0	2	0	**2**	0	**2008**
Total	0	3278	15	19	**3312**	0	41	3	30	0	**74**	13	34	3112	0	4	**3150**	3	0	0	8	0	**8**	0	**6544**
% Approach	0%	99.0%	0.5%	0.6%	**-**	-	55.4%	4.1%	40.5%	0%	**-**	-	1.1%	98.8%	0%	0.1%	**-**	-	0%	0%	100%	0%	**-**	-	**-**
% Total	0%	50.1%	0.2%	0.3%	**50.6%**	-	0.6%	0%	0.5%	0%	**1.1%**	-	0.5%	47.6%	0%	0.1%	**48.1%**	-	0%	0%	0.1%	0%	**0.1%**	-	**-**
Lights	0	3208	13	19	**3240**	-	39	3	29	0	**71**	-	32	3061	0	4	**3097**	-	0	0	8	0	**8**	-	6416
% Lights	0%	97.9%	86.7%	100%	**97.8%**	-	95.1%	100%	96.7%	0%	**95.9%**	-	94.1%	98.4%	0%	100%	**98.3%**	-	0%	0%	100%	0%	**100%**	-	98.0%
Single-Unit Trucks	0	46	1	0	**47**	-	2	0	1	0	**3**	-	2	34	0	0	**36**	-	0	0	0	0	**0**	-	86
% Single-Unit Trucks	0%	1.4%	6.7%	0%	**1.4%**	-	4.9%	0%	3.3%	0%	**4.1%**	-	5.9%	1.1%	0%	0%	**1.1%**	-	0%	0%	0%	0%	**0%**	-	1.3%
Articulated Trucks	0	16	1	0	**17**	-	0	0	0	0	**0**	-	0	12	0	0	**12**	-	0	0	0	0	**0**	-	29
% Articulated Trucks	0%	0.5%	6.7%	0%	**0.5%**	-	0%	0%	0%	0%	**0%**	-	0%	0.4%	0%	0%	**0.4%**	-	0%	0%	0%	0%	**0%**	-	0.4%
Buses	0	8	0	0	**8**	-	0	0	0	0	**0**	-	0	5	0	0	**5**	-	0	0	0	0	**0**	-	13
% Buses	0%	0.2%	0%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	0%	0.2%	0%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	0.2%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	76.9%	-	-	-	-	-	0%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	23.1%	-	-	-	-	-	100%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

637

TMC_1 Judah & Baldwin Roundabout_5-10-22 - TMC
Tue May 10, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948428, Location: 42.715226, -83.307533, Site Code: TMC_1 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



TMC_1 Judah & Baldwin Roundabout_5-10-22 - TMC

Tue May 10, 2022
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948428, Location: 42.715226, -83.307533, Site Code: TMC_1 Traffic Data Collection, LLC

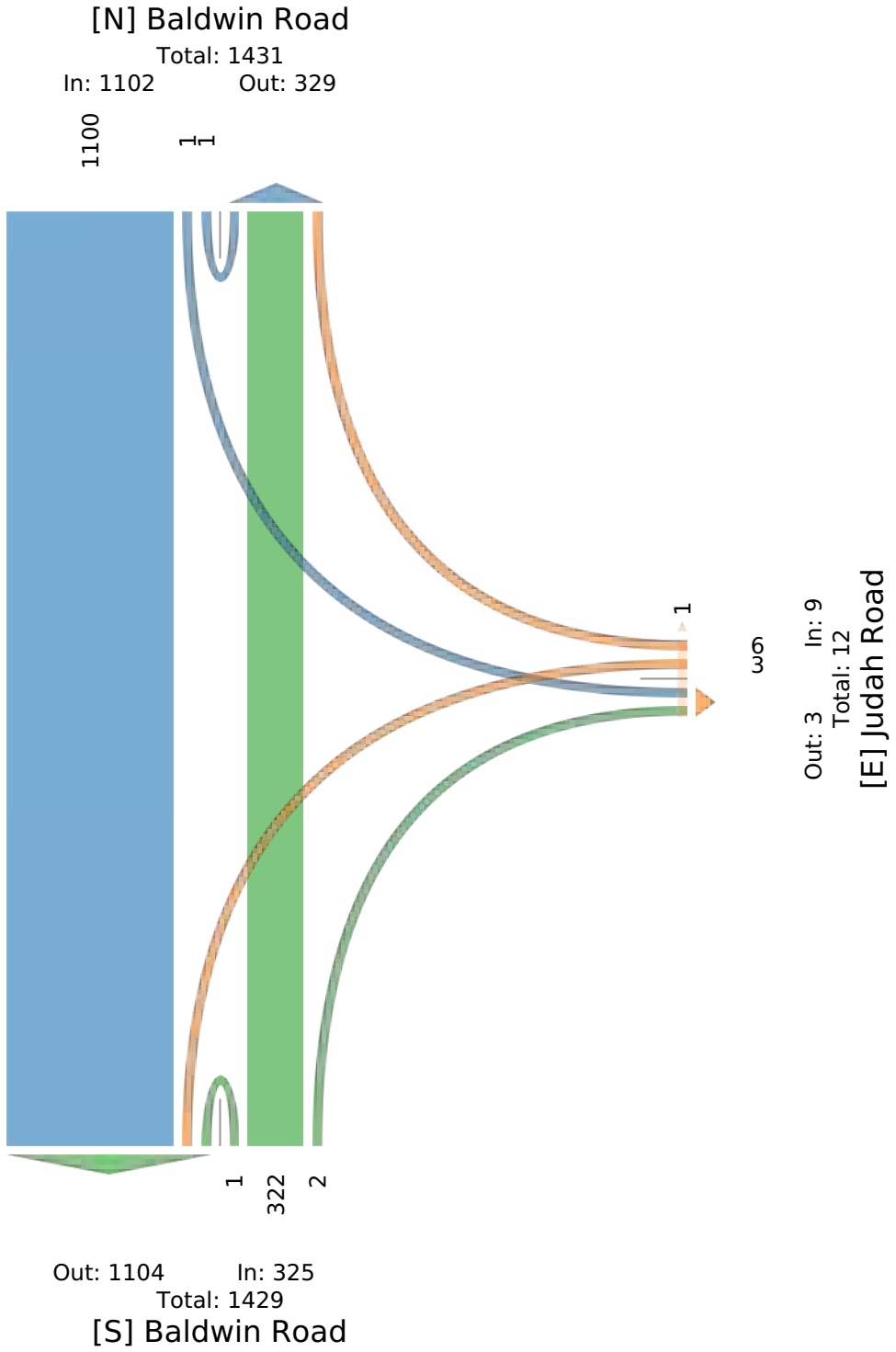
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg	Baldwin Road						Judah Road						Baldwin Road						Field Driveway						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-05-10 7:15AM	0	290	0	0	**290**	0	2	0	1	0	**3**	1	0	60	0	0	**60**	0	0	0	0	0	**0**	0	**353**
7:30AM	0	292	0	0	**292**	0	3	0	2	0	**5**	0	2	80	0	0	**82**	0	0	0	0	0	**0**	0	**379**
7:45AM	0	289	1	0	**290**	0	1	0	0	0	**1**	0	0	80	0	1	**81**	0	0	0	0	0	**0**	0	**372**
8:00AM	0	229	0	1	**230**	0	0	0	0	0	**0**	0	0	102	0	0	**102**	0	0	0	0	0	**0**	0	**332**
Total	0	1100	1	1	**1102**	0	6	0	3	0	**9**	1	2	322	0	1	**325**	0	0	0	0	0	**0**	0	**1436**
% Approach	0%	99.8%	0.1%	0.1%	**-**	-	66.7%	0%	33.3%	0%	**-**	-	0.6%	99.1%	0%	0.3%	**-**	-	0%	0%	0%	0%	**-**	-	-
% Total	0%	76.6%	0.1%	0.1%	**76.7%**	-	0.4%	0%	0.2%	0%	**0.6%**	-	0.1%	22.4%	0%	0.1%	**22.6%**	-	0%	0%	0%	0%	**0%**	-	-
PHF	-	0.942	0.250	0.250	**0.943**	-	0.500	-	0.375	-	**0.450**	-	0.250	0.789	-	0.250	**0.797**	-	-	-	-	-	**-**	-	0.947
Lights	0	1080	1	1	**1082**	-	6	0	3	0	**9**	-	2	303	0	1	**306**	-	0	0	0	0	**0**	-	1397
% Lights	0%	98.2%	100%	100%	**98.2%**	-	100%	0%	100%	0%	**100%**	-	100%	94.1%	0%	100%	**94.2%**	-	0%	0%	0%	0%	**-**	-	97.3%
Single-Unit Trucks	0	13	0	0	**13**	-	0	0	0	0	**0**	-	0	15	0	0	**15**	-	0	0	0	0	**0**	-	28
% Single-Unit Trucks	0%	1.2%	0%	0%	**1.2%**	-	0%	0%	0%	0%	**0%**	-	0%	4.7%	0%	0%	**4.6%**	-	0%	0%	0%	0%	**-**	-	1.9%
Articulated Trucks	0	6	0	0	**6**	-	0	0	0	0	**0**	-	0	2	0	0	**2**	-	0	0	0	0	**0**	-	8
% Articulated Trucks	0%	0.5%	0%	0%	**0.5%**	-	0%	0%	0%	0%	**0%**	-	0%	0.6%	0%	0%	**0.6%**	-	0%	0%	0%	0%	**-**	-	0.6%
Buses	0	1	0	0	**1**	-	0	0	0	0	**0**	-	0	2	0	0	**2**	-	0	0	0	0	**0**	-	3
% Buses	0%	0.1%	0%	0%	**0.1%**	-	0%	0%	0%	0%	**0%**	-	0%	0.6%	0%	0%	**0.6%**	-	0%	0%	0%	0%	**-**	-	0.2%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**-**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

TMC_1 Judah & Baldwin Roundabout_5-10-22 - TMC
Tue May 10, 2022
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948428, Location: 42.715226, -83.307533, Site Code: TMC_1 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



TMC_1 Judah & Baldwin Roundabout_5-10-22 - TMC

Tue May 10, 2022
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948428, Location: 42.715226, -83.307533, Site Code: TMC_1 Traffic Data Collection, LLC

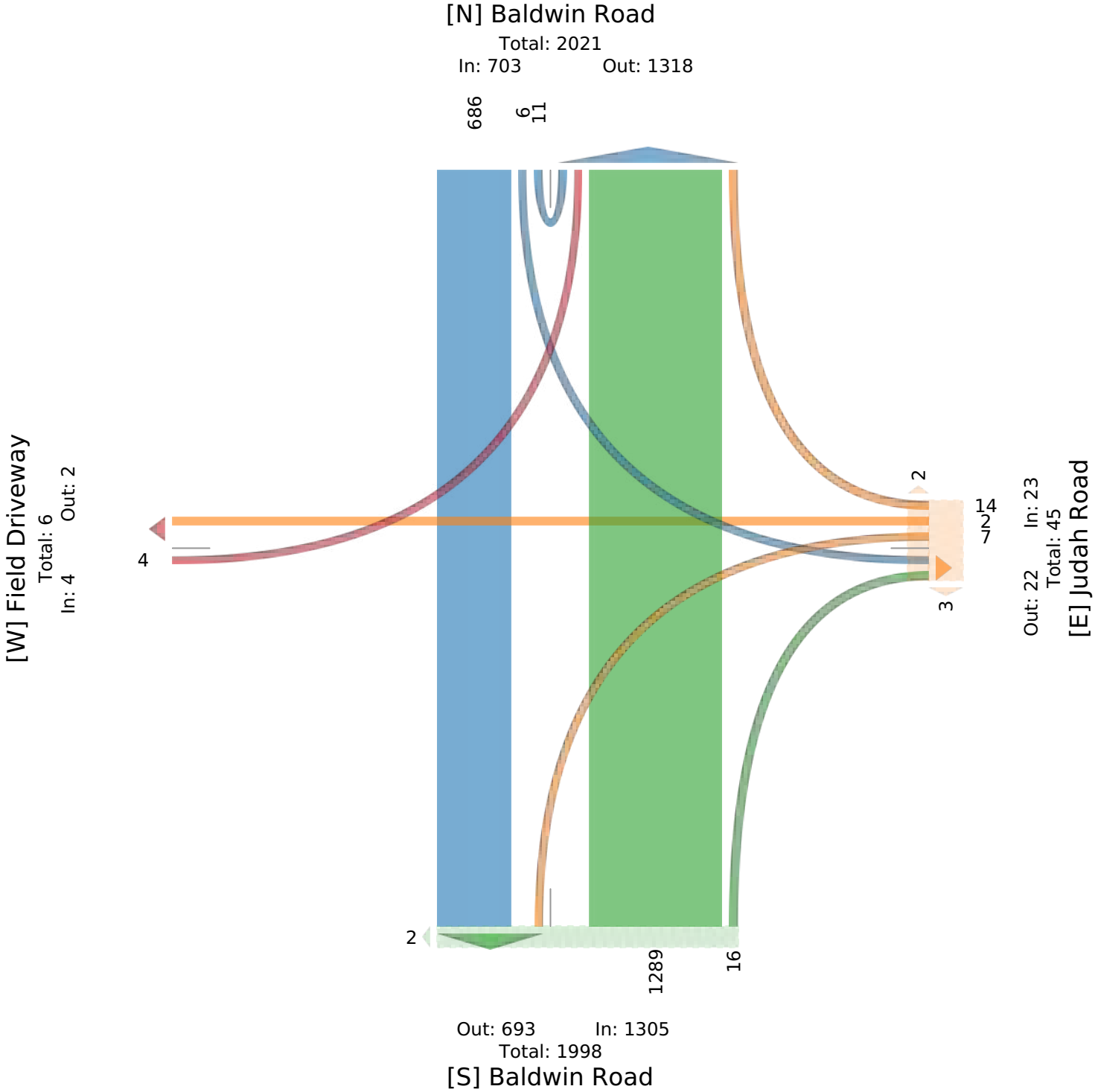
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg	Baldwin Road						Judah Road						Baldwin Road						Field Driveway						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	R	T	L	U	**App**	Ped*	**Int**
2022-05-10 4:45PM	0	143	0	4	**147**	0	6	0	1	0	**7**	0	5	312	0	0	**317**	2	0	0	2	0	**2**	0	**473**
5:00PM	0	187	1	3	**191**	0	3	0	2	0	**5**	1	4	334	0	0	**338**	0	0	0	1	0	**1**	0	**535**
5:15PM	0	171	3	2	**176**	0	2	1	3	0	**6**	3	4	355	0	0	**359**	0	0	0	1	0	**1**	0	**542**
5:30PM	0	185	2	2	**189**	0	3	1	1	0	**5**	1	3	288	0	0	**291**	0	0	0	0	0	**0**	0	**485**
Total	0	686	6	11	**703**	0	14	2	7	0	**23**	5	16	1289	0	0	**1305**	2	0	0	4	0	**4**	0	**2035**
% Approach	0%	97.6%	0.9%	1.6%	**-**	-	60.9%	8.7%	30.4%	0%	**-**	-	1.2%	98.8%	0%	0%	**-**	-	0%	0%	100%	0%	**-**	-	-
% Total	0%	33.7%	0.3%	0.5%	**34.5%**	-	0.7%	0.1%	0.3%	0%	**1.1%**	-	0.8%	63.3%	0%	0%	**64.1%**	-	0%	0%	0.2%	0%	**0.2%**	-	-
PHF	-	0.917	0.500	0.688	**0.920**	-	0.583	0.500	0.583	-	**0.821**	-	0.800	0.908	-	-	**0.909**	-	-	-	0.500	-	**0.500**	-	0.939
Lights	0	667	6	11	**684**	-	14	2	7	0	**23**	-	16	1281	0	0	**1297**	-	0	0	4	0	**4**	-	2008
% Lights	0%	97.2%	100%	100%	**97.3%**	-	100%	100%	100%	0%	**100%**	-	100%	99.4%	0%	0%	**99.4%**	-	0%	0%	100%	0%	**100%**	-	98.7%
Single-Unit Trucks	0	16	0	0	**16**	-	0	0	0	0	**0**	-	0	5	0	0	**5**	-	0	0	0	0	**0**	-	21
% Single-Unit Trucks	0%	2.3%	0%	0%	**2.3%**	-	0%	0%	0%	0%	**0%**	-	0%	0.4%	0%	0%	**0.4%**	-	0%	0%	0%	0%	**0%**	-	1.0%
Articulated Trucks	0	3	0	0	**3**	-	0	0	0	0	**0**	-	0	3	0	0	**3**	-	0	0	0	0	**0**	-	6
% Articulated Trucks	0%	0.4%	0%	0%	**0.4%**	-	0%	0%	0%	0%	**0%**	-	0%	0.2%	0%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	0.3%
Buses	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Buses	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	80.0%	-	-	-	-	-	0%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	20.0%	-	-	-	-	-	100%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

TMC_1 Judah & Baldwin Roundabout_5-10-22 - TMC
Tue May 10, 2022
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948428, Location: 42.715226, -83.307533, Site Code: TMC_1 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



642

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU34N SE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_2
Baldwin SB-NB XO_S
Judah_5-10-22
Site Code: TMC_2
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 1

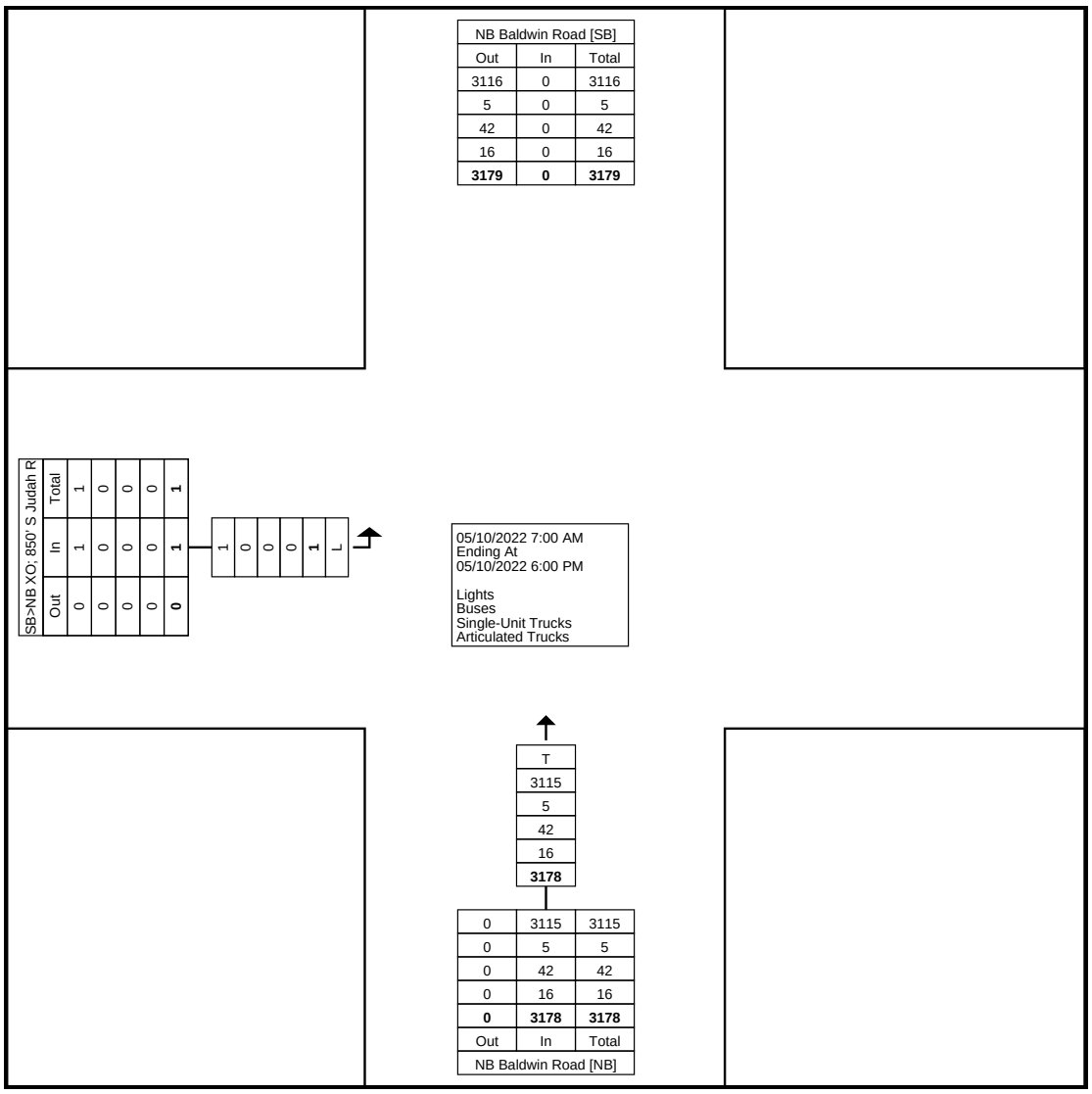
Turning Movement Data

Start Time	NB Baldwin Road Northbound		SB>NB XO; 850' S Judah Rd. Eastbound		
	Thru	App. Total	Left	App. Total	Int. Total
7:00 AM	54	54	0	0	54
7:15 AM	62	62	0	0	62
7:30 AM	83	83	0	0	83
7:45 AM	87	87	0	0	87
Hourly Total	286	286	0	0	286
8:00 AM	101	101	0	0	101
8:15 AM	119	119	0	0	119
8:30 AM	100	100	0	0	100
8:45 AM	108	108	0	0	108
Hourly Total	428	428	0	0	428
9:00 AM	0	0	0	0	0
*** BREAK ***	-	-	-	-	-
Hourly Total	0	0	0	0	0
4:00 PM	283	283	0	0	283
4:15 PM	295	295	0	0	295
4:30 PM	285	285	0	0	285
4:45 PM	333	333	0	0	333
Hourly Total	1196	1196	0	0	1196
5:00 PM	326	326	0	0	326
5:15 PM	357	357	0	0	357
5:30 PM	293	293	1	1	294
5:45 PM	292	292	0	0	292
Hourly Total	1268	1268	1	1	1269
Grand Total	3178	3178	1	1	3179
Approach %	100.0	-	100.0	-	-
Total %	100.0	100.0	0.0	0.0	-
Lights	3115	3115	1	1	3116
% Lights	98.0	98.0	100.0	100.0	98.0
Buses	5	5	0	0	5
% Buses	0.2	0.2	0.0	0.0	0.2
Single-Unit Trucks	42	42	0	0	42
% Single-Unit Trucks	1.3	1.3	0.0	0.0	1.3
Articulated Trucks	16	16	0	0	16
% Articulated Trucks	0.5	0.5	0.0	0.0	0.5

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU34N SE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_2
Baldwin SB-NB XO_S
Judah_5-10-22
Site Code: TMC_2
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 2



Turning Movement Data Plot

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU34N SE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_2
Baldwin SB-NB XO_S Judah_5-10-22
Site Code: TMC_2
Traffic Data Collection, LLC
Start Date: 05/10/2022

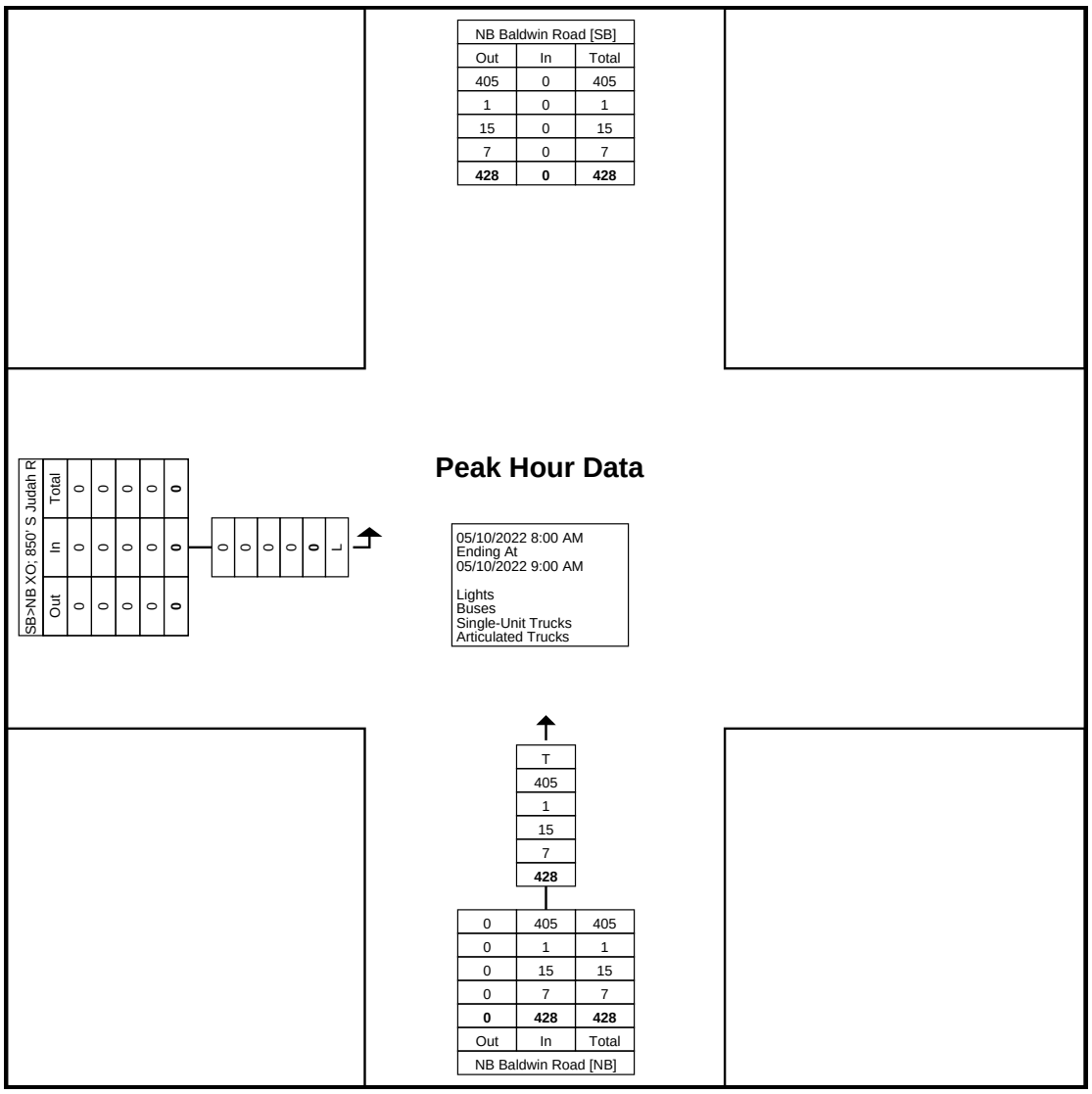
Turning Movement Peak Hour Data (8:00 AM)

Start Time	NB Baldwin Road Northbound		SB>NB XO; 850' S Judah Rd. Eastbound		
	Thru	App. Total	Left	App. Total	Int. Total
8:00 AM	101	101	0	0	101
8:15 AM	119	119	0	0	119
8:30 AM	100	100	0	0	100
8:45 AM	108	108	0	0	108
Total	428	428	0	0	428
Approach %	100.0	-	0.0	-	-
Total %	100.0	100.0	0.0	0.0	-
PHF	0.899	0.899	0.000	0.000	0.899
Lights	405	405	0	0	405
% Lights	94.6	94.6	-	-	94.6
Buses	1	1	0	0	1
% Buses	0.2	0.2	-	-	0.2
Single-Unit Trucks	15	15	0	0	15
% Single-Unit Trucks	3.5	3.5	-	-	3.5
Articulated Trucks	7	7	0	0	7
% Articulated Trucks	1.6	1.6	-	-	1.6

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU34N SE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_2
Baldwin SB-NB XO_S
Judah_5-10-22
Site Code: TMC_2
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 4



Turning Movement Peak Hour Data Plot (8:00 AM)

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU34N SE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_2
Baldwin SB-NB XO_S Judah_5-10-22
Site Code: TMC_2
Traffic Data Collection, LLC
Start Date: 05/10/2022

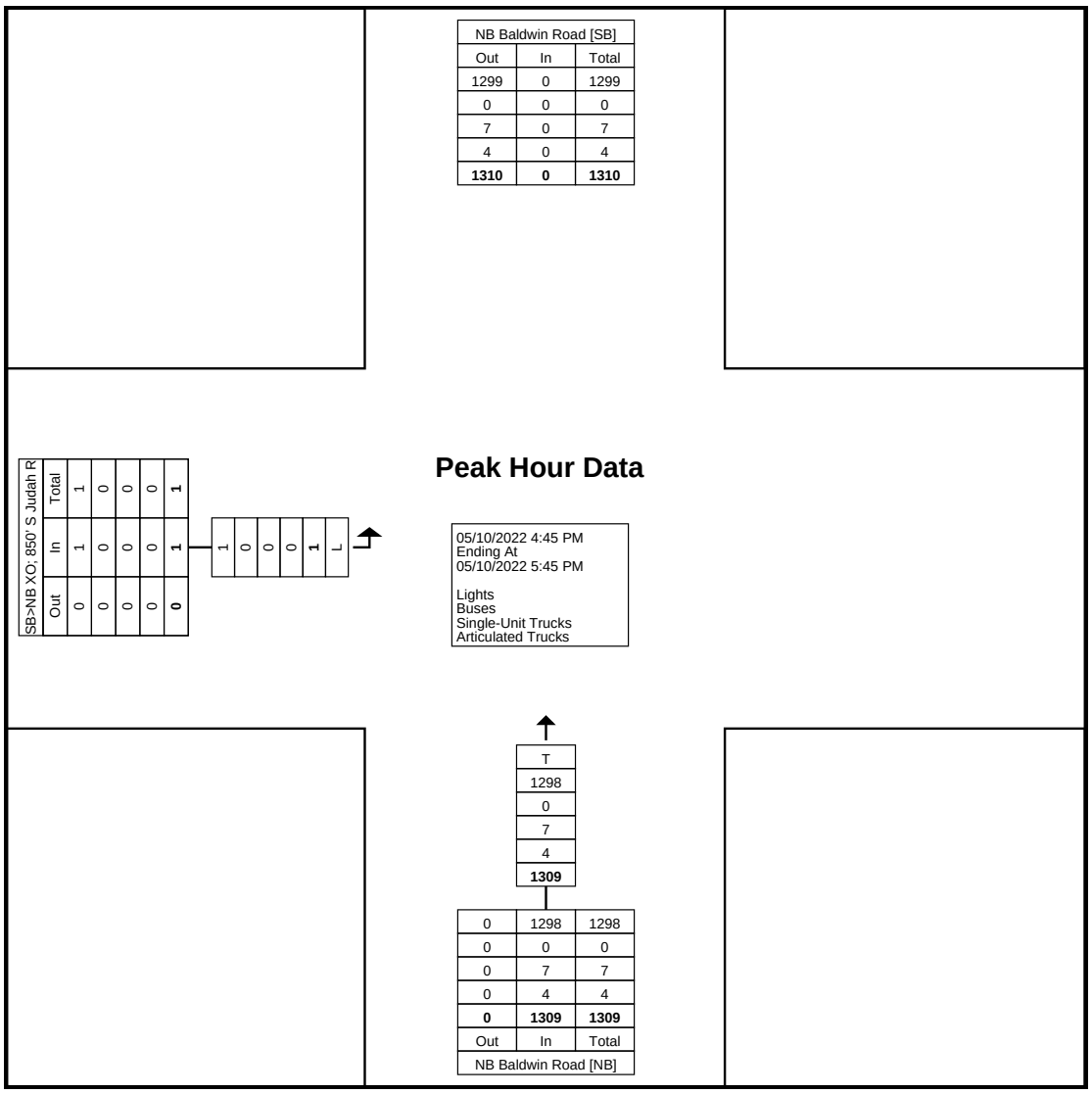
Turning Movement Peak Hour Data (4:45 PM)

Start Time	NB Baldwin Road Northbound		SB>NB XO; 850' S Judah Rd. Eastbound		
	Thru	App. Total	Left	App. Total	Int. Total
4:45 PM	333	333	0	0	333
5:00 PM	326	326	0	0	326
5:15 PM	357	357	0	0	357
5:30 PM	293	293	1	1	294
Total	1309	1309	1	1	1310
Approach %	100.0	-	100.0	-	-
Total %	99.9	99.9	0.1	0.1	-
PHF	0.917	0.917	0.250	0.250	0.917
Lights	1298	1298	1	1	1299
% Lights	99.2	99.2	100.0	100.0	99.2
Buses	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	7	7	0	0	7
% Single-Unit Trucks	0.5	0.5	0.0	0.0	0.5
Articulated Trucks	4	4	0	0	4
% Articulated Trucks	0.3	0.3	0.0	0.0	0.3

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU34N SE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_2
Baldwin SB-NB XO_S
Judah_5-10-22
Site Code: TMC_2
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 6



Turning Movement Peak Hour Data Plot (4:45 PM)

TDC Traffic Comments: 4 hour video multi-modal intersection vehicle classification turning movement count conducted during typical weekday (Tuesday) from 7:00-9:00 AM morning & 4:00-6:00 PM afternoon peak hours, while school was in session. Daily peak hour reports provided for morning & afternoon peak hour study periods.

TMC was performed with Miovision video VCU scout recording cameras for Kalama Wolf In Binden Sheep, Lake Orion Traffic Impact Study for AEW.
Non-signalized intersection. VCU camera was located within SE intersection quadrants. All intersection shared video files have been uploaded to Miovision DataLink cloud platform.

Classification Summary Details & Percentages: Four (4) Groupings:
1) Lights Includes: FHWA Classes 1-3 (Motorcycles, Pick Up Trucks, Vans, Light Goods Vehicles)
2) Buses Includes: FHWA Class 4 (School Buses & Regional Transportation Metro Buses)
3) Single-Unit Trucks Includes: FHWA Classes 5-7 (2-4 Axle SU Medium Trucks)
4) Articulated Trucks Includes: FHWA Classes 8-12 (Heavy Trucks W/Single & Multi Unit Trailers)

TMC_2 Baldwin SB-NB XO_S Judah_5-10-22 - TMC

Tue May 10, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948436, Location: 42.712943, -83.307213, Site Code: TMC_2 Traffic Data Collection, LLC

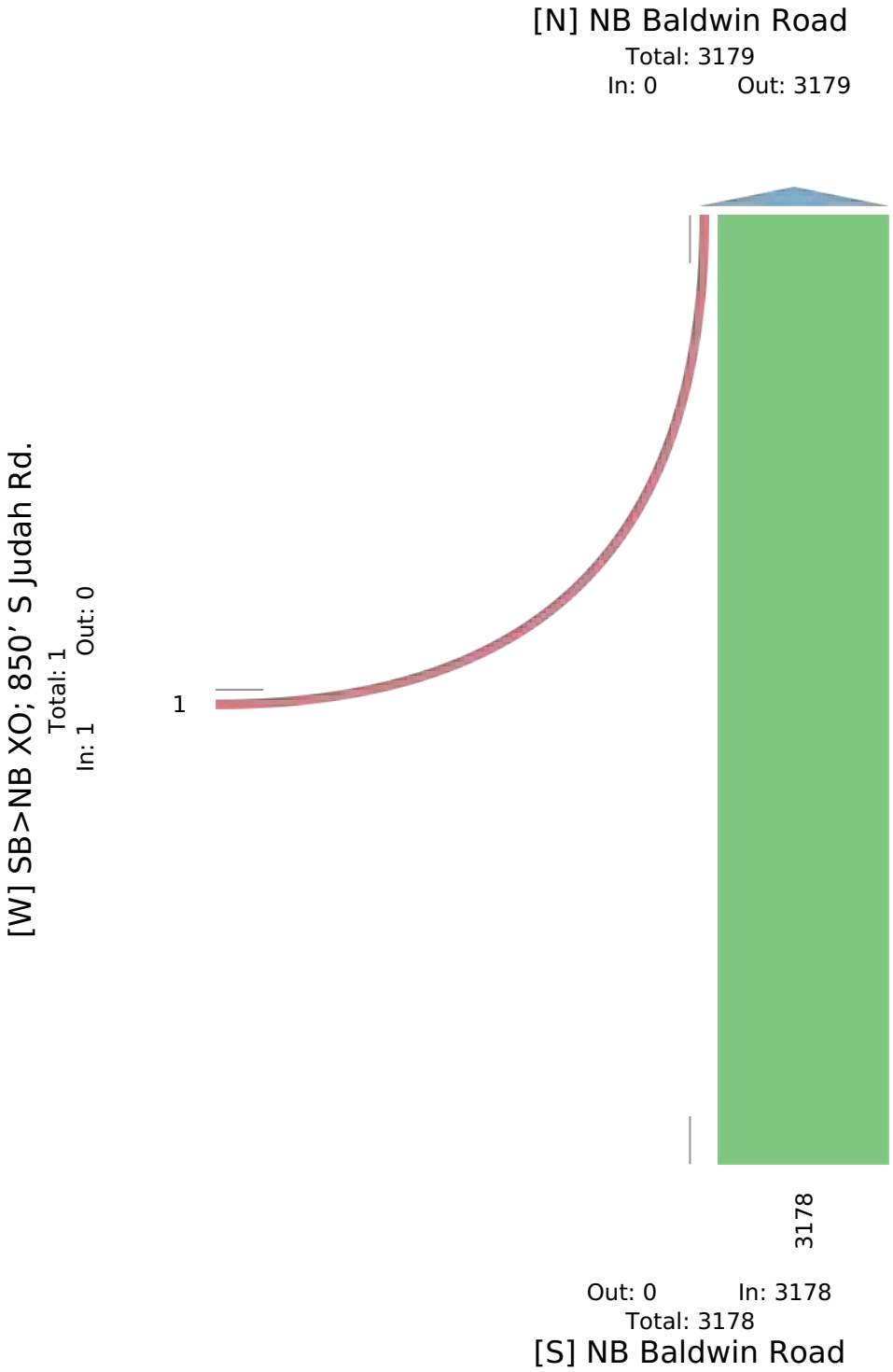
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg Direction	NB Baldwin Road Northbound		SB>NB XO; 850' S Judah Rd. Eastbound		
Time	T	**App**	L	**App**	**Int**
2022-05-10 7:00AM	54	**54**	0	**0**	**54**
7:15AM	62	**62**	0	**0**	**62**
7:30AM	83	**83**	0	**0**	**83**
7:45AM	87	**87**	0	**0**	**87**
Hourly Total	286	**286**	0	**0**	**286**
8:00AM	101	**101**	0	**0**	**101**
8:15AM	119	**119**	0	**0**	**119**
8:30AM	100	**100**	0	**0**	**100**
8:45AM	108	**108**	0	**0**	**108**
Hourly Total	428	**428**	0	**0**	**428**
9:00AM	0	**0**	0	**0**	**0**
Hourly Total	0	**0**	0	**0**	**0**
4:00PM	283	**283**	0	**0**	**283**
4:15PM	295	**295**	0	**0**	**295**
4:30PM	285	**285**	0	**0**	**285**
4:45PM	333	**333**	0	**0**	**333**
Hourly Total	1196	**1196**	0	**0**	**1196**
5:00PM	326	**326**	0	**0**	**326**
5:15PM	357	**357**	0	**0**	**357**
5:30PM	293	**293**	1	**1**	**294**
5:45PM	292	**292**	0	**0**	**292**
Hourly Total	1268	**1268**	1	**1**	**1269**
Total	3178	**3178**	1	**1**	**3179**
% Approach	100%	**-**	100%	**-**	-
% Total	100.0%	**100.0%**	0%	**0%**	-
Lights	3115	**3115**	1	**1**	3116
% Lights	98.0%	**98.0%**	100%	**100%**	98.0%
Single-Unit Trucks	42	**42**	0	**0**	42
% Single-Unit Trucks	1.3%	**1.3%**	0%	**0%**	1.3%
Articulated Trucks	16	**16**	0	**0**	16
% Articulated Trucks	0.5%	**0.5%**	0%	**0%**	0.5%
Buses	5	**5**	0	**0**	5
% Buses	0.2%	**0.2%**	0%	**0%**	0.2%

*L: Left, T: Thru

TMC_2 Baldwin SB-NB XO_S Judah_5-10-22 - TMC
Tue May 10, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948436, Location: 42.712943, -83.307213, Site Code: TMC_2 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



651

TMC_2 Baldwin SB-NB XO_S Judah_5-10-22 - TMC

Tue May 10, 2022
AM Peak (8 AM - 9 AM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948436, Location: 42.712943, -83.307213, Site Code: TMC_2 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

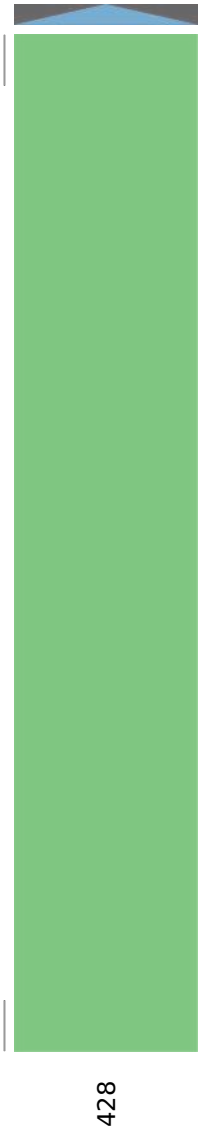
Leg Direction	NB Baldwin Road Northbound		SB>NB XO; 850’ S Judah Rd. Eastbound		
Time	T	**App**	L	**App**	**Int**
2022-05-10 8:00AM	101	**101**	0	**0**	**101**
8:15AM	119	**119**	0	**0**	**119**
8:30AM	100	**100**	0	**0**	**100**
8:45AM	108	**108**	0	**0**	**108**
Total	428	**428**	0	**0**	**428**
% Approach	100%	**-**	0%	**-**	-
% Total	100%	**100%**	0%	**0%**	-
PHF	0.899	**0.899**	-	**-**	0.899
Lights	405	**405**	0	**0**	405
% Lights	94.6%	**94.6%**	0%	**-**	94.6%
Single-Unit Trucks	15	**15**	0	**0**	15
% Single-Unit Trucks	3.5%	**3.5%**	0%	**-**	3.5%
Articulated Trucks	7	**7**	0	**0**	7
% Articulated Trucks	1.6%	**1.6%**	0%	**-**	1.6%
Buses	1	**1**	0	**0**	1
% Buses	0.2%	**0.2%**	0%	**-**	0.2%

*L: Left, T: Thru

TMC_2 Baldwin SB-NB XO_S Judah_5-10-22 - TMC
Tue May 10, 2022
AM Peak (8 AM - 9 AM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948436, Location: 42.712943, -83.307213, Site Code: TMC_2 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

[N] NB Baldwin Road
Total: 428
In: 0 Out: 428



Out: 0 In: 428
Total: 428
[S] NB Baldwin Road

653

TMC_2 Baldwin SB-NB XO_S Judah_5-10-22 - TMC

Tue May 10, 2022
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948436, Location: 42.712943, -83.307213, Site Code: TMC_2 Traffic Data Collection, LLC

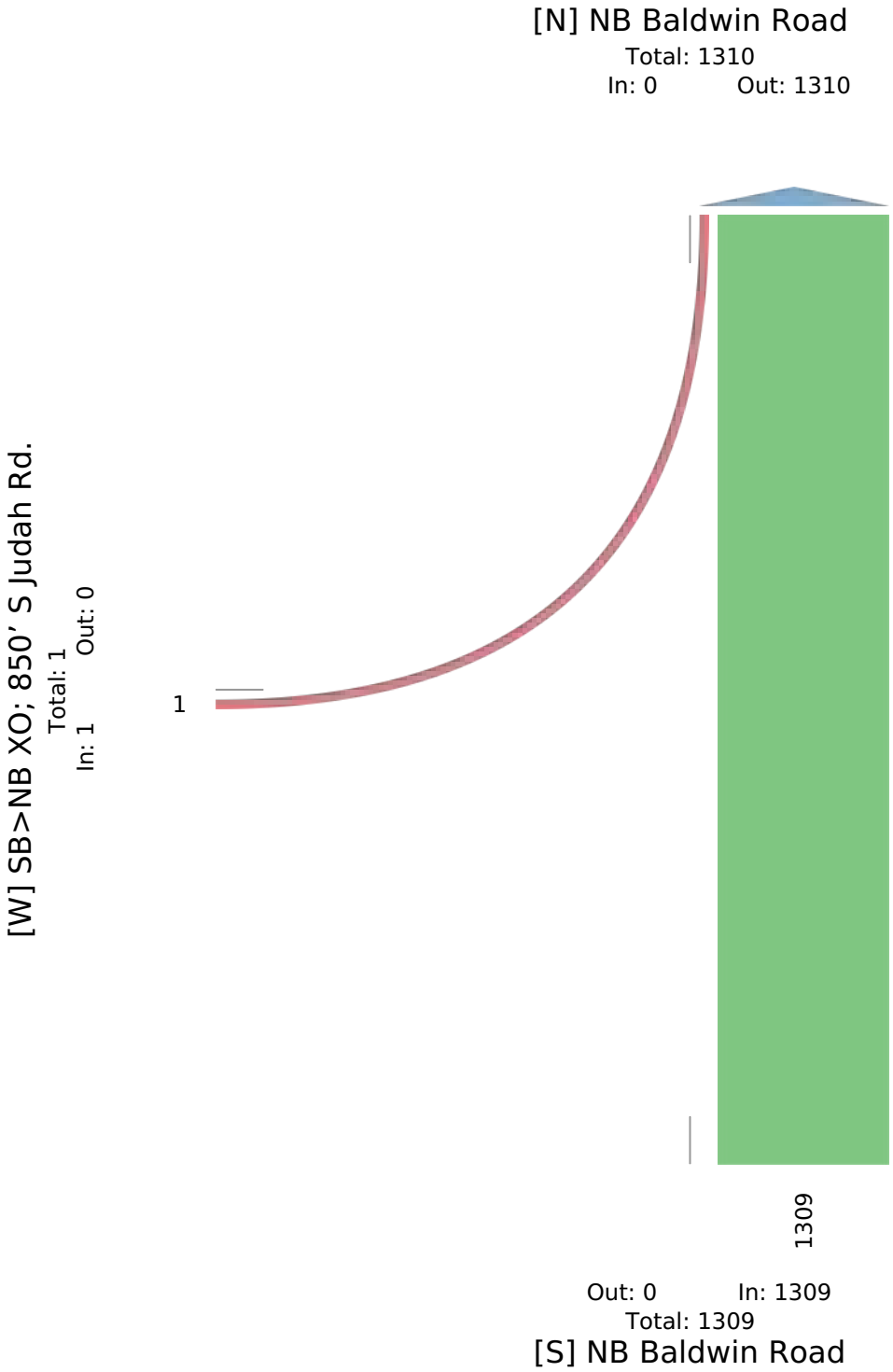
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg Direction	NB Baldwin Road Northbound		SB>NB XO; 850’ S Judah Rd. Eastbound		
Time	T	**App**	L	**App**	**Int**
2022-05-10 4:45PM	333	**333**	0	**0**	**333**
5:00PM	326	**326**	0	**0**	**326**
5:15PM	357	**357**	0	**0**	**357**
5:30PM	293	**293**	1	**1**	**294**
Total	1309	**1309**	1	**1**	**1310**
% Approach	100%	**-**	100%	**-**	-
% Total	99.9%	**99.9%**	0.1%	**0.1%**	-
PHF	0.917	**0.917**	0.250	**0.250**	0.917
Lights	1298	**1298**	1	**1**	1299
% Lights	99.2%	**99.2%**	100%	**100%**	99.2%
Single-Unit Trucks	7	**7**	0	**0**	7
% Single-Unit Trucks	0.5%	**0.5%**	0%	**0%**	0.5%
Articulated Trucks	4	**4**	0	**0**	4
% Articulated Trucks	0.3%	**0.3%**	0%	**0%**	0.3%
Buses	0	**0**	0	**0**	0
% Buses	0%	**0%**	0%	**0%**	0%

*L: Left, T: Thru

TMC_2 Baldwin SB-NB XO_S Judah_5-10-22 - TMC
Tue May 10, 2022
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948436, Location: 42.712943, -83.307213, Site Code: TMC_2 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



655

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU3HT SW

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_3
Baldwin NB-SB XO_S
Judah_5-10-22
Site Code: TMC_3
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 1

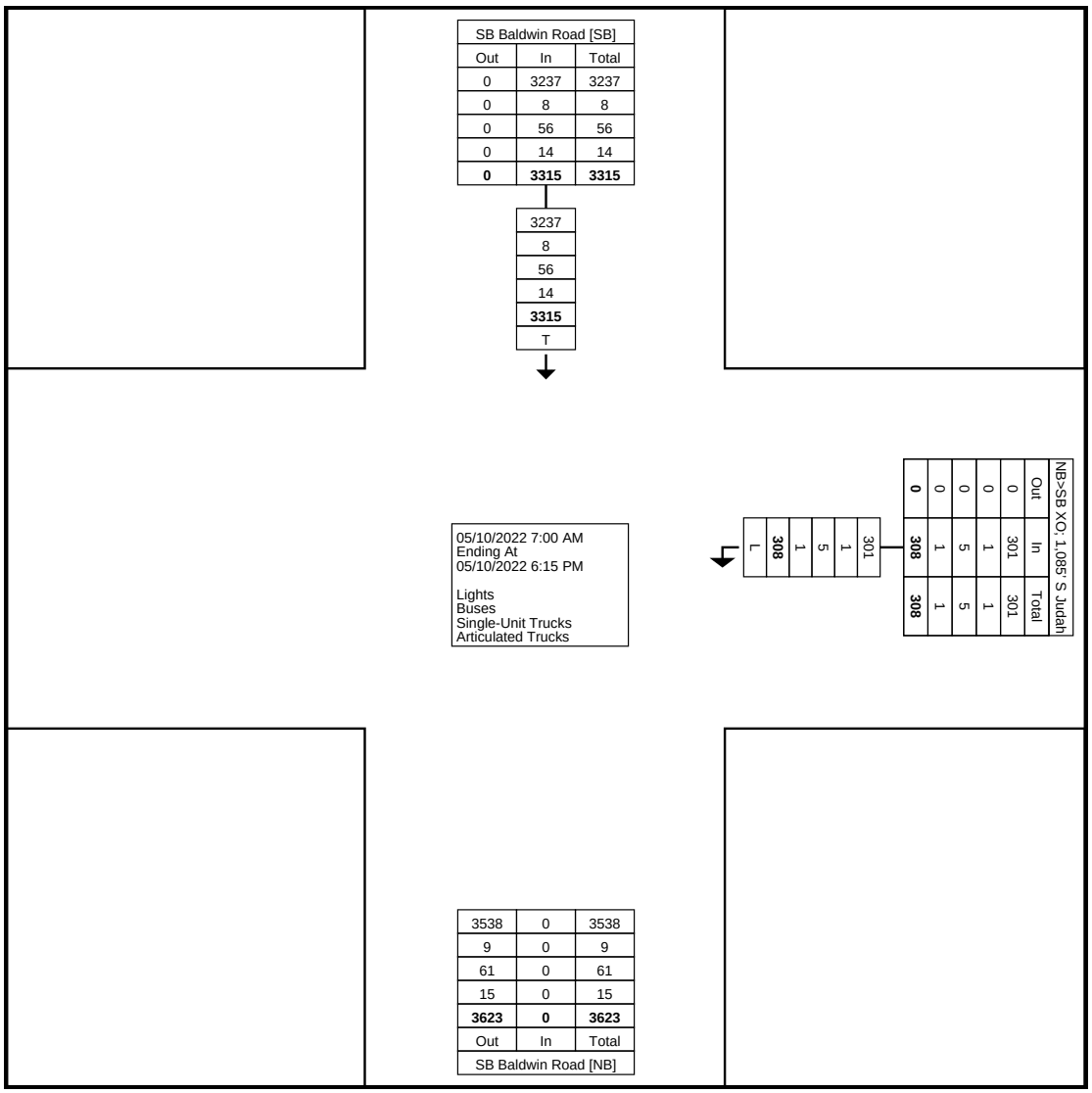
Turning Movement Data

Start Time	SB Baldwin Road Southbound		NB>SB XO; 1,085' S Judah Rd. Westbound		
	Thru	App. Total	Left	App. Total	Int. Total
7:00 AM	223	223	12	12	235
7:15 AM	292	292	16	16	308
7:30 AM	286	286	12	12	298
7:45 AM	287	287	15	15	302
Hourly Total	1088	1088	55	55	1143
8:00 AM	244	244	13	13	257
8:15 AM	229	229	15	15	244
8:30 AM	221	221	18	18	239
8:45 AM	193	193	13	13	206
Hourly Total	887	887	59	59	946
9:00 AM	0	0	0	0	0
*** BREAK ***	-	-	-	-	-
Hourly Total	0	0	0	0	0
4:00 PM	175	175	18	18	193
4:15 PM	161	161	25	25	186
4:30 PM	163	163	28	28	191
4:45 PM	139	139	28	28	167
Hourly Total	638	638	99	99	737
5:00 PM	188	188	20	20	208
5:15 PM	178	178	23	23	201
5:30 PM	179	179	26	26	205
5:45 PM	157	157	26	26	183
Hourly Total	702	702	95	95	797
6:00 PM	0	0	0	0	0
Grand Total	3315	3315	308	308	3623
Approach %	100.0	-	100.0	-	-
Total %	91.5	91.5	8.5	8.5	-
Lights	3237	3237	301	301	3538
% Lights	97.6	97.6	97.7	97.7	97.7
Buses	8	8	1	1	9
% Buses	0.2	0.2	0.3	0.3	0.2
Single-Unit Trucks	56	56	5	5	61
% Single-Unit Trucks	1.7	1.7	1.6	1.6	1.7
Articulated Trucks	14	14	1	1	15
% Articulated Trucks	0.4	0.4	0.3	0.3	0.4

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU3HT SW

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_3
Baldwin NB-SB XO_S Judah_5-10-22
Site Code: TMC_3
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 2



Turning Movement Data Plot

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU3HT SW

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_3
Baldwin NB-SB XO_S
Judah_5-10-22
Site Code: TMC_3
Traffic Data Collection, LLC
Start Date: 05/10/2022

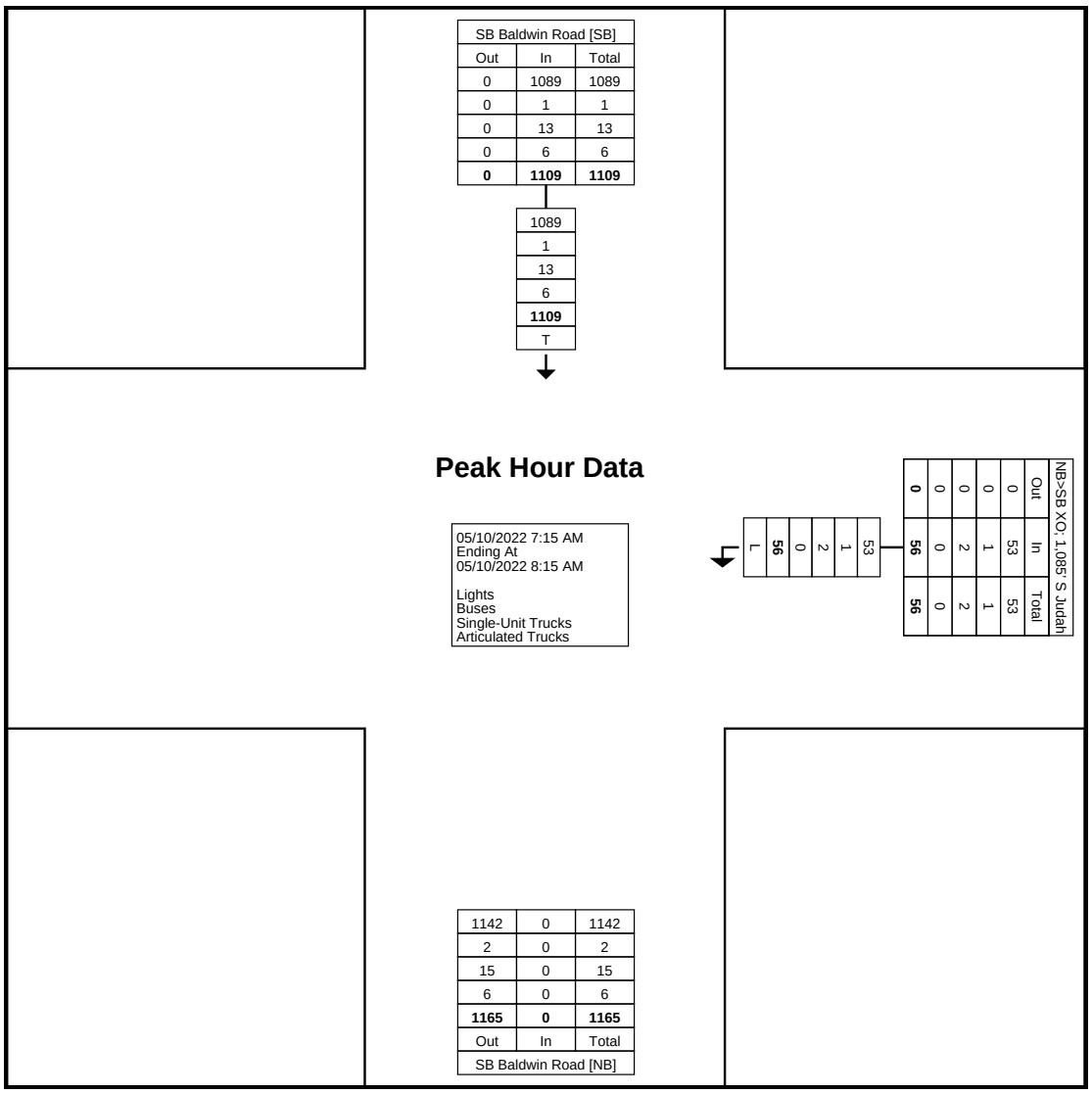
Turning Movement Peak Hour Data (7:15 AM)

Start Time	SB Baldwin Road Southbound		NB>SB XO; 1,085' S Judah Rd. Westbound		
	Thru	App. Total	Left	App. Total	Int. Total
7:15 AM	292	292	16	16	308
7:30 AM	286	286	12	12	298
7:45 AM	287	287	15	15	302
8:00 AM	244	244	13	13	257
Total	1109	1109	56	56	1165
Approach %	100.0	-	100.0	-	-
Total %	95.2	95.2	4.8	4.8	-
PHF	0.949	0.949	0.875	0.875	0.946
Lights	1089	1089	53	53	1142
% Lights	98.2	98.2	94.6	94.6	98.0
Buses	1	1	1	1	2
% Buses	0.1	0.1	1.8	1.8	0.2
Single-Unit Trucks	13	13	2	2	15
% Single-Unit Trucks	1.2	1.2	3.6	3.6	1.3
Articulated Trucks	6	6	0	0	6
% Articulated Trucks	0.5	0.5	0.0	0.0	0.5

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU3HT SW

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_3
Baldwin NB-SB XO_S Judah_5-10-22
Site Code: TMC_3
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 4



Turning Movement Peak Hour Data Plot (7:15 AM)

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU3HT SW

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_3
Baldwin NB-SB XO_S
Judah_5-10-22
Site Code: TMC_3
Traffic Data Collection, LLC
Start Date: 05/10/2022

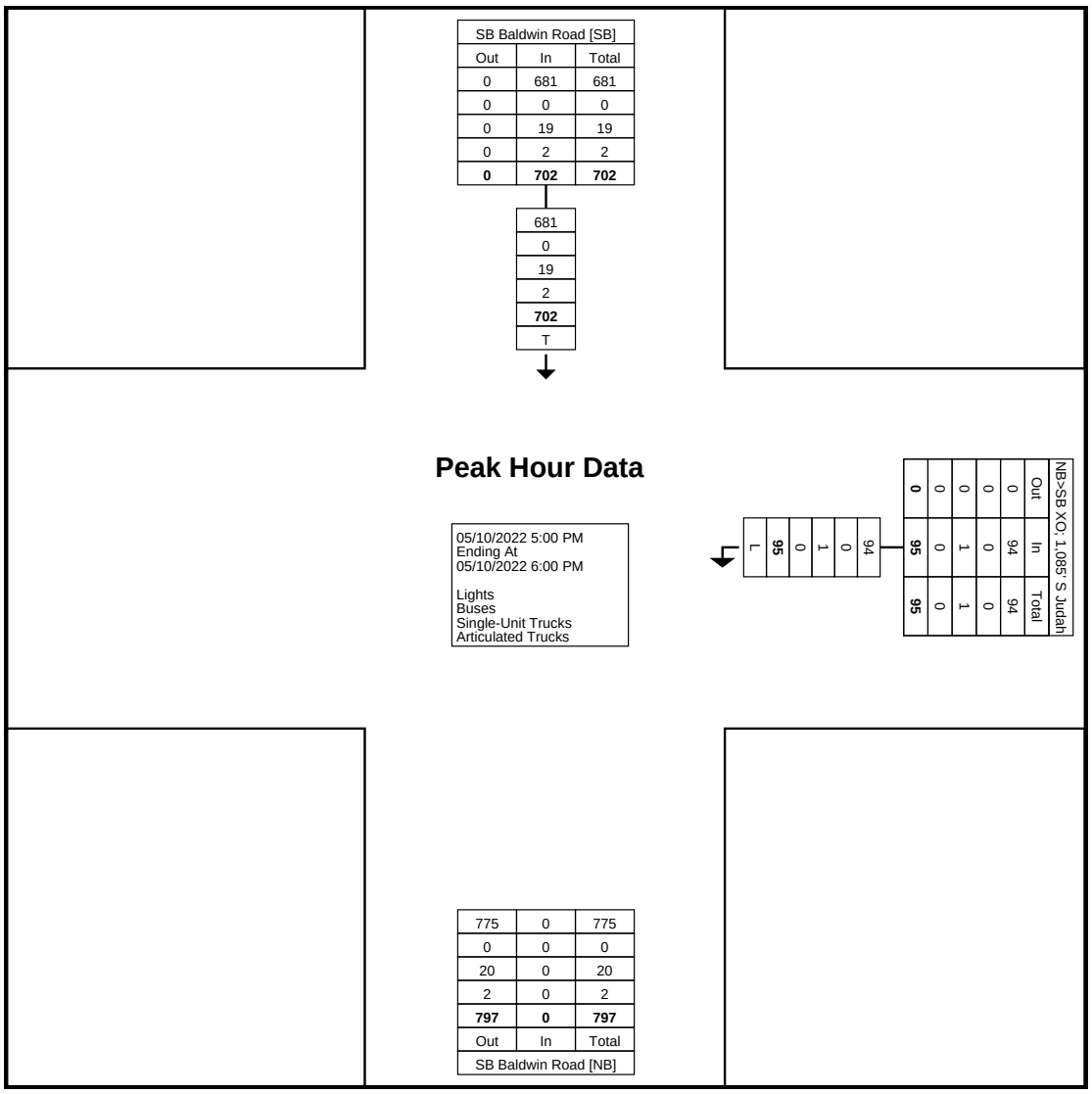
Turning Movement Peak Hour Data (5:00 PM)

Start Time	SB Baldwin Road Southbound		NB>SB XO; 1,085' S Judah Rd. Westbound		
	Thru	App. Total	Left	App. Total	Int. Total
5:00 PM	188	188	20	20	208
5:15 PM	178	178	23	23	201
5:30 PM	179	179	26	26	205
5:45 PM	157	157	26	26	183
Total	702	702	95	95	797
Approach %	100.0	-	100.0	-	-
Total %	88.1	88.1	11.9	11.9	-
PHF	0.934	0.934	0.913	0.913	0.958
Lights	681	681	94	94	775
% Lights	97.0	97.0	98.9	98.9	97.2
Buses	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	19	19	1	1	20
% Single-Unit Trucks	2.7	2.7	1.1	1.1	2.5
Articulated Trucks	2	2	0	0	2
% Articulated Trucks	0.3	0.3	0.0	0.0	0.3

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU3HT SW

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_3
Baldwin NB-SB XO_S Judah_5-10-22
Site Code: TMC_3
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 6



Turning Movement Peak Hour Data Plot (5:00 PM)

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

TDC Traffic Comments: 4 hour video multi-modal intersection vehicle classification turning movement count conducted during typical weekday (Tuesday) from 7:00-9:00 AM morning & 4:00-6:00 PM afternoon peak hours, while school was in session. Daily peak hour reports provided for morning & afternoon peak hour study periods.

TMC was performed with Miovision video VCU scout recording cameras for Kalama Wolf In Binden Sheep, Lake Orion Traffic Impact Study for AEW.
Non-signalized intersection. VCU camera was located within SW intersection quadrants. All intersection shared video files have been uploaded to Miovision DataLink cloud platform.

Classification Summary Details & Percentages: Four (4) Groupings:
1) Lights Includes: FHWA Classes 1-3 (Motorcycles, Pick Up Trucks, Vans, Light Goods Vehicles)
2) Buses Includes: FHWA Class 4 (School Buses & Regional Transportation Metro Buses)
3) Single-Unit Trucks Includes: FHWA Classes 5-7 (2-4 Axle SU Medium Trucks)
4) Articulated Trucks Includes: FHWA Classes 8-12 (Heavy Trucks W/Single & Multi Unit Trailers)

TMC_3 Baldwin NB-SB XO_S Judah_5-10-22 - TMC

Tue May 10, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948434, Location: 42.712279, -83.307451, Site Code: TMC_3 Traffic Data Collection, LLC

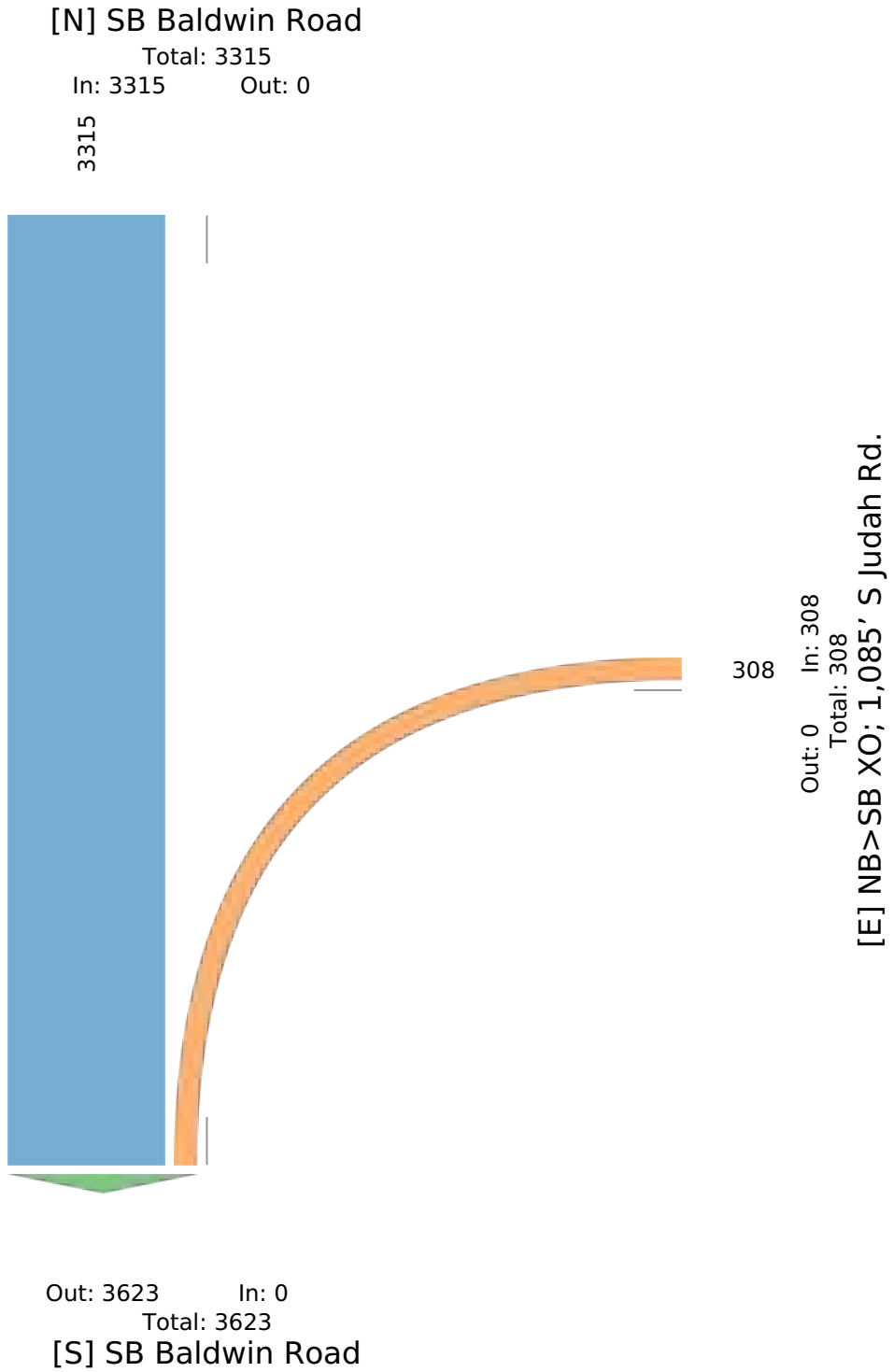
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg Direction	SB Baldwin Road Southbound		NB>SB XO; 1,085' S Judah Rd. Westbound		
Time	T	**App**	L	**App**	**Int**
2022-05-10 7:00AM	223	**223**	12	**12**	**235**
7:15AM	292	**292**	16	**16**	**308**
7:30AM	286	**286**	12	**12**	**298**
7:45AM	287	**287**	15	**15**	**302**
Hourly Total	1088	**1088**	55	**55**	**1143**
8:00AM	244	**244**	13	**13**	**257**
8:15AM	229	**229**	15	**15**	**244**
8:30AM	221	**221**	18	**18**	**239**
8:45AM	193	**193**	13	**13**	**206**
Hourly Total	887	**887**	59	**59**	**946**
9:00AM	0	**0**	0	**0**	**0**
Hourly Total	0	**0**	0	**0**	**0**
4:00PM	175	**175**	18	**18**	**193**
4:15PM	161	**161**	25	**25**	**186**
4:30PM	163	**163**	28	**28**	**191**
4:45PM	139	**139**	28	**28**	**167**
Hourly Total	638	**638**	99	**99**	**737**
5:00PM	188	**188**	20	**20**	**208**
5:15PM	178	**178**	23	**23**	**201**
5:30PM	179	**179**	26	**26**	**205**
5:45PM	157	**157**	26	**26**	**183**
Hourly Total	702	**702**	95	**95**	**797**
6:00PM	0	**0**	0	**0**	**0**
Hourly Total	0	**0**	0	**0**	**0**
Total	3315	**3315**	308	**308**	**3623**
% Approach	100%	**-**	100%	**-**	-
% Total	91.5%	**91.5%**	8.5%	**8.5%**	-
Lights	3237	**3237**	301	**301**	3538
% Lights	97.6%	**97.6%**	97.7%	**97.7%**	97.7%
Single-Unit Trucks	56	**56**	5	**5**	61
% Single-Unit Trucks	1.7%	**1.7%**	1.6%	**1.6%**	1.7%
Articulated Trucks	14	**14**	1	**1**	15
% Articulated Trucks	0.4%	**0.4%**	0.3%	**0.3%**	0.4%
Buses	8	**8**	1	**1**	9
% Buses	0.2%	**0.2%**	0.3%	**0.3%**	0.2%

*L: Left, T: Thru

TMC_3 Baldwin NB-SB XO_S Judah_5-10-22 - TMC
Tue May 10, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948434, Location: 42.712279, -83.307451, Site Code: TMC_3 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



664

TMC_3 Baldwin NB-SB XO_S Judah_5-10-22 - TMC

Tue May 10, 2022
AM Peak (7:15 AM - 8:15 AM) - Overall Peak Hour
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948434, Location: 42.712279, -83.307451, Site Code: TMC_3 Traffic Data Collection, LLC

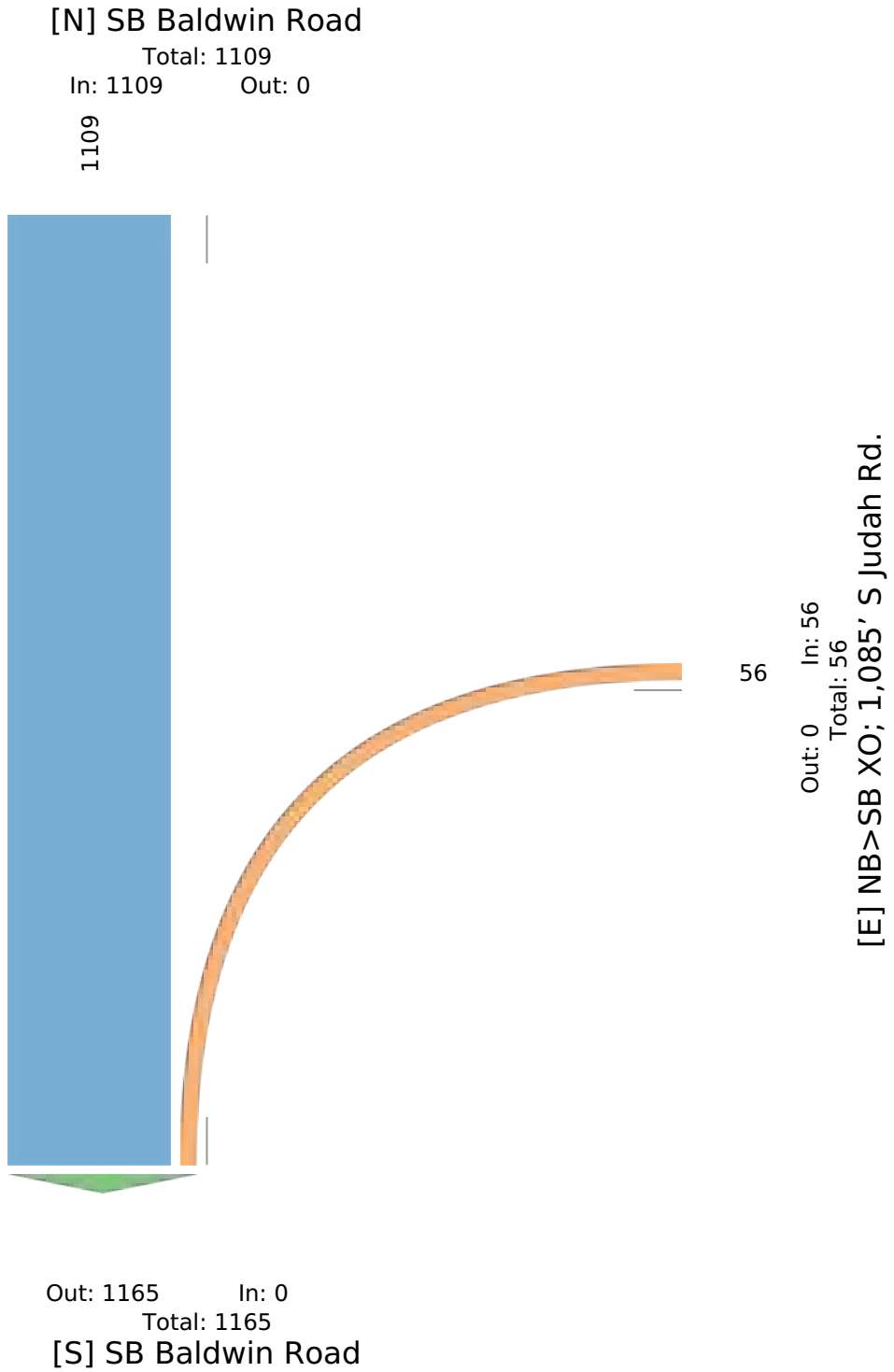
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg Direction	SB Baldwin Road Southbound		NB>SB XO; 1,085’ S Judah Rd. Westbound		
Time	T	**App**	L	**App**	**Int**
2022-05-10 7:15AM	292	**292**	16	**16**	**308**
7:30AM	286	**286**	12	**12**	**298**
7:45AM	287	**287**	15	**15**	**302**
8:00AM	244	**244**	13	**13**	**257**
Total	1109	**1109**	56	**56**	**1165**
% Approach	100%	**-**	100%	**-**	-
% Total	95.2%	**95.2%**	4.8%	**4.8%**	-
PHF	0.949	**0.949**	0.875	**0.875**	0.946
Lights	1089	**1089**	53	**53**	1142
% Lights	98.2%	**98.2%**	94.6%	**94.6%**	98.0%
Single-Unit Trucks	13	**13**	2	**2**	15
% Single-Unit Trucks	1.2%	**1.2%**	3.6%	**3.6%**	1.3%
Articulated Trucks	6	**6**	0	**0**	6
% Articulated Trucks	0.5%	**0.5%**	0%	**0%**	0.5%
Buses	1	**1**	1	**1**	2
% Buses	0.1%	**0.1%**	1.8%	**1.8%**	0.2%

*L: Left, T: Thru

TMC_3 Baldwin NB-SB XO_S Judah_5-10-22 - TMC
Tue May 10, 2022
AM Peak (7:15 AM - 8:15 AM) - Overall Peak Hour
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948434, Location: 42.712279, -83.307451, Site Code: TMC_3 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



666

TMC_3 Baldwin NB-SB XO_S Judah_5-10-22 - TMC

Tue May 10, 2022
PM Peak (5 PM - 6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948434, Location: 42.712279, -83.307451, Site Code: TMC_3 Traffic Data Collection, LLC

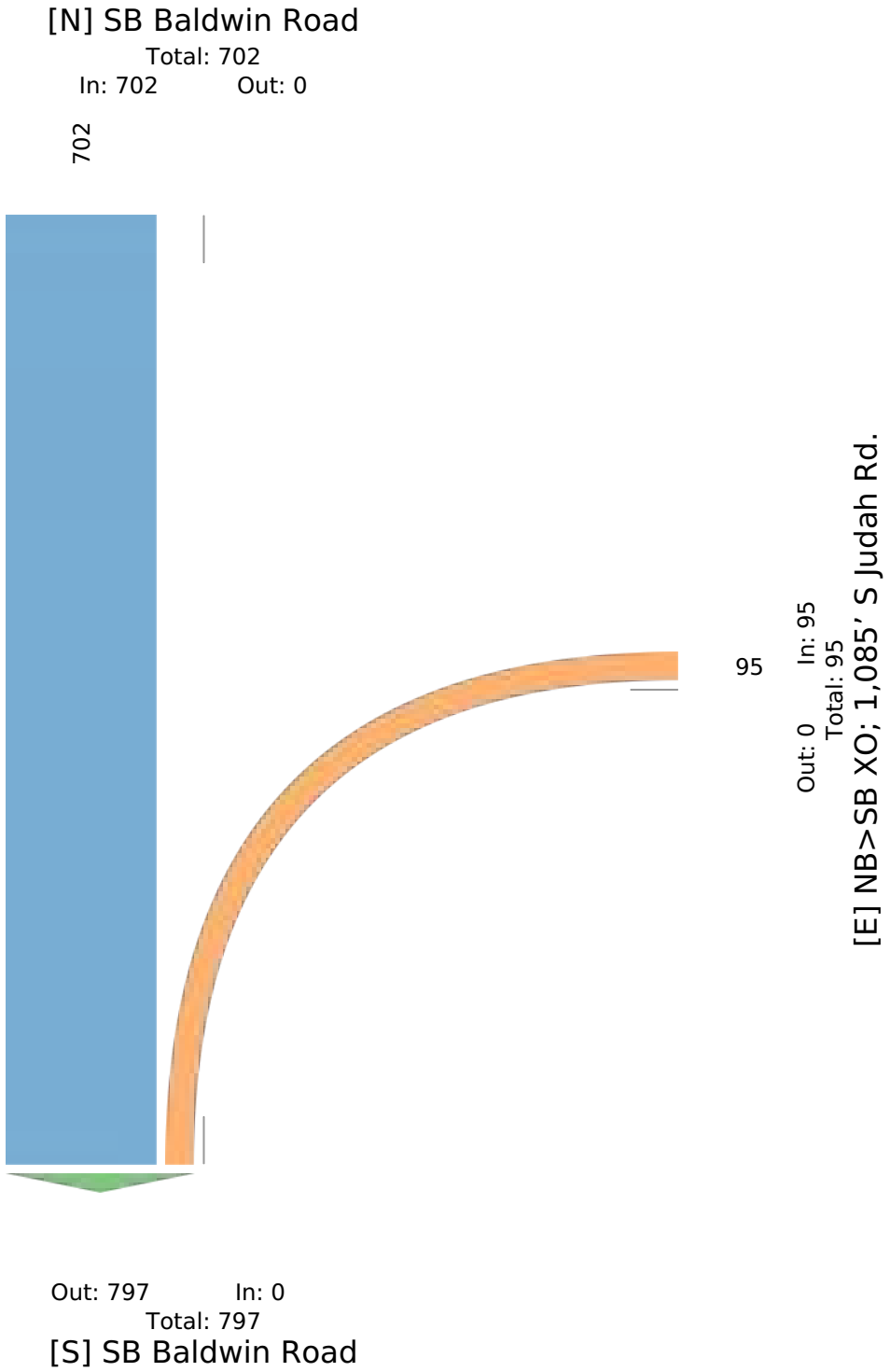
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg Direction	SB Baldwin Road Southbound		NB>SB XO; 1,085’ S Judah Rd. Westbound		
Time	T	**App**	L	**App**	**Int**
2022-05-10 5:00PM	188	**188**	20	**20**	**208**
5:15PM	178	**178**	23	**23**	**201**
5:30PM	179	**179**	26	**26**	**205**
5:45PM	157	**157**	26	**26**	**183**
Total	702	**702**	95	**95**	**797**
% Approach	100%	**-**	100%	**-**	-
% Total	88.1%	**88.1%**	11.9%	**11.9%**	-
PHF	0.934	**0.934**	0.913	**0.913**	0.958
Lights	681	**681**	94	**94**	775
% Lights	97.0%	**97.0%**	98.9%	**98.9%**	97.2%
Single-Unit Trucks	19	**19**	1	**1**	20
% Single-Unit Trucks	2.7%	**2.7%**	1.1%	**1.1%**	2.5%
Articulated Trucks	2	**2**	0	**0**	2
% Articulated Trucks	0.3%	**0.3%**	0%	**0%**	0.3%
Buses	0	**0**	0	**0**	0
% Buses	0%	**0%**	0%	**0%**	0%

*L: Left, T: Thru

TMC_3 Baldwin NB-SB XO_S Judah_5-10-22 - TMC
Tue May 10, 2022
PM Peak (5 PM - 6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses)
All Movements
ID: 948434, Location: 42.712279, -83.307451, Site Code: TMC_3 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



668

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU24L SE & SCU61E NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_4
Baldwin Commons & Baldwin_5-10-22
Site Code: TMC_4
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 1

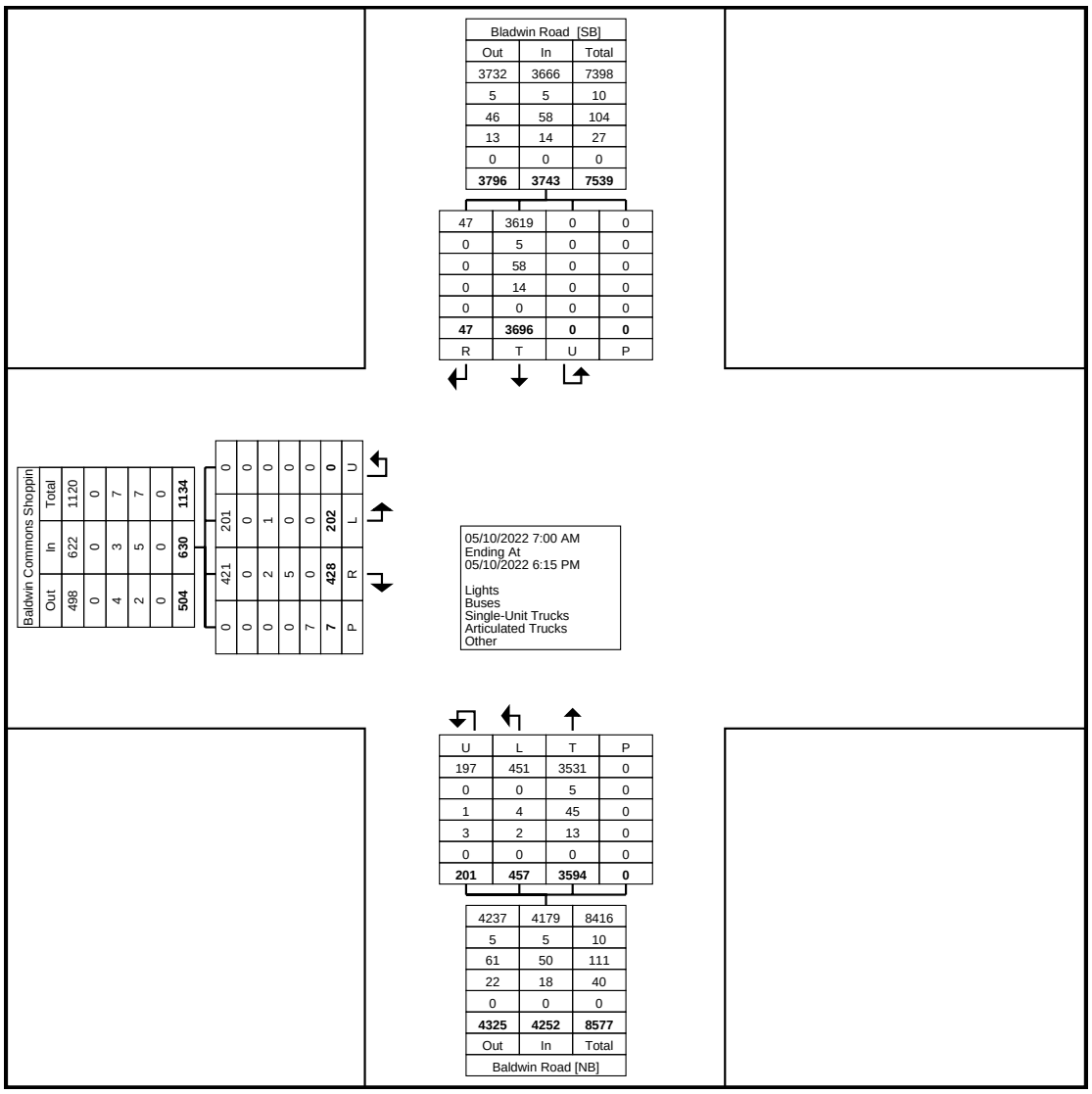
Turning Movement Data

Start Time	Bladwin Road Southbound					Baldwin Road Northbound					Baldwin Commons Shopping Center Eastbound					
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Int. Total
7:00 AM	6	249	0	0	255	65	2	20	0	87	5	2	0	0	7	349
7:15 AM	0	329	0	0	329	73	6	22	0	101	9	0	0	0	9	439
7:30 AM	4	294	0	0	298	96	7	14	0	117	5	6	0	0	11	426
7:45 AM	2	338	0	0	340	107	14	16	0	137	4	3	0	0	7	484
Hourly Total	12	1210	0	0	1222	341	29	72	0	442	23	11	0	0	34	1698
8:00 AM	2	275	0	0	277	120	6	13	0	139	5	5	0	0	10	426
8:15 AM	2	248	0	0	250	122	8	14	0	144	1	6	0	0	7	401
8:30 AM	1	242	0	0	243	106	7	6	0	119	5	5	0	0	10	372
8:45 AM	1	216	0	0	217	132	15	18	0	165	1	1	0	0	2	384
Hourly Total	6	981	0	0	987	480	36	51	0	567	12	17	0	0	29	1583
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	2	179	0	0	181	308	48	7	0	363	53	19	0	0	72	616
4:15 PM	3	160	0	0	163	312	51	19	0	382	51	12	0	0	63	608
4:30 PM	5	187	0	0	192	333	54	13	0	400	45	30	0	4	75	667
4:45 PM	5	170	0	0	175	390	57	6	0	453	48	18	0	0	66	694
Hourly Total	15	696	0	0	711	1343	210	45	0	1598	197	79	0	4	276	2585
5:00 PM	3	207	0	0	210	373	51	12	0	436	64	24	0	2	88	734
5:15 PM	4	196	0	0	200	392	40	4	0	436	46	23	0	0	69	705
5:30 PM	3	203	0	0	206	330	38	10	0	378	45	26	0	0	71	655
5:45 PM	4	203	0	0	207	335	53	7	0	395	41	22	0	1	63	665
Hourly Total	14	809	0	0	823	1430	182	33	0	1645	196	95	0	3	291	2759
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	47	3696	0	0	3743	3594	457	201	0	4252	428	202	0	7	630	8625
Approach %	1.3	98.7	0.0	-	-	84.5	10.7	4.7	-	-	67.9	32.1	0.0	-	-	-
Total %	0.5	42.9	0.0	-	43.4	41.7	5.3	2.3	-	49.3	5.0	2.3	0.0	-	7.3	-
Lights	47	3619	0	-	3666	3531	451	197	-	4179	421	201	0	-	622	8467
% Lights	100.0	97.9	-	-	97.9	98.2	98.7	98.0	-	98.3	98.4	99.5	-	-	98.7	98.2
Buses	0	5	0	-	5	5	0	0	-	5	0	0	0	-	0	10
% Buses	0.0	0.1	-	-	0.1	0.1	0.0	0.0	-	0.1	0.0	0.0	-	-	0.0	0.1
Single-Unit Trucks	0	58	0	-	58	45	4	1	-	50	2	1	0	-	3	111
% Single-Unit Trucks	0.0	1.6	-	-	1.5	1.3	0.9	0.5	-	1.2	0.5	0.5	-	-	0.5	1.3
Articulated Trucks	0	14	0	-	14	13	2	3	-	18	5	0	0	-	5	37
% Articulated Trucks	0.0	0.4	-	-	0.4	0.4	0.4	1.5	-	0.4	1.2	0.0	-	-	0.8	0.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	7	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU24L SE & SCU61E NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_4
Baldwin Commons & Baldwin_5-10-22
Site Code: TMC_4
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 2



Turning Movement Data Plot

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU24L SE & SCU61E NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_4
Baldwin Commons & Baldwin_5-10-22
Site Code: TMC_4
Traffic Data Collection, LLC
Start Date: 05/10/2022

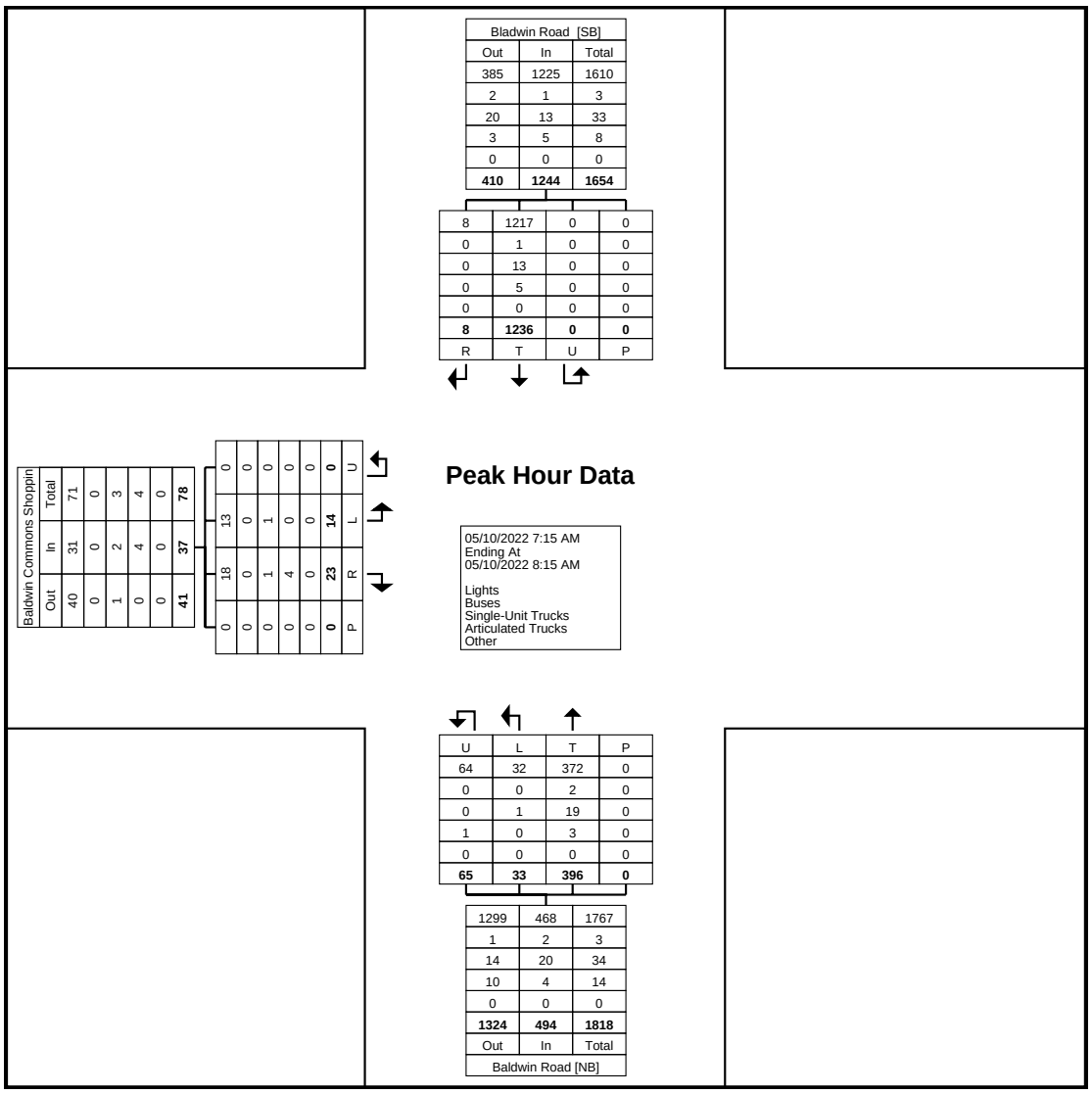
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Bladwin Road Southbound					Baldwin Road Northbound					Baldwin Commons Shopping Center Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
7:15 AM	0	329	0	0	329	73	6	22	0	101	9	0	0	0	9	439
7:30 AM	4	294	0	0	298	96	7	14	0	117	5	6	0	0	11	426
7:45 AM	2	338	0	0	340	107	14	16	0	137	4	3	0	0	7	484
8:00 AM	2	275	0	0	277	120	6	13	0	139	5	5	0	0	10	426
Total	8	1236	0	0	1244	396	33	65	0	494	23	14	0	0	37	1775
Approach %	0.6	99.4	0.0	-	-	80.2	6.7	13.2	-	-	62.2	37.8	0.0	-	-	-
Total %	0.5	69.6	0.0	-	70.1	22.3	1.9	3.7	-	27.8	1.3	0.8	0.0	-	2.1	-
PHF	0.500	0.914	0.000	-	0.915	0.825	0.589	0.739	-	0.888	0.639	0.583	0.000	-	0.841	0.917
Lights	8	1217	0	-	1225	372	32	64	-	468	18	13	0	-	31	1724
% Lights	100.0	98.5	-	-	98.5	93.9	97.0	98.5	-	94.7	78.3	92.9	-	-	83.8	97.1
Buses	0	1	0	-	1	2	0	0	-	2	0	0	0	-	0	3
% Buses	0.0	0.1	-	-	0.1	0.5	0.0	0.0	-	0.4	0.0	0.0	-	-	0.0	0.2
Single-Unit Trucks	0	13	0	-	13	19	1	0	-	20	1	1	0	-	2	35
% Single-Unit Trucks	0.0	1.1	-	-	1.0	4.8	3.0	0.0	-	4.0	4.3	7.1	-	-	5.4	2.0
Articulated Trucks	0	5	0	-	5	3	0	1	-	4	4	0	0	-	4	13
% Articulated Trucks	0.0	0.4	-	-	0.4	0.8	0.0	1.5	-	0.8	17.4	0.0	-	-	10.8	0.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU24L SE & SCU61E NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_4
Baldwin Commons & Baldwin_5-10-22
Site Code: TMC_4
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 4



Turning Movement Peak Hour Data Plot (7:15 AM)

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU24L SE & SCU61E NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_4
Baldwin Commons & Baldwin_5-10-22
Site Code: TMC_4
Traffic Data Collection, LLC
Start Date: 05/10/2022

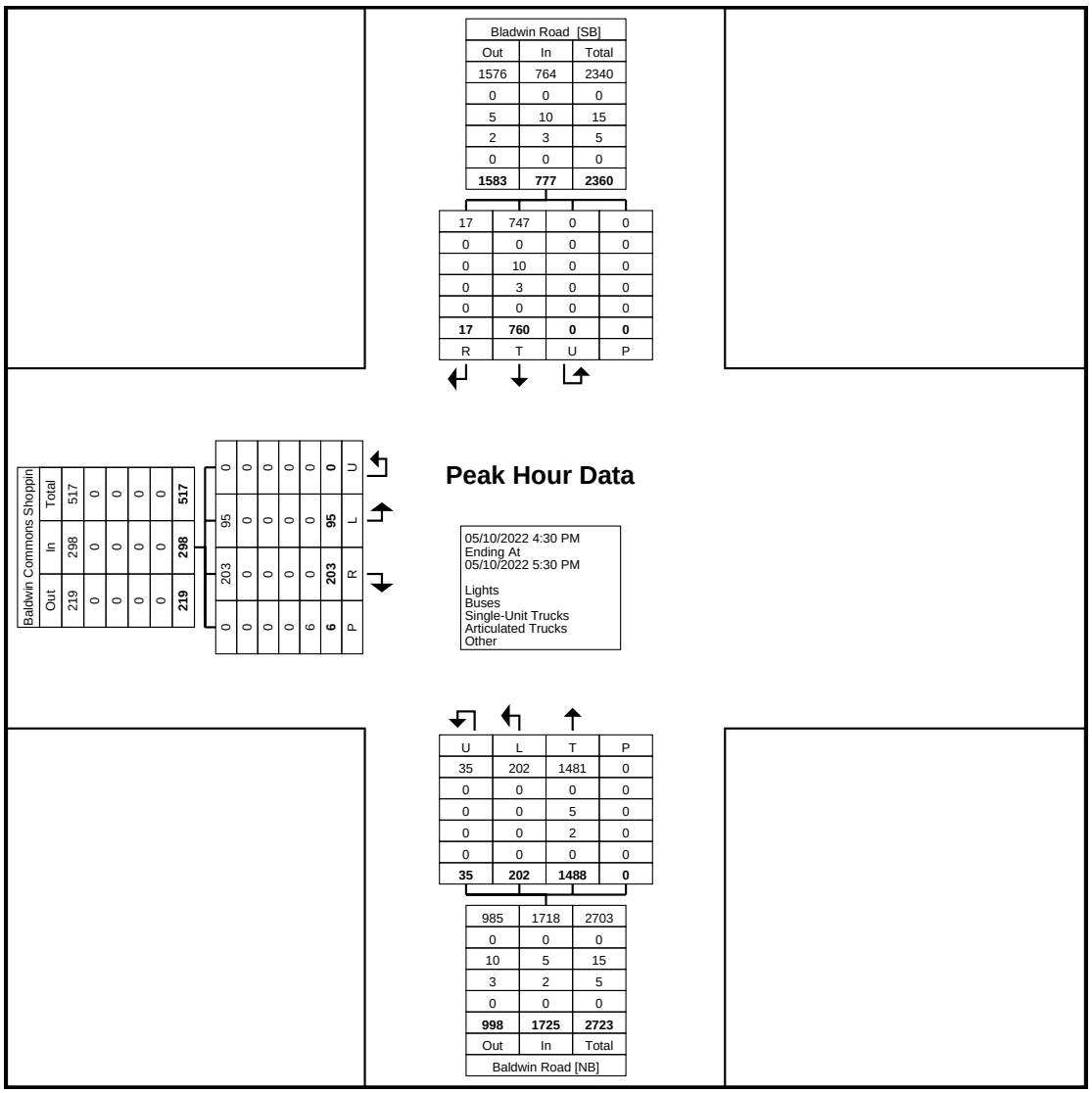
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Bladwin Road Southbound					Baldwin Road Northbound					Baldwin Commons Shopping Center Eastbound					
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Int. Total
4:30 PM	5	187	0	0	192	333	54	13	0	400	45	30	0	4	75	667
4:45 PM	5	170	0	0	175	390	57	6	0	453	48	18	0	0	66	694
5:00 PM	3	207	0	0	210	373	51	12	0	436	64	24	0	2	88	734
5:15 PM	4	196	0	0	200	392	40	4	0	436	46	23	0	0	69	705
Total	17	760	0	0	777	1488	202	35	0	1725	203	95	0	6	298	2800
Approach %	2.2	97.8	0.0	-	-	86.3	11.7	2.0	-	-	68.1	31.9	0.0	-	-	-
Total %	0.6	27.1	0.0	-	27.8	53.1	7.2	1.3	-	61.6	7.3	3.4	0.0	-	10.6	-
PHF	0.850	0.918	0.000	-	0.925	0.949	0.886	0.673	-	0.952	0.793	0.792	0.000	-	0.847	0.954
Lights	17	747	0	-	764	1481	202	35	-	1718	203	95	0	-	298	2780
% Lights	100.0	98.3	-	-	98.3	99.5	100.0	100.0	-	99.6	100.0	100.0	-	-	100.0	99.3
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	10	0	-	10	5	0	0	-	5	0	0	0	-	0	15
% Single-Unit Trucks	0.0	1.3	-	-	1.3	0.3	0.0	0.0	-	0.3	0.0	0.0	-	-	0.0	0.5
Articulated Trucks	0	3	0	-	3	2	0	0	-	2	0	0	0	-	0	5
% Articulated Trucks	0.0	0.4	-	-	0.4	0.1	0.0	0.0	-	0.1	0.0	0.0	-	-	0.0	0.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Project: Lake Orion Twp.
Traffic Impact Study
Corridor: Baldwin Road
Weather: Sunny, Dry Temp. 70's
Video VCU ID#: SCU24L SE & SCU61E NE

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

Count Name: TMC_4
Baldwin Commons & Baldwin_5-10-22
Site Code: TMC_4
Traffic Data Collection, LLC
Start Date: 05/10/2022
Page No: 6



Turning Movement Peak Hour Data Plot (4:30 PM)

Traffic Data Collection, LLC
7504 Sawgrass Drive
www.tdccounts.com
Washington, Michigan, United States 48094
Ph. (586) 786-5407
Reliable Traffic Data

TDC Traffic Comments: 4 hour video multi-modal intersection vehicle classification turning movement count conducted during typical weekday (Tuesday) from 7:00-9:00 AM morning & 4:00-6:00 PM afternoon peak hours, while school was in session. Daily peak hour reports provided for morning & afternoon peak hour study periods.

TMC was performed with Miovision video VCU scout recording cameras for Kalama Wolf In Binden Sheep, Lake Orion Traffic Impact Study for AEW.
Signalized controlled intersection. Push button ped. signals for west leg. Baldwin Road & Baldwin Commons are divided roadways. VCU cameras were located within SE &NE intersection quadrants. All intersection shared video files have been uploaded to Miovision DataLink cloud platform.

Classification Summary Details & Percentages: Six (6) Groupings:
1) Lights Includes: FHWA Classes 1-3 (Motorcycles, Pick Up Trucks, Vans, Light Goods Vehicles)
2) Buses Includes: FHWA Class 4 (School Buses & Regional Transportation Metro Buses)
3) Single-Unit Trucks Includes: FHWA Classes 5-7 (2-4 Axle SU Medium Trucks)
4) Articulated Trucks Includes: FHWA Classes 8-12 (Heavy Trucks W/Single & Multi Unit Trailers)
5) Bicycles On Road Includes: All bicycles on the roadway
6) Bicycles On Crosswalk Includes: All bicycles using sidewalk
7) Pedestrians Includes: All pedestrians using crosswalk

TMC_4 Baldwin Commons & Baldwin_5-10-22 - TMC

Tue May 10, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948430, Location: 42.708923, -83.307132, Site Code: TMC_4 Traffic Data Collection, LLC

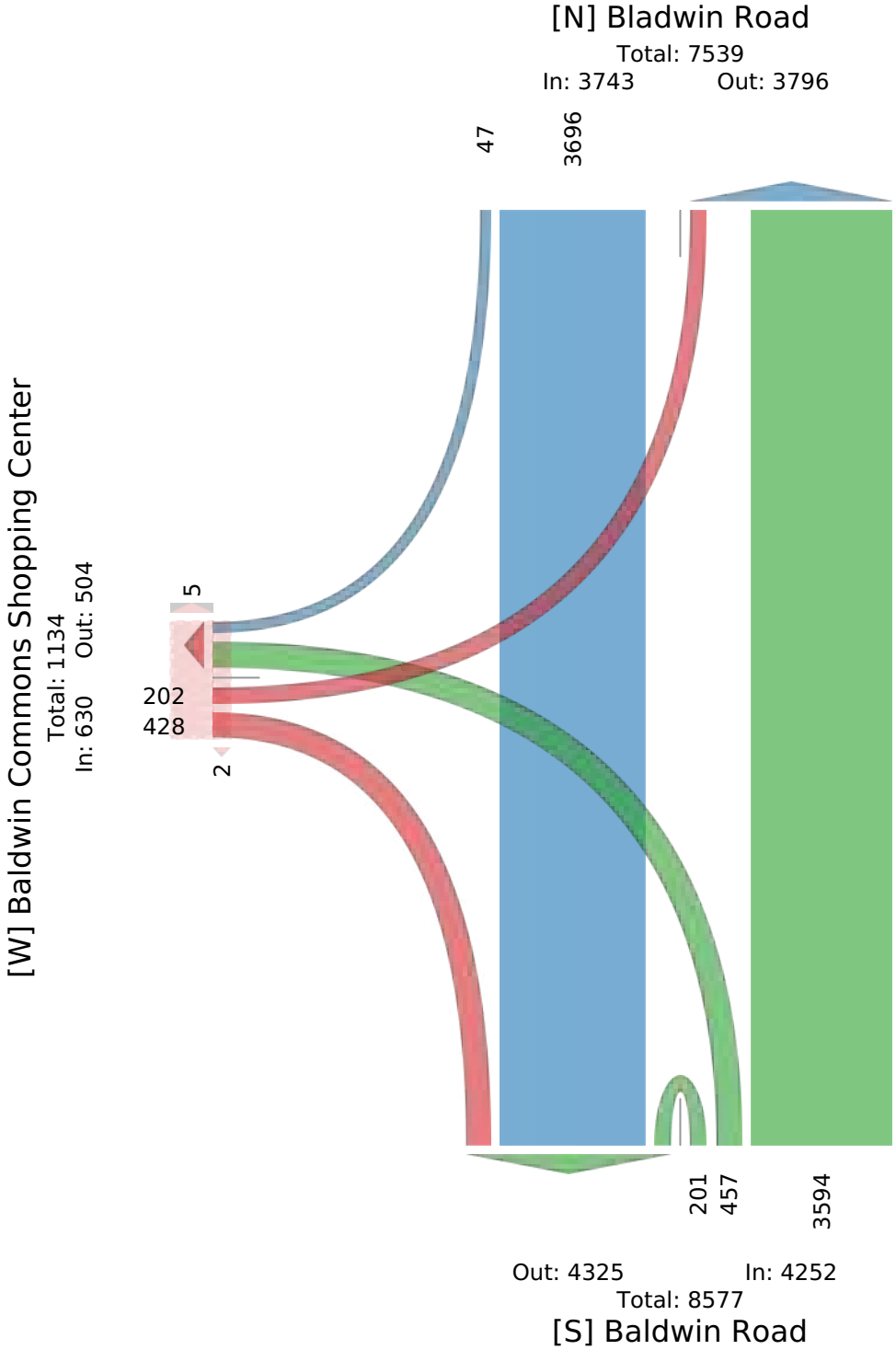
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg Direction	Bladwin Road Southbound					Baldwin Road Northbound					Baldwin Commons Shopping Center Eastbound					
Time	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	R	L	U	**App**	Ped*	**Int**
2022-05-10 7:00AM	6	249	0	**255**	0	65	2	20	**87**	0	5	2	0	**7**	0	**349**
7:15AM	0	329	0	**329**	0	73	6	22	**101**	0	9	0	0	**9**	0	**439**
7:30AM	4	294	0	**298**	0	96	7	14	**117**	0	5	6	0	**11**	0	**426**
7:45AM	2	338	0	**340**	0	107	14	16	**137**	0	4	3	0	**7**	0	**484**
Hourly Total	12	1210	0	**1222**	0	341	29	72	**442**	0	23	11	0	**34**	0	**1698**
8:00AM	2	275	0	**277**	0	120	6	13	**139**	0	5	5	0	**10**	0	**426**
8:15AM	2	248	0	**250**	0	122	8	14	**144**	0	1	6	0	**7**	0	**401**
8:30AM	1	242	0	**243**	0	106	7	6	**119**	0	5	5	0	**10**	0	**372**
8:45AM	1	216	0	**217**	0	132	15	18	**165**	0	1	1	0	**2**	0	**384**
Hourly Total	6	981	0	**987**	0	480	36	51	**567**	0	12	17	0	**29**	0	**1583**
4:00PM	2	179	0	**181**	0	308	48	7	**363**	0	53	19	0	**72**	0	**616**
4:15PM	3	160	0	**163**	0	312	51	19	**382**	0	51	12	0	**63**	0	**608**
4:30PM	5	187	0	**192**	0	333	54	13	**400**	0	45	30	0	**75**	4	**667**
4:45PM	5	170	0	**175**	0	390	57	6	**453**	0	48	18	0	**66**	0	**694**
Hourly Total	15	696	0	**711**	0	1343	210	45	**1598**	0	197	79	0	**276**	4	**2585**
5:00PM	3	207	0	**210**	0	373	51	12	**436**	0	64	24	0	**88**	2	**734**
5:15PM	4	196	0	**200**	0	392	40	4	**436**	0	46	23	0	**69**	0	**705**
5:30PM	3	203	0	**206**	0	330	38	10	**378**	0	45	26	0	**71**	0	**655**
5:45PM	4	203	0	**207**	0	335	53	7	**395**	0	41	22	0	**63**	1	**665**
Hourly Total	14	809	0	**823**	0	1430	182	33	**1645**	0	196	95	0	**291**	3	**2759**
6:00PM	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**
Hourly Total	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**
Total	47	3696	0	**3743**	0	3594	457	201	**4252**	0	428	202	0	**630**	7	**8625**
% Approach	1.3%	98.7%	0%	**-**	-	84.5%	10.7%	4.7%	**-**	-	67.9%	32.1%	0%	**-**	-	-
% Total	0.5%	42.9%	0%	**43.4%**	-	41.7%	5.3%	2.3%	**49.3%**	-	5.0%	2.3%	0%	**7.3%**	-	-
Lights	47	3619	0	**3666**	-	3531	451	197	**4179**	-	421	201	0	**622**	-	8467
% Lights	100%	97.9%	0%	**97.9%**	-	98.2%	98.7%	98.0%	**98.3%**	-	98.4%	99.5%	0%	**98.7%**	-	98.2%
Single-Unit Trucks	0	58	0	**58**	-	45	4	1	**50**	-	2	1	0	**3**	-	111
% Single-Unit Trucks	0%	1.6%	0%	**1.5%**	-	1.3%	0.9%	0.5%	**1.2%**	-	0.5%	0.5%	0%	**0.5%**	-	1.3%
Articulated Trucks	0	14	0	**14**	-	13	2	3	**18**	-	5	0	0	**5**	-	37
% Articulated Trucks	0%	0.4%	0%	**0.4%**	-	0.4%	0.4%	1.5%	**0.4%**	-	1.2%	0%	0%	**0.8%**	-	0.4%
Buses	0	5	0	**5**	-	5	0	0	**5**	-	0	0	0	**0**	-	10
% Buses	0%	0.1%	0%	**0.1%**	-	0.1%	0%	0%	**0.1%**	-	0%	0%	0%	**0%**	-	0.1%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	7	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

TMC_4 Baldwin Commons & Baldwin_5-10-22 - TMC
Tue May 10, 2022
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948430, Location: 42.708923, -83.307132, Site Code: TMC_4 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



TMC_4 Baldwin Commons & Baldwin_5-10-22 - TMC

Tue May 10, 2022
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948430, Location: 42.708923, -83.307132, Site Code: TMC_4 Traffic Data Collection, LLC

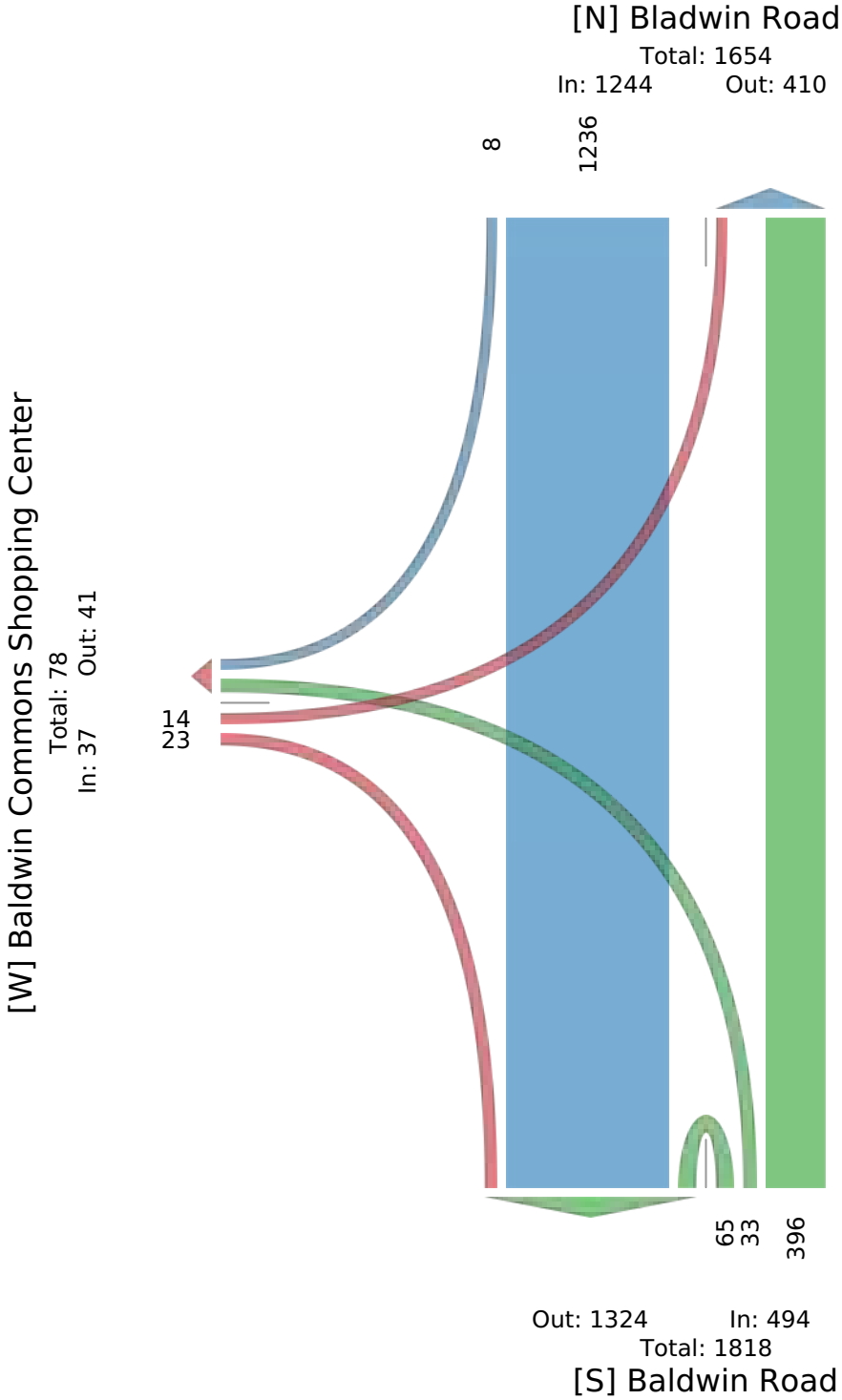
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg Direction	Bladwin Road Southbound					Baldwin Road Northbound					Baldwin Commons Shopping Center Eastbound					
Time	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	R	L	U	**App**	Ped*	**Int**
2022-05-10 7:15AM	0	329	0	**329**	0	73	6	22	**101**	0	9	0	0	**9**	0	**439**
7:30AM	4	294	0	**298**	0	96	7	14	**117**	0	5	6	0	**11**	0	**426**
7:45AM	2	338	0	**340**	0	107	14	16	**137**	0	4	3	0	**7**	0	**484**
8:00AM	2	275	0	**277**	0	120	6	13	**139**	0	5	5	0	**10**	0	**426**
Total	8	1236	0	**1244**	0	396	33	65	**494**	0	23	14	0	**37**	0	**1775**
% Approach	0.6%	99.4%	0%	**-**	-	80.2%	6.7%	13.2%	**-**	-	62.2%	37.8%	0%	**-**	-	**-**
% Total	0.5%	69.6%	0%	**70.1%**	-	22.3%	1.9%	3.7%	**27.8%**	-	1.3%	0.8%	0%	**2.1%**	-	**-**
PHF	0.500	0.914	-	**0.915**	-	0.825	0.589	0.739	**0.888**	-	0.639	0.583	-	**0.841**	-	0.917
Lights	8	1217	0	**1225**	-	372	32	64	**468**	-	18	13	0	**31**	-	1724
% Lights	100%	98.5%	0%	**98.5%**	-	93.9%	97.0%	98.5%	**94.7%**	-	78.3%	92.9%	0%	**83.8%**	-	97.1%
Single-Unit Trucks	0	13	0	**13**	-	19	1	0	**20**	-	1	1	0	**2**	-	35
% Single-Unit Trucks	0%	1.1%	0%	**1.0%**	-	4.8%	3.0%	0%	**4.0%**	-	4.3%	7.1%	0%	**5.4%**	-	2.0%
Articulated Trucks	0	5	0	**5**	-	3	0	1	**4**	-	4	0	0	**4**	-	13
% Articulated Trucks	0%	0.4%	0%	**0.4%**	-	0.8%	0%	1.5%	**0.8%**	-	17.4%	0%	0%	**10.8%**	-	0.7%
Buses	0	1	0	**1**	-	2	0	0	**2**	-	0	0	0	**0**	-	3
% Buses	0%	0.1%	0%	**0.1%**	-	0.5%	0%	0%	**0.4%**	-	0%	0%	0%	**0%**	-	0.2%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

TMC_4 Baldwin Commons & Baldwin_5-10-22 - TMC
Tue May 10, 2022
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948430, Location: 42.708923, -83.307132, Site Code: TMC_4 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



679

TMC_4 Baldwin Commons & Baldwin_5-10-22 - TMC

Tue May 10, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948430, Location: 42.708923, -83.307132, Site Code: TMC_4 Traffic Data Collection, LLC

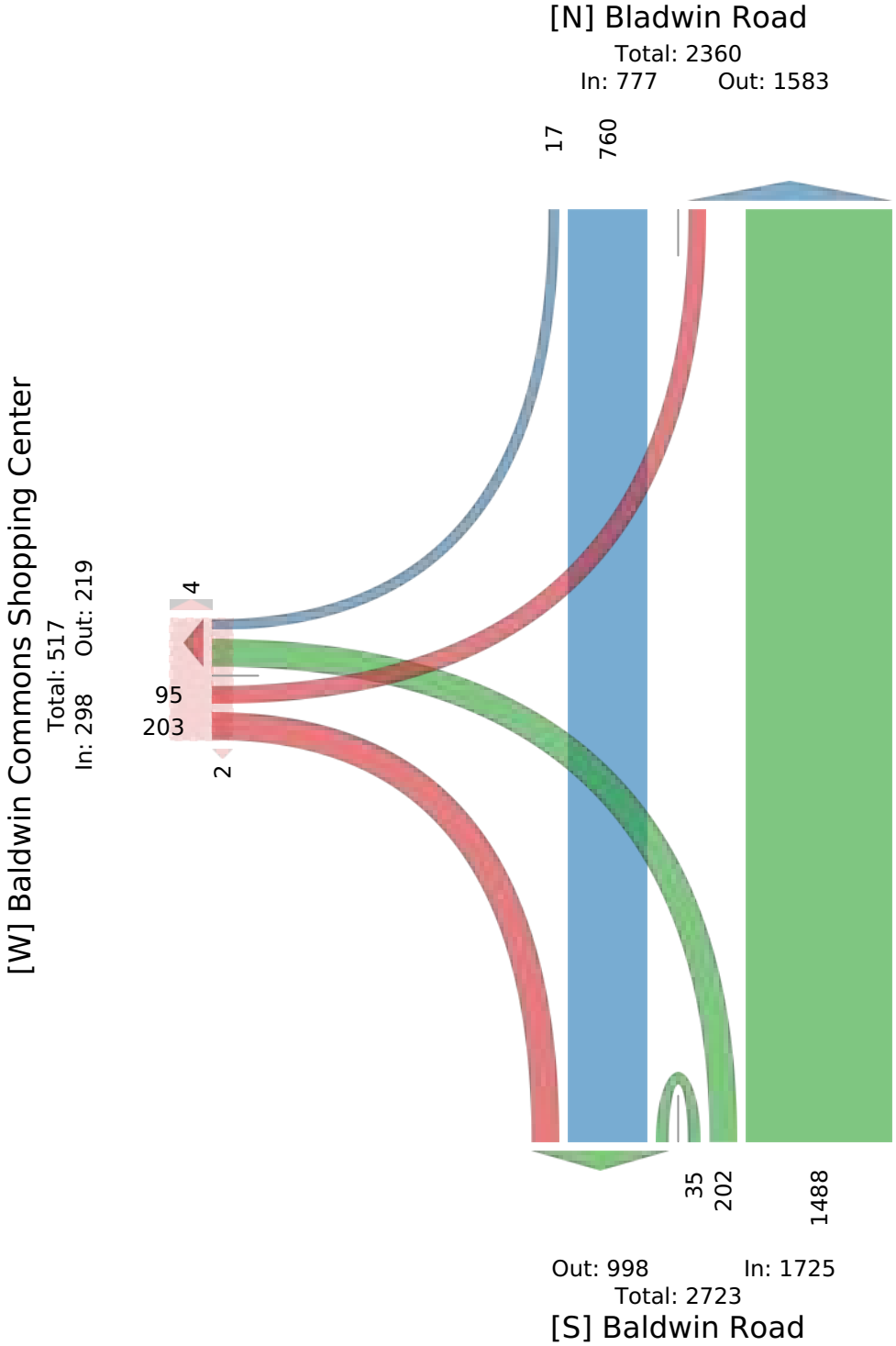
Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US

Leg Direction	Bladwin Road Southbound					Baldwin Road Northbound					Baldwin Commons Shopping Center Eastbound					
Time	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	R	L	U	**App**	Ped*	**Int**
2022-05-10 4:30PM	5	187	0	**192**	0	333	54	13	**400**	0	45	30	0	**75**	4	**667**
4:45PM	5	170	0	**175**	0	390	57	6	**453**	0	48	18	0	**66**	0	**694**
5:00PM	3	207	0	**210**	0	373	51	12	**436**	0	64	24	0	**88**	2	**734**
5:15PM	4	196	0	**200**	0	392	40	4	**436**	0	46	23	0	**69**	0	**705**
Total	17	760	0	**777**	0	1488	202	35	**1725**	0	203	95	0	**298**	6	**2800**
% Approach	2.2%	97.8%	0%	**-**	-	86.3%	11.7%	2.0%	**-**	-	68.1%	31.9%	0%	**-**	-	**-**
% Total	0.6%	27.1%	0%	**27.8%**	-	53.1%	7.2%	1.3%	**61.6%**	-	7.3%	3.4%	0%	**10.6%**	-	**-**
PHF	0.850	0.918	-	**0.925**	-	0.949	0.886	0.673	**0.952**	-	0.793	0.792	-	**0.847**	-	0.954
Lights	17	747	0	**764**	-	1481	202	35	**1718**	-	203	95	0	**298**	-	2780
% Lights	100%	98.3%	0%	**98.3%**	-	99.5%	100%	100%	**99.6%**	-	100%	100%	0%	**100%**	-	99.3%
Single-Unit Trucks	0	10	0	**10**	-	5	0	0	**5**	-	0	0	0	**0**	-	15
% Single-Unit Trucks	0%	1.3%	0%	**1.3%**	-	0.3%	0%	0%	**0.3%**	-	0%	0%	0%	**0%**	-	0.5%
Articulated Trucks	0	3	0	**3**	-	2	0	0	**2**	-	0	0	0	**0**	-	5
% Articulated Trucks	0%	0.4%	0%	**0.4%**	-	0.1%	0%	0%	**0.1%**	-	0%	0%	0%	**0%**	-	0.2%
Buses	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Buses	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	6	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

TMC_4 Baldwin Commons & Baldwin_5-10-22 - TMC
Tue May 10, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 948430, Location: 42.708923, -83.307132, Site Code: TMC_4 Traffic Data Collection, LLC

Provided by: Traffic Data Collection, LLC
7504 Sawgrass Drive, www.tdccounts.com,
Washington, MI, 48094, US



APPENDIX B: EXISTING CONDITION REPORTS
LOS & QUEUE

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah	2022 PHF Flow Profile (veh)
2022 Existing Traffic	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	Judah	90	0	12.00	1	14.00	1	164.00	66.00	30.00
3	Baldwin	180	0	24.00	2	27.00	2	300.00	66.00	30.00
4	Judah	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Baldwin	164.00	20.00	1	24.00	2	24.00	2
2	Judah	164.00	33.00	2	14.00	1	14.00	1
3	Baldwin	164.00	20.00	1	24.00	2	24.00	2
4	Judah	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0
3	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2022 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	Baldwin	1	1	1107	0	0	3.0	1.00	0.900
2	Judah	0	0	0	0	0	3.0	1.00	0.900
3	Baldwin	1	0	325	2	0	3.0	1.00	0.900
4	Judah	0	3	6	6	0	3.0	1.00	0.900

Operational Results

2022 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	1109		10		332	2327		0.4766	
2	Judah	None	0		0		6	0		0.0000	
3	Baldwin	None	328		2		1111	2341		0.1401	
4	Judah	None	15		327		3	1090		0.0138	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	2.78		2.78	2.70		A		A
2	Judah	None	0.00		0.00	0.00		A		A
3	Baldwin	None	1.72		1.72	0.47		A		A
4	Judah	None	3.22		3.22	0.04		A		A

2022 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	1232		11		369	2326		0.5298	
2	Judah	None	0		0		6	0		0.0000	
3	Baldwin	None	364		2		1234	2341		0.1557	
4	Judah	None	17		363		3	1077		0.0155	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	2.89		2.89	2.70		A		A
2	Judah	None	0.00		0.00	0.00		A		A
3	Baldwin	None	1.70		1.70	0.47		A		A
4	Judah	None	3.16		3.16	0.04		A		A

Approach Flow Profile

2022 AM Peak - Approach Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	133.49	0.00	39.48	1.81
7.5 - 15.0	133.49	0.00	39.48	1.81
15.0 - 22.5	133.49	0.00	39.48	1.81
22.5 - 30.0	154.03	0.00	45.56	2.08
30.0 - 37.5	154.03	0.00	45.56	2.08
37.5 - 45.0	133.49	0.00	39.48	1.81
45.0 - 52.5	133.49	0.00	39.48	1.81
52.5 - 60.0	133.49	0.00	39.48	1.81
Peak 15 min	154.03	0.00	45.56	2.08
Peak 60 min	138.63	0.00	41.00	1.88

Exit Flow Profile

2022 AM Peak - Exit Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	39.95	0.72	133.65	0.36
7.5 - 15.0	39.96	0.72	133.73	0.36
15.0 - 22.5	39.96	0.72	133.73	0.36
22.5 - 30.0	46.10	0.83	154.18	0.42
30.0 - 37.5	46.11	0.83	154.30	0.42
37.5 - 45.0	39.98	0.72	133.85	0.36
45.0 - 52.5	39.96	0.72	133.73	0.36
52.5 - 60.0	39.96	0.72	133.73	0.36
0-60	332	6	1111	3
%Trucks	3.00	3.00	3.00	3.00

Economics

Economic Input Data

2022 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2022 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2022 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	333.37	5001	Vehicles Injury	0.00	0	Vehicle Delay Cost	5001
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	0.00	0	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	333.37	5001	Totals	0.00	0	TOTAL COST	5001

Global Results

Performance and Accidents

2022 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1452		1452
Capacity	veh/hr	5758		5758
Average Delay	sec/veh	2.54		2.54
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.03		1.03

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	193	0	0	176	92	0	351	384	0	0	0
Future Volume (vph)	4	193	0	0	176	92	0	351	384	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7			6.1	6.1		6.1				
Lane Util. Factor		0.95			0.95	1.00		0.91				
Frt		1.00			1.00	0.85		0.92				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3722			3725	1667		4934				
Flt Permitted		0.95			1.00	1.00		1.00				
Satd. Flow (perm)		3536			3725	1667		4934				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	210	0	0	191	100	0	382	417	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	90	0	139	0	0	0	0
Lane Group Flow (vph)	0	214	0	0	191	10	0	660	0	0	0	0
Turn Type	Perm	NA			NA	Prot		NA				
Protected Phases		4			1	1		2				
Permitted Phases	4											
Actuated Green, G (s)		20.4			12.5	12.5		69.2				
Effective Green, g (s)		20.4			12.5	12.5		69.2				
Actuated g/C Ratio		0.17			0.10	0.10		0.58				
Clearance Time (s)		5.7			6.1	6.1		6.1				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		601			388	173		2845				
v/s Ratio Prot					c0.05	0.01		c0.13				
v/s Ratio Perm		c0.06										
v/c Ratio		0.36			0.49	0.06		0.23				
Uniform Delay, d1		44.0			50.8	48.5		12.4				
Progression Factor		0.01			1.00	1.00		1.00				
Incremental Delay, d2		0.3			1.0	0.1		0.2				
Delay (s)		0.6			51.7	48.6		12.6				
Level of Service		A			D	D		B				
Approach Delay (s)		0.6			50.7			12.6			0.0	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	0	101	342	0	0
Future Volume (vph)	13	0	101	342	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.7		6.1	6.1		
Lane Util. Factor	1.00		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1863		3614	5353		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	1863		3614	5353		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	14	0	106	360	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	14	0	106	360	0	0
Turn Type	Prot		custom	NA		
Protected Phases	4			2 5		
Permitted Phases			5			
Actuated Green, G (s)	20.4		11.4	80.6		
Effective Green, g (s)	20.4		11.4	80.6		
Actuated g/C Ratio	0.17		0.10	0.67		
Clearance Time (s)	5.7		6.1			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	316		343	3595		
v/s Ratio Prot	c0.01			c0.07		
v/s Ratio Perm			c0.03			
v/c Ratio	0.04		0.31	0.10		
Uniform Delay, d1	41.6		50.6	6.9		
Progression Factor	0.04		1.21	0.63		
Incremental Delay, d2	0.1		0.5	0.0		
Delay (s)	1.8		61.8	4.4		
Level of Service	A		E	A		
Approach Delay (s)	1.8			17.4	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: NB Baldwin Road & Jordan Road

01/02/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	0	0	0	4	0	373	6	0	0	0
Future Volume (Veh/h)	15	0	0	0	0	4	0	373	6	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.65	0.92	0.93	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	0	0	0	6	0	401	7	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								633				
pX, platoon unblocked	1.00	1.00		1.00	1.00	1.00				1.00		
vC, conflicting volume	140	408	0	404	404	137	0			408		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	124	393	0	389	389	121	0			393		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	99	100			100		
cM capacity (veh/h)	829	540	1084	542	542	904	1622			1158		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3
Volume Total	8	8	6	160	160	87
Volume Left	8	8	0	0	0	0
Volume Right	0	0	6	0	0	7
cSH	829	829	904	1700	1700	1700
Volume to Capacity	0.01	0.01	0.01	0.09	0.09	0.05
Queue Length 95th (ft)	1	1	1	0	0	0
Control Delay (s)	9.4	9.4	9.0	0.0	0.0	0.0
Lane LOS	A	A	A			
Approach Delay (s)	9.4		9.0	0.0		
Approach LOS	A		A			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	176	0	0	0	197	1055
Future Volume (vph)	176	0	0	0	197	1055
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.1				5.7	6.1
Lane Util. Factor	0.97				0.97	0.95
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3614				3614	3725
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3614				3614	3725
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	191	0	0	0	214	1147
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	191	0	0	0	214	1147
Turn Type	Prot				Prot	NA
Protected Phases	1				4	2 4
Permitted Phases						
Actuated Green, G (s)	12.5				20.4	95.7
Effective Green, g (s)	12.5				20.4	95.7
Actuated g/C Ratio	0.10				0.17	0.80
Clearance Time (s)	6.1				5.7	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	376				614	2970
v/s Ratio Prot	c0.05				0.06	c0.31
v/s Ratio Perm						
v/c Ratio	0.51				0.35	0.39
Uniform Delay, d1	50.8				43.9	3.6
Progression Factor	0.03				1.11	0.18
Incremental Delay, d2	1.1				0.3	0.1
Delay (s)	2.5				49.2	0.7
Level of Service	A				D	A
Approach Delay (s)	2.5		0.0			8.3
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	13	24	50	51	0	0	0	0	0	1157	6
Future Volume (vph)	0	13	24	50	51	0	0	0	0	0	1157	6
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7	5.7		6.1						6.1	6.1
Lane Util. Factor		1.00	1.00		0.95						0.95	1.00
Frt		1.00	0.85		1.00						1.00	0.85
Flt Protected		1.00	1.00		0.98						1.00	1.00
Satd. Flow (prot)		1961	1667		3635						3725	1667
Flt Permitted		1.00	1.00		0.70						1.00	1.00
Satd. Flow (perm)		1961	1667		2619						3725	1667
Peak-hour factor, PHF	0.92	0.84	0.84	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	15	29	53	54	0	0	0	0	0	1258	7
RTOR Reduction (vph)	0	0	24	0	0	0	0	0	0	0	0	3
Lane Group Flow (vph)	0	15	5	0	107	0	0	0	0	0	1258	4
Turn Type		NA	Perm	Perm	NA						NA	Perm
Protected Phases		4			5						6	
Permitted Phases			4	5								6
Actuated Green, G (s)		20.4	20.4		11.4						70.3	70.3
Effective Green, g (s)		20.4	20.4		11.4						70.3	70.3
Actuated g/C Ratio		0.17	0.17		0.10						0.59	0.59
Clearance Time (s)		5.7	5.7		6.1						6.1	6.1
Vehicle Extension (s)		3.0	3.0		3.0						3.0	3.0
Lane Grp Cap (vph)		333	283		248						2182	976
v/s Ratio Prot		c0.01									c0.34	
v/s Ratio Perm			0.00		c0.04							0.00
v/c Ratio		0.05	0.02		0.43						0.58	0.00
Uniform Delay, d1		41.7	41.5		51.2						15.5	10.3
Progression Factor		1.00	1.00		0.04						1.00	1.00
Incremental Delay, d2		0.1	0.0		1.2						0.4	0.0
Delay (s)		41.7	41.5		3.2						15.9	10.3
Level of Service		D	D		A						B	B
Approach Delay (s)		41.6			3.2			0.0			15.9	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	56	0	0	0	0	1116
Future Volume (Veh/h)	56	0	0	0	0	1116
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	0	0	0	0	1213
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1206			
pX, platoon unblocked						
vC, conflicting volume	606	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	606	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	100			100	
cM capacity (veh/h)	428	1084			1622	

Direction, Lane #	WB 1	WB 2	SB 1	SB 2
Volume Total	30	30	606	606
Volume Left	30	30	0	0
Volume Right	0	0	0	0
cSH	428	428	1700	1700
Volume to Capacity	0.07	0.07	0.36	0.36
Queue Length 95th (ft)	6	6	0	0
Control Delay (s)	14.0	14.0	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	14.0		0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	336	0	0
Future Volume (Veh/h)	0	0	0	336	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	0	373	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	186	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	186	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	785	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total	0	0	186	186
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.11	0.11
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0		0.0	
Approach LOS	A			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	96	0	0	1152	20
Future Volume (Veh/h)	0	96	0	0	1152	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	104	0	0	1252	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				774		
pX, platoon unblocked						
vC, conflicting volume	1263	637	1274			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1263	637	1274			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	75	100			
cM capacity (veh/h)	162	420	541			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	104	835	439
Volume Left	0	0	0
Volume Right	104	0	22
cSH	420	1700	1700
Volume to Capacity	0.25	0.49	0.26
Queue Length 95th (ft)	24	0	0
Control Delay (s)	16.4	0.0	0.0
Lane LOS	C		
Approach Delay (s)	16.4	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah	2022 PHF Flow Profile (veh)
2022 Existing Traffic	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	Judah	90	0	12.00	1	14.00	1	164.00	66.00	30.00
3	Baldwin	180	0	24.00	2	27.00	2	300.00	66.00	30.00
4	Judah	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Baldwin	164.00	20.00	1	24.00	2	24.00	2
2	Judah	164.00	33.00	2	14.00	1	14.00	1
3	Baldwin	164.00	20.00	1	24.00	2	24.00	2
4	Judah	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0
3	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2022 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	Baldwin	11	6	590	0	0	3.0	1.00	0.900
2	Judah	0	0	0	0	0	3.0	1.00	0.900
3	Baldwin	0	0	1289	16	0	3.0	1.00	0.900
4	Judah	0	7	0	14	0	3.0	1.00	0.900

Operational Results

2022 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	607		7		1314	2330		0.2605	
2	Judah	None	0		0		0	0		0.0000	
3	Baldwin	None	1305		17		597	2326		0.5611	
4	Judah	None	21		1300		22	725		0.0290	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	2.05		2.05	1.05		A		A
2	Judah	None	0.00		0.00	0.00		A		A
3	Baldwin	None	3.32		3.32	3.89		A		A
4	Judah	None	4.91		4.91	0.09		A		A

2022 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	674		8		1459	2329		0.2896	
2	Judah	None	0		0		0	0		0.0000	
3	Baldwin	None	1450		19		663	2324		0.6239	
4	Judah	None	23		1444		24	671		0.0348	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	2.05		2.05	1.05		A		A
2	Judah	None	0.00		0.00	0.00		A		A
3	Baldwin	None	3.54		3.54	3.89		A		A
4	Judah	None	5.05		5.05	0.09		A		A

Approach Flow Profile

2022 PM Peak - Approach Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	73.06	0.00	157.08	2.53
7.5 - 15.0	73.06	0.00	157.08	2.53
15.0 - 22.5	73.06	0.00	157.08	2.53
22.5 - 30.0	84.31	0.00	181.25	2.92
30.0 - 37.5	84.31	0.00	181.25	2.92
37.5 - 45.0	73.06	0.00	157.08	2.53
45.0 - 52.5	73.06	0.00	157.08	2.53
52.5 - 60.0	73.06	0.00	157.08	2.53
Peak 15 min	84.31	0.00	181.25	2.92
Peak 60 min	75.87	0.00	163.12	2.63

Exit Flow Profile

2022 PM Peak - Exit Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	158.03	0.00	71.83	2.65
7.5 - 15.0	158.16	0.00	71.86	2.65
15.0 - 22.5	158.17	0.00	71.86	2.65
22.5 - 30.0	182.29	0.00	82.88	3.05
30.0 - 37.5	182.49	0.00	82.92	3.06
37.5 - 45.0	158.37	0.00	71.90	2.65
45.0 - 52.5	158.17	0.00	71.86	2.65
52.5 - 60.0	158.17	0.00	71.86	2.65
0-60	1314	0	597	22
%Trucks	3.00	0.00	3.00	3.00

Economics

Economic Input Data

2022 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2022 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2022 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	333.37	5001	Vehicles Injury	0.00	0	Vehicle Delay Cost	12683
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	512.14	7682	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	845.51	12683	Totals	0.00	0	TOTAL COST	12683

Global Results

Performance and Accidents

2022 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1933		1933
Capacity	veh/hr	5381		5381
Average Delay	sec/veh	2.93		2.93
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.58		1.58

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	224	0	0	618	423	0	1220	493	0	0	0
Future Volume (vph)	20	224	0	0	618	423	0	1220	493	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7			6.1	6.1		6.1				
Lane Util. Factor		0.95			0.95	1.00		0.91				
Frt		1.00			1.00	0.85		0.96				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3710			3762	1667		5122				
Flt Permitted		0.86			1.00	1.00		1.00				
Satd. Flow (perm)		3205			3762	1667		5122				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	243	0	0	672	460	0	1326	536	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	334	0	61	0	0	0	0
Lane Group Flow (vph)	0	265	0	0	672	126	0	1801	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA	Prot		NA				
Protected Phases		4			1	1		2				
Permitted Phases	4											
Actuated Green, G (s)		29.0			21.2	21.2		51.9				
Effective Green, g (s)		29.0			21.2	21.2		51.9				
Actuated g/C Ratio		0.24			0.18	0.18		0.43				
Clearance Time (s)		5.7			6.1	6.1		6.1				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		774			664	294		2215				
v/s Ratio Prot					c0.18	0.08		c0.35				
v/s Ratio Perm		c0.08										
v/c Ratio		0.34			1.01	0.43		0.81				
Uniform Delay, d1		37.6			49.4	44.0		29.8				
Progression Factor		0.02			1.00	1.00		1.00				
Incremental Delay, d2		0.3			38.0	1.0		3.4				
Delay (s)		1.2			87.4	45.0		33.2				
Level of Service		A			F	D		C				
Approach Delay (s)		1.2			70.1			33.2			0.0	
Approach LOS		A			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	0	0	0	7	0	1223	4	0	0	0
Future Volume (Veh/h)	16	0	0	0	0	7	0	1223	4	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.65	0.92	0.93	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	0	0	0	0	11	0	1315	4	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								655				
pX, platoon unblocked	0.89	0.89		0.89	0.89	0.89				0.89		
vC, conflicting volume	449	1319	0	1317	1317	440	0			1319		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	916	0	914	914	0	0			916		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	99	100			100		
cM capacity (veh/h)	897	240	1084	202	241	962	1622			657		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3
Volume Total	8	8	11	526	526	267
Volume Left	8	8	0	0	0	0
Volume Right	0	0	11	0	0	4
cSH	897	897	962	1700	1700	1700
Volume to Capacity	0.01	0.01	0.01	0.31	0.31	0.16
Queue Length 95th (ft)	1	1	1	0	0	0
Control Delay (s)	9.0	9.0	8.8	0.0	0.0	0.0
Lane LOS	A	A	A			
Approach Delay (s)	9.0		8.8	0.0		
Approach LOS	A		A			

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	103	0	336	1316	0	0
Future Volume (vph)	103	0	336	1316	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.7		6.1	6.1		
Lane Util. Factor	1.00		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1863		3650	5406		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	1863		3650	5406		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	112	0	354	1385	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	112	0	354	1385	0	0
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	Prot		custom	NA		
Protected Phases	4			2 5		
Permitted Phases			5			
Actuated Green, G (s)	29.0		25.2	77.1		
Effective Green, g (s)	29.0		25.2	77.1		
Actuated g/C Ratio	0.24		0.21	0.64		
Clearance Time (s)	5.7		6.1			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	450		766	3473		
v/s Ratio Prot	c0.06			c0.26		
v/s Ratio Perm			c0.10			
v/c Ratio	0.25		0.46	0.40		
Uniform Delay, d1	36.7		41.5	10.3		
Progression Factor	0.04		1.44	0.36		
Incremental Delay, d2	0.3		0.3	0.0		
Delay (s)	1.7		59.8	3.8		
Level of Service	A		E	A		
Approach Delay (s)	1.7			15.2	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	618	0	0	0	244	700
Future Volume (vph)	618	0	0	0	244	700
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.1				5.7	6.1
Lane Util. Factor	0.97				0.97	0.95
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3614				3614	3725
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3614				3614	3725
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	672	0	0	0	265	761
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	672	0	0	0	265	761
Turn Type	Prot				Prot	NA
Protected Phases	1				4	2 4
Permitted Phases						
Actuated Green, G (s)	21.2				29.0	87.0
Effective Green, g (s)	21.2				29.0	87.0
Actuated g/C Ratio	0.18				0.24	0.72
Clearance Time (s)	6.1				5.7	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	638				873	2700
v/s Ratio Prot	c0.19				0.07	c0.20
v/s Ratio Perm						
v/c Ratio	1.05				0.30	0.28
Uniform Delay, d1	49.4				37.2	5.7
Progression Factor	0.12				1.03	0.36
Incremental Delay, d2	28.2				0.2	0.1
Delay (s)	33.9				38.3	2.1
Level of Service	C				D	A
Approach Delay (s)	33.9		0.0			11.5
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	54	0	0	576	117
Future Volume (Veh/h)	0	54	0	0	576	117
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	59	0	0	626	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				793		
pX, platoon unblocked						
vC, conflicting volume	690	376	753			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	690	376	753			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	379	621	853			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	59	417	336
Volume Left	0	0	0
Volume Right	59	0	127
cSH	621	1700	1700
Volume to Capacity	0.09	0.25	0.20
Queue Length 95th (ft)	8	0	0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	97	0	0	0	0	596
Future Volume (Veh/h)	97	0	0	0	0	596
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	105	0	0	0	0	648
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1225			
pX, platoon unblocked						
vC, conflicting volume	324	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	324	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	100			100	
cM capacity (veh/h)	645	1084			1622	

Direction, Lane #	WB 1	WB 2	SB 1	SB 2
Volume Total	52	52	324	324
Volume Left	52	52	0	0
Volume Right	0	0	0	0
cSH	645	645	1700	1700
Volume to Capacity	0.08	0.08	0.19	0.19
Queue Length 95th (ft)	7	7	0	0
Control Delay (s)	11.1	11.1	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	11.1		0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	0	1309	0	0
Future Volume (Veh/h)	1	0	0	1309	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	1	0	0	1454	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	727	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	727	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	359	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total	0	0	727	727
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	359	359	1700	1700
Volume to Capacity	0.00	0.00	0.43	0.43
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	15.0	15.0	0.0	0.0
Lane LOS	C	C		
Approach Delay (s)	15.0		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
6: S. Baldwin Commons & SB Baldwin Road

01/02/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	103	273	47	289	0	0	0	0	0	672	14
Future Volume (vph)	0	103	273	47	289	0	0	0	0	0	672	14
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7	5.7		6.1						6.1	6.1
Lane Util. Factor		1.00	1.00		0.95						0.95	1.00
Frt		1.00	0.85		1.00						1.00	0.85
Flt Protected		1.00	1.00		0.99						1.00	1.00
Satd. Flow (prot)		1923	1683		3736						3725	1667
Flt Permitted		1.00	1.00		0.53						1.00	1.00
Satd. Flow (perm)		1923	1683		1980						3725	1667
Peak-hour factor, PHF	0.92	0.84	0.84	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	123	325	49	304	0	0	0	0	0	730	15
RTOR Reduction (vph)	0	0	213	0	0	0	0	0	0	0	0	9
Lane Group Flow (vph)	0	123	112	0	353	0	0	0	0	0	730	6
Heavy Vehicles (%)	2%	4%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	Perm	NA						NA	Perm
Protected Phases		4			5						6	
Permitted Phases			4	5								6
Actuated Green, G (s)		29.0	29.0		25.2						47.9	47.9
Effective Green, g (s)		29.0	29.0		25.2						47.9	47.9
Actuated g/C Ratio		0.24	0.24		0.21						0.40	0.40
Clearance Time (s)		5.7	5.7		6.1						6.1	6.1
Vehicle Extension (s)		3.0	3.0		3.0						3.0	3.0
Lane Grp Cap (vph)		464	406		415						1486	665
v/s Ratio Prot		0.06									c0.20	
v/s Ratio Perm			c0.07		c0.18							0.00
v/c Ratio		0.27	0.28		0.85						0.49	0.01
Uniform Delay, d1		36.9	37.0		45.6						26.9	21.7
Progression Factor		1.00	1.00		0.20						1.00	1.00
Incremental Delay, d2		0.3	0.4		14.0						0.3	0.0
Delay (s)		37.2	37.3		22.9						27.2	21.7
Level of Service		D	D		C						C	C
Approach Delay (s)		37.3			22.9			0.0			27.1	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX C: BACKGROUND CONDITION REPORTS LOS & QUEUE

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah 2030	2032 PHF Flow Profile (veh)
2030 Background Traffic	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	SB Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	EB	90	0	12.00	1	14.00	1	164.00	66.00	30.00
3	NB Baldwin	180	0	24.00	2	27.00	2	300.00	66.00	30.00
4	WB	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	SB Baldwin	164.00	20.00	1	24.00	2	24.00	2
2	EB	164.00	33.00	2	14.00	1	14.00	1
3	NB Baldwin	164.00	20.00	1	24.00	2	24.00	2
4	WB	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	SB Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	EB	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0
3	NB Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	WB	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2032 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	SB Baldwin	1	1	1178	0	0	3.0	1.00	0.900
2	EB	0	0	0	0	0	3.0	1.00	0.900
3	NB Baldwin	0	0	366	2	0	3.0	1.00	0.900
4	WB	0	3	6	6	0	3.0	1.00	0.900

Operational Results

2032 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB Baldwin	None	1180		9		373	2328		0.5069	
2	EB	None	0		0		6	0		0.0000	
3	NB Baldwin	None	368		2		1181	2341		0.1572	
4	WB	None	15		367		3	1075		0.0139	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB Baldwin	None	2.94		2.94	3.06		A		A
2	EB	None	0.00		0.00	0.00		A		A
3	NB Baldwin	None	1.75		1.75	0.54		A		A
4	WB	None	3.26		3.26	0.04		A		A

2032 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB Baldwin	None	1311		10		414	2327		0.5635	
2	EB	None	0		0		6	0		0.0000	
3	NB Baldwin	None	409		2		1312	2341		0.1747	
4	WB	None	17		408		3	1060		0.0157	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB Baldwin	None	3.08		3.08	3.06		A		A
2	EB	None	0.00		0.00	0.00		A		A
3	NB Baldwin	None	1.73		1.73	0.54		A		A
4	WB	None	3.20		3.20	0.04		A		A

Approach Flow Profile

2032 AM Peak - Approach Flows (Veh / Hour)

Time Slice	SB Baldwin	EB	NB Baldwin	WB
0.0 - 7.5	142.04	0.00	44.30	1.81
7.5 - 15.0	142.04	0.00	44.30	1.81
15.0 - 22.5	142.04	0.00	44.30	1.81
22.5 - 30.0	163.89	0.00	51.11	2.08
30.0 - 37.5	163.89	0.00	51.11	2.08
37.5 - 45.0	142.04	0.00	44.30	1.81
45.0 - 52.5	142.04	0.00	44.30	1.81
52.5 - 60.0	142.04	0.00	44.30	1.81
Peak 15 min	163.89	0.00	51.11	2.08
Peak 60 min	147.50	0.00	46.00	1.88

Exit Flow Profile

2032 AM Peak - Exit Flows (Veh / Hour)

Time Slice	SB Baldwin	EB	NB Baldwin	WB
0.0 - 7.5	44.88	0.72	142.06	0.36
7.5 - 15.0	44.90	0.72	142.15	0.36
15.0 - 22.5	44.90	0.72	142.16	0.36
22.5 - 30.0	51.79	0.83	163.88	0.42
30.0 - 37.5	51.81	0.83	164.02	0.42
37.5 - 45.0	44.91	0.72	142.30	0.36
45.0 - 52.5	44.90	0.72	142.16	0.36
52.5 - 60.0	44.90	0.72	142.16	0.36
0-60	373	6	1181	3
%Trucks	3.00	3.00	3.00	3.00

Economics

Economic Input Data

2032 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2032 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2032 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	375.48	5632	Vehicles Injury	0.00	0	Vehicle Delay Cost	5632
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	0.00	0	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	375.48	5632	Totals	0.00	0	TOTAL COST	5632

Global Results

Performance and Accidents

2032 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	1563		1563
Capacity	veh/hr	5744		5744
Average Delay	sec/veh	2.66		2.66
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	1.16		1.16

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	285	0	0	241	122	0	365	424	0	0	0
Future Volume (vph)	4	285	0	0	241	122	0	365	424	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7			6.1	6.1		6.1				
Lane Util. Factor		0.95			0.95	1.00		0.91				
Frt		1.00			1.00	0.85		0.92				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3723			3725	1667		4922				
Flt Permitted		1.00			1.00	1.00		1.00				
Satd. Flow (perm)		3723			3725	1667		4922				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	310	0	0	262	133	0	397	461	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	116	0	159	0	0	0	0
Lane Group Flow (vph)	0	314	0	0	262	17	0	699	0	0	0	0
Turn Type	Split	NA			NA	Prot		NA				
Protected Phases	4	4			1	1		2				
Permitted Phases												
Actuated Green, G (s)		21.3			15.3	15.3		65.5				
Effective Green, g (s)		21.3			15.3	15.3		65.5				
Actuated g/C Ratio		0.18			0.13	0.13		0.55				
Clearance Time (s)		5.7			6.1	6.1		6.1				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		660			474	212		2686				
v/s Ratio Prot		c0.08			c0.07	0.01		c0.14				
v/s Ratio Perm												
v/c Ratio		0.48			0.55	0.08		0.26				
Uniform Delay, d1		44.3			49.1	46.1		14.4				
Progression Factor		0.00			1.00	1.00		1.00				
Incremental Delay, d2		0.5			1.4	0.2		0.2				
Delay (s)		0.6			50.5	46.3		14.7				
Level of Service		A			D	D		B				
Approach Delay (s)		0.6			49.1			14.7			0.0	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	0	104	383	0	0
Future Volume (vph)	13	0	104	383	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.7		6.1	6.1		
Lane Util. Factor	1.00		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1863		3614	5353		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	1863		3614	5353		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	14	0	109	403	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	14	0	109	403	0	0
Turn Type	Prot		custom	NA		
Protected Phases	4			2 5		
Permitted Phases			5			
Actuated Green, G (s)	15.3		11.7	41.4		
Effective Green, g (s)	15.3		11.7	41.4		
Actuated g/C Ratio	0.13		0.10	0.34		
Clearance Time (s)	5.7		6.1			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	237		352	1846		
v/s Ratio Prot	c0.01			c0.08		
v/s Ratio Perm			c0.03			
v/c Ratio	0.06		0.31	0.22		
Uniform Delay, d1	46.0		50.4	27.8		
Progression Factor	0.04		1.15	0.64		
Incremental Delay, d2	0.1		0.5	0.1		
Delay (s)	1.9		58.4	17.8		
Level of Service	A		E	B		
Approach Delay (s)	1.9			26.4	0.0	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	0	0	0	0	4	0	414	6	0	0	0
Future Volume (Veh/h)	17	0	0	0	0	4	0	414	6	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.65	0.92	0.93	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	0	0	0	6	0	445	7	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								633				
pX, platoon unblocked	0.99	0.99		0.99	0.99	0.99				0.99		
vC, conflicting volume	154	452	0	448	448	152	0			452		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	100	401	0	398	398	97	0			401		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	99	100			100		
cM capacity (veh/h)	854	529	1084	530	532	928	1622			1140		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3
Volume Total	9	9	6	178	178	96
Volume Left	9	9	0	0	0	0
Volume Right	0	0	6	0	0	7
cSH	854	854	928	1700	1700	1700
Volume to Capacity	0.01	0.01	0.01	0.10	0.10	0.06
Queue Length 95th (ft)	1	1	0	0	0	0
Control Delay (s)	9.3	9.3	8.9	0.0	0.0	0.0
Lane LOS	A	A	A			
Approach Delay (s)	9.3		8.9	0.0		
Approach LOS	A		A			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	241	0	0	0	289	1141
Future Volume (vph)	241	0	0	0	289	1141
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.1				5.7	6.1
Lane Util. Factor	0.97				0.97	0.95
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3614				3614	3725
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3614				3614	3725
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	262	0	0	0	314	1240
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	262	0	0	0	314	1240
Turn Type	Prot				Prot	NA
Protected Phases	1				4	2 4
Permitted Phases						
Actuated Green, G (s)	15.3				21.3	92.9
Effective Green, g (s)	15.3				21.3	92.9
Actuated g/C Ratio	0.13				0.18	0.77
Clearance Time (s)	6.1				5.7	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	460				641	2883
v/s Ratio Prot	c0.07				c0.09	c0.33
v/s Ratio Perm						
v/c Ratio	0.57				0.49	0.43
Uniform Delay, d1	49.3				44.5	4.6
Progression Factor	0.03				1.08	0.19
Incremental Delay, d2	1.6				0.5	0.1
Delay (s)	3.0				48.7	1.0
Level of Service	A				D	A
Approach Delay (s)	3.0		0.0			10.6
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	96	0	0	1322	22
Future Volume (Veh/h)	0	96	0	0	1322	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	104	0	0	1437	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				774		
pX, platoon unblocked						
vC, conflicting volume	1449	730	1461			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1449	730	1461			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	71	100			
cM capacity (veh/h)	122	364	458			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	104	958	503
Volume Left	0	0	0
Volume Right	104	0	24
cSH	364	1700	1700
Volume to Capacity	0.29	0.56	0.30
Queue Length 95th (ft)	29	0	0
Control Delay (s)	18.8	0.0	0.0
Lane LOS	C		
Approach Delay (s)	18.8	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	377	0	0
Future Volume (Veh/h)	0	0	0	377	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	0	419	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	210	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	210	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	760	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total	0	0	210	210
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.12	0.12
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0		0.0	
Approach LOS	A			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	58	0	0	0	0	1187
Future Volume (Veh/h)	58	0	0	0	0	1187
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	0	0	0	0	1290
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1206			
pX, platoon unblocked						
vC, conflicting volume	645	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	645	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	100			100	
cM capacity (veh/h)	405	1084			1622	

Direction, Lane #	WB 1	WB 2	SB 1	SB 2
Volume Total	32	32	645	645
Volume Left	32	32	0	0
Volume Right	0	0	0	0
cSH	405	405	1700	1700
Volume to Capacity	0.08	0.08	0.38	0.38
Queue Length 95th (ft)	6	6	0	0
Control Delay (s)	14.6	14.6	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	14.6		0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	13	25	51	53	0	0	0	0	0	1333	8
Future Volume (vph)	0	13	25	51	53	0	0	0	0	0	1333	8
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7	5.7		6.1						6.1	6.1
Lane Util. Factor		1.00	1.00		0.95						0.95	1.00
Frt		1.00	0.85		1.00						1.00	0.85
Flt Protected		1.00	1.00		0.98						1.00	1.00
Satd. Flow (prot)		1961	1667		3636						3725	1667
Flt Permitted		1.00	1.00		0.70						1.00	1.00
Satd. Flow (perm)		1961	1667		2601						3725	1667
Peak-hour factor, PHF	0.92	0.84	0.84	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	15	30	54	56	0	0	0	0	0	1449	9
RTOR Reduction (vph)	0	0	25	0	0	0	0	0	0	0	0	4
Lane Group Flow (vph)	0	15	5	0	110	0	0	0	0	0	1449	5
Turn Type		NA	Perm	Perm	NA						NA	Perm
Protected Phases		4			5						6	
Permitted Phases			4	5								6
Actuated Green, G (s)		21.3	21.3		11.7						69.1	69.1
Effective Green, g (s)		21.3	21.3		11.7						69.1	69.1
Actuated g/C Ratio		0.18	0.18		0.10						0.58	0.58
Clearance Time (s)		5.7	5.7		6.1						6.1	6.1
Vehicle Extension (s)		3.0	3.0		3.0						3.0	3.0
Lane Grp Cap (vph)		348	295		253						2144	959
v/s Ratio Prot		c0.01									c0.39	
v/s Ratio Perm			0.00		c0.04							0.00
v/c Ratio		0.04	0.02		0.43						0.68	0.01
Uniform Delay, d1		40.9	40.7		51.0						17.7	10.8
Progression Factor		1.00	1.00		0.04						1.00	1.00
Incremental Delay, d2		0.1	0.0		1.2						0.9	0.0
Delay (s)		41.0	40.7		3.4						18.5	10.8
Level of Service		D	D		A						B	B
Approach Delay (s)		40.8			3.4			0.0			18.5	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah 2030	2032 PHF Flow Profile (veh)
2030 Background Traffic	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	SB Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	EB	90	0	12.00	1	14.00	1	164.00	66.00	30.00
3	NB Baldwin	180	0	24.00	2	27.00	2	300.00	66.00	30.00
4	WB	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	SB Baldwin	164.00	20.00	1	24.00	2	24.00	2
2	EB	164.00	33.00	2	14.00	1	14.00	1
3	NB Baldwin	164.00	20.00	1	24.00	2	24.00	2
4	WB	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	SB Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	EB	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0
3	NB Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	WB	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2032 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	SB Baldwin	11	6	694	0	0	3.0	1.00	0.900
2	EB	0	0	0	0	0	3.0	1.00	0.900
3	NB Baldwin	0	0	1523	18	0	3.0	1.00	0.900
4	WB	0	9	0	15	0	3.0	1.00	0.900

Operational Results

2032 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB Baldwin	None	711		9		1549	2328		0.3054	
2	EB	None	0		0		0	0		0.0000	
3	NB Baldwin	None	1541		17		703	2326		0.6625	
4	WB	None	24		1534		24	637		0.0377	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB Baldwin	None	2.17		2.17	1.31		A		A
2	EB	None	0.00		0.00	0.00		A		A
3	NB Baldwin	None	4.25		4.25	6.14		A		A
4	WB	None	5.65		5.65	0.12		A		A

2032 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB Baldwin	None	790		10		1719	2327		0.3395	
2	EB	None	0		0		0	0		0.0000	
3	NB Baldwin	None	1712		19		781	2324		0.7367	
4	WB	None	27		1703		27	573		0.0465	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB Baldwin	None	2.18		2.18	1.31		A		A
2	EB	None	0.00		0.00	0.00		A		A
3	NB Baldwin	None	4.74		4.74	6.14		A		A
4	WB	None	5.92		5.92	0.12		A		A

Approach Flow Profile

2032 PM Peak - Approach Flows (Veh / Hour)

Time Slice	SB Baldwin	EB	NB Baldwin	WB
0.0 - 7.5	85.58	0.00	185.49	2.89
7.5 - 15.0	85.58	0.00	185.49	2.89
15.0 - 22.5	85.58	0.00	185.49	2.89
22.5 - 30.0	98.75	0.00	214.03	3.33
30.0 - 37.5	98.75	0.00	214.03	3.33
37.5 - 45.0	85.58	0.00	185.49	2.89
45.0 - 52.5	85.58	0.00	185.49	2.89
52.5 - 60.0	85.58	0.00	185.49	2.89
Peak 15 min	98.75	0.00	214.03	3.33
Peak 60 min	88.88	0.00	192.62	3.00

Exit Flow Profile

2032 PM Peak - Exit Flows (Veh / Hour)

Time Slice	SB Baldwin	EB	NB Baldwin	WB
0.0 - 7.5	186.23	0.00	84.58	2.89
7.5 - 15.0	186.45	0.00	84.62	2.89
15.0 - 22.5	186.45	0.00	84.62	2.89
22.5 - 30.0	214.73	0.00	97.59	3.33
30.0 - 37.5	215.12	0.00	97.64	3.33
37.5 - 45.0	186.86	0.00	84.67	2.89
45.0 - 52.5	186.46	0.00	84.62	2.89
52.5 - 60.0	186.46	0.00	84.62	2.89
0-60	1549	0	703	24
%Trucks	3.00	0.00	3.00	3.00

Economics

Economic Input Data

2032 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2032 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2032 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	375.48	5632	Vehicles Injury	0.00	0	Vehicle Delay Cost	77625
OFF	4056.65	60850	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	742.84	11143	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	5174.98	77625	Totals	0.00	0	TOTAL COST	77625

Global Results

Performance and Accidents

2032 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2276		2276
Capacity	veh/hr	5291		5291
Average Delay	sec/veh	3.62		3.62
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.29		2.29

HCM Signalized Intersection Capacity Analysis
9: NB Baldwin Road & Brown Road

01/02/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	317	0	0	694	597	0	1296	493	0	0	0
Future Volume (vph)	20	317	0	0	694	597	0	1296	493	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7			6.1	6.1		6.1				
Lane Util. Factor		0.95			0.95	1.00		0.91				
Frt		1.00			1.00	0.85		0.96				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3714			3762	1667		5132				
Flt Permitted		0.87			1.00	1.00		1.00				
Satd. Flow (perm)		3254			3762	1667		5132				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	345	0	0	754	649	0	1409	536	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	338	0	57	0	0	0	0
Lane Group Flow (vph)	0	367	0	0	754	311	0	1888	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA	Prot		NA				
Protected Phases		4			1	1		2				
Permitted Phases	4											
Actuated Green, G (s)		30.6			19.6	19.6		51.9				
Effective Green, g (s)		30.6			19.6	19.6		51.9				
Actuated g/C Ratio		0.26			0.16	0.16		0.43				
Clearance Time (s)		5.7			6.1	6.1		6.1				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		829			614	272		2219				
v/s Ratio Prot					c0.20	0.19		c0.37				
v/s Ratio Perm		c0.11										
v/c Ratio		0.44			1.23	1.14		0.85				
Uniform Delay, d1		37.5			50.2	50.2		30.6				
Progression Factor		0.03			1.00	1.00		1.00				
Incremental Delay, d2		0.4			116.5	98.9		4.3				
Delay (s)		1.4			166.7	149.1		34.9				
Level of Service		A			F	F		C				
Approach Delay (s)		1.4			158.6			34.9			0.0	
Approach LOS		A			F			C			A	

Intersection Summary			
HCM 2000 Control Delay	78.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	103	0	344	1558	0	0
Future Volume (vph)	103	0	344	1558	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.7		6.1	6.1		
Lane Util. Factor	1.00		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1863		3650	5406		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	1863		3650	5406		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	112	0	362	1640	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	112	0	362	1640	0	0
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	Prot		custom	NA		
Protected Phases	4			2 5		
Permitted Phases			5			
Actuated Green, G (s)	30.6		23.6	75.5		
Effective Green, g (s)	30.6		23.6	75.5		
Actuated g/C Ratio	0.26		0.20	0.63		
Clearance Time (s)	5.7		6.1			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	475		717	3401		
v/s Ratio Prot	c0.06			c0.30		
v/s Ratio Perm			c0.10			
v/c Ratio	0.24		0.50	0.48		
Uniform Delay, d1	35.4		43.0	11.8		
Progression Factor	0.04		1.33	0.35		
Incremental Delay, d2	0.3		0.2	0.0		
Delay (s)	1.6		57.5	4.2		
Level of Service	A		E	A		
Approach Delay (s)	1.6			13.9	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	0	0	0	0	7	0	1468	4	0	0	0
Future Volume (Veh/h)	17	0	0	0	0	7	0	1468	4	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.65	0.92	0.93	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	0	0	0	11	0	1578	4	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								655				
pX, platoon unblocked	0.85	0.85		0.85	0.85	0.85				0.85		
vC, conflicting volume	537	1582	0	1580	1580	528	0			1582		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1047	0	1045	1045	0	0			1047		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	99	100			100		
cM capacity (veh/h)	854	192	1084	155	192	916	1622			558		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3
Volume Total	9	9	11	631	631	320
Volume Left	9	9	0	0	0	0
Volume Right	0	0	11	0	0	4
cSH	854	854	916	1700	1700	1700
Volume to Capacity	0.01	0.01	0.01	0.37	0.37	0.19
Queue Length 95th (ft)	1	1	1	0	0	0
Control Delay (s)	9.3	9.3	9.0	0.0	0.0	0.0
Lane LOS	A	A	A			
Approach Delay (s)	9.3		9.0	0.0		
Approach LOS	A		A			

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	694	0	0	0	337	732
Future Volume (vph)	694	0	0	0	337	732
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.1				5.7	6.1
Lane Util. Factor	0.97				0.97	0.95
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3614				3614	3725
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3614				3614	3725
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	754	0	0	0	366	796
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	754	0	0	0	366	796
Turn Type	Prot				Prot	NA
Protected Phases	1				4	2 4
Permitted Phases						
Actuated Green, G (s)	19.6				30.6	88.6
Effective Green, g (s)	19.6				30.6	88.6
Actuated g/C Ratio	0.16				0.26	0.74
Clearance Time (s)	6.1				5.7	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	590				921	2750
v/s Ratio Prot	c0.21				c0.10	c0.21
v/s Ratio Perm						
v/c Ratio	1.28				0.40	0.29
Uniform Delay, d1	50.2				37.1	5.2
Progression Factor	0.14				1.01	0.31
Incremental Delay, d2	126.3				0.2	0.0
Delay (s)	133.2				37.6	1.7
Level of Service	F				D	A
Approach Delay (s)	133.2		0.0			13.0
Approach LOS	F		A			B

Intersection Summary			
HCM 2000 Control Delay	60.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	61	0	0	680	132
Future Volume (Veh/h)	0	61	0	0	680	132
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	66	0	0	739	143
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				793		
pX, platoon unblocked						
vC, conflicting volume	810	441	882			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	810	441	882			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	88	100			
cM capacity (veh/h)	318	564	762			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	66	493	389
Volume Left	0	0	0
Volume Right	66	0	143
cSH	564	1700	1700
Volume to Capacity	0.12	0.29	0.23
Queue Length 95th (ft)	10	0	0
Control Delay (s)	12.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	12.2	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	0	0	0	0	700
Future Volume (Veh/h)	110	0	0	0	0	700
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	0	0	0	0	761
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1225			
pX, platoon unblocked						
vC, conflicting volume	380	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	380	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	100			100	
cM capacity (veh/h)	594	1084			1622	

Direction, Lane #	WB 1	WB 2	SB 1	SB 2
Volume Total	60	60	380	380
Volume Left	60	60	0	0
Volume Right	0	0	0	0
cSH	594	594	1700	1700
Volume to Capacity	0.10	0.10	0.22	0.22
Queue Length 95th (ft)	8	8	0	0
Control Delay (s)	11.7	11.7	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	11.7		0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	0	1545	0	0
Future Volume (Veh/h)	1	0	0	1545	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	1	0	0	1717	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	858	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	858	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	296	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total	0	0	858	858
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	296	296	1700	1700
Volume to Capacity	0.00	0.00	0.51	0.51
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	17.2	17.2	0.0	0.0
Lane LOS	C	C		
Approach Delay (s)	17.2		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	109	288	48	296	0	0	0	0	0	782	14
Future Volume (vph)	0	109	288	48	296	0	0	0	0	0	782	14
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7	5.7		6.1						6.1	6.1
Lane Util. Factor		1.00	1.00		0.95						0.95	1.00
Frt		1.00	0.85		1.00						1.00	0.85
Flt Protected		1.00	1.00		0.99						1.00	1.00
Satd. Flow (prot)		1923	1683		3736						3725	1667
Flt Permitted		1.00	1.00		0.53						1.00	1.00
Satd. Flow (perm)		1923	1683		2008						3725	1667
Peak-hour factor, PHF	0.92	0.84	0.84	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	130	343	51	312	0	0	0	0	0	850	15
RTOR Reduction (vph)	0	0	189	0	0	0	0	0	0	0	0	9
Lane Group Flow (vph)	0	130	154	0	363	0	0	0	0	0	850	6
Heavy Vehicles (%)	2%	4%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	Perm	NA						NA	Perm
Protected Phases		4			5						6	
Permitted Phases			4	5								6
Actuated Green, G (s)		30.6	30.6		23.6						47.9	47.9
Effective Green, g (s)		30.6	30.6		23.6						47.9	47.9
Actuated g/C Ratio		0.26	0.26		0.20						0.40	0.40
Clearance Time (s)		5.7	5.7		6.1						6.1	6.1
Vehicle Extension (s)		3.0	3.0		3.0						3.0	3.0
Lane Grp Cap (vph)		490	429		394						1486	665
v/s Ratio Prot		0.07									c0.23	
v/s Ratio Perm			c0.09		c0.18							0.00
v/c Ratio		0.27	0.36		0.92						0.57	0.01
Uniform Delay, d1		35.7	36.7		47.3						28.1	21.7
Progression Factor		1.00	1.00		0.19						1.00	1.00
Incremental Delay, d2		0.3	0.5		24.3						0.5	0.0
Delay (s)		36.0	37.2		33.3						28.6	21.7
Level of Service		D	D		C						C	C
Approach Delay (s)		36.8			33.3			0.0			28.5	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection: 1: Baldwin Road & Judah Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	UT	TR	ULT	T
Maximum Queue (ft)	25	20	14	88	34
Average Queue (ft)	2	1	0	6	2
95th Queue (ft)	14	11	10	40	21
Link Distance (ft)	765	107	107	561	561
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: NB Baldwin Road & SB to NB X-over

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: SB Baldwin Road & NB to SB X-over

Movement	WB	WB	SB
Directions Served	L	L	T
Maximum Queue (ft)	30	79	6
Average Queue (ft)	7	32	0
95th Queue (ft)	25	67	4
Link Distance (ft)	27	27	68
Upstream Blk Time (%)	1	28	
Queuing Penalty (veh)	0	8	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Morgan Road & SB Baldwin Road

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	219	20	116
Average Queue (ft)	112	1	19
95th Queue (ft)	312	14	128
Link Distance (ft)	412	375	375
Upstream Blk Time (%)	9		0
Queuing Penalty (veh)	0		1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: NB Baldwin Road & Jordan Road

Movement	EB	EB	WB
Directions Served	L	L	R
Maximum Queue (ft)	28	12	21
Average Queue (ft)	11	1	3
95th Queue (ft)	33	9	14
Link Distance (ft)	21	21	569
Upstream Blk Time (%)	1	0	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: SB Baldwin Road & S. Baldwin Commons

Movement	EB	EB	WB	SB	SB	SB
Directions Served	T	R	LT	T	T	R
Maximum Queue (ft)	42	44	5	223	430	86
Average Queue (ft)	11	14	0	65	383	3
95th Queue (ft)	35	40	6	142	479	38
Link Distance (ft)	212	212	22	329	329	
Upstream Blk Time (%)			1		21	
Queuing Penalty (veh)			0		142	
Storage Bay Dist (ft)						75
Storage Blk Time (%)					34	
Queuing Penalty (veh)					3	

Intersection: 7: NB Baldwin Road & S. Baldwin Commons

Movement	EB	NB	NB	NB	NB	NB
Directions Served	L	L	L	T	T	T
Maximum Queue (ft)	16	106	108	76	49	96
Average Queue (ft)	1	50	46	16	10	27
95th Queue (ft)	8	96	93	52	36	71
Link Distance (ft)	22			194	194	194
Upstream Blk Time (%)	1					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)		130	130			
Storage Blk Time (%)		0	0	0		
Queuing Penalty (veh)		0	0	0		

Intersection: 8: SB Baldwin Road & Brown Road

Movement	WB	WB	SB	SB	SB	SB
Directions Served	L	L	L	L	T	T
Maximum Queue (ft)	25	5	134	136	61	105
Average Queue (ft)	6	1	105	88	14	52
95th Queue (ft)	21	9	144	137	46	95
Link Distance (ft)	39	39	53	53	53	53
Upstream Blk Time (%)	0	0	51	45	1	8
Queuing Penalty (veh)	0	0	182	160	2	29
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: NB Baldwin Road & Brown Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	LT	T	T	T	R	T	T	TR
Maximum Queue (ft)	43	41	205	172	182	196	140	215
Average Queue (ft)	4	9	130	58	86	107	27	93
95th Queue (ft)	23	29	193	160	154	176	87	182
Link Distance (ft)	39	39	387	387	387	256	256	256
Upstream Blk Time (%)	2	2						0
Queuing Penalty (veh)	3	3						0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 12: Dummy Node & NB Baldwin Road

Movement	NB
Directions Served	L
Maximum Queue (ft)	16
Average Queue (ft)	4
95th Queue (ft)	27
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: NB Baldwin Road & NB to SB X-over

Movement	NB
Directions Served	L
Maximum Queue (ft)	42
Average Queue (ft)	5
95th Queue (ft)	42
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: SB Baldwin Road & Dummy Node

Movement	EB	WB	SB	SB	SB
Directions Served	R	T	T	T	R
Maximum Queue (ft)	56	65	28	235	138
Average Queue (ft)	14	23	0	82	17
95th Queue (ft)	47	72	0	223	90
Link Distance (ft)	93	33	138	138	
Upstream Blk Time (%)	0	37	0	7	0
Queuing Penalty (veh)	0	1	0	51	0
Storage Bay Dist (ft)					65
Storage Blk Time (%)				12	
Queuing Penalty (veh)				8	

Intersection: 20:

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	18	171
Average Queue (ft)	1	27
95th Queue (ft)	13	123
Link Distance (ft)	93	93
Upstream Blk Time (%)	0	4
Queuing Penalty (veh)	0	29
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 21: NB Baldwin Road & Dummy Node

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 24: Dummy Node & NB Baldwin Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 26: SB Baldwin Road/Baldwin Road & Dummy Node

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	30	48	78
Average Queue (ft)	4	3	11
95th Queue (ft)	19	23	45
Link Distance (ft)	143	67	67
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 28: SB Baldwin Road & Dummy Node

Movement	SB
Directions Served	T
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	50
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: SB Baldwin Road & SB to NB X-over

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 31: Baldwin Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	47
Average Queue (ft)	3
95th Queue (ft)	22
Link Distance (ft)	107
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 34: Dummy Node & SB Baldwin Road

Movement	EB	SB	SB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	111	76	53	37	48
Average Queue (ft)	47	12	5	1	2
95th Queue (ft)	86	46	27	24	24
Link Distance (ft)	123	167	167	167	167
Upstream Blk Time (%)	0			0	0
Queuing Penalty (veh)	0			0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 35: NB Baldwin Road & Dummy Node

Movement	WB
Directions Served	R
Maximum Queue (ft)	48
Average Queue (ft)	21
95th Queue (ft)	47
Link Distance (ft)	169
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 37: NB Baldwin Road & Dummy Node

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 627

Intersection: 1: Baldwin Road & Judah Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	ULT	T
Maximum Queue (ft)	38	125	129	34	18
Average Queue (ft)	9	25	21	3	1
95th Queue (ft)	32	95	88	18	13
Link Distance (ft)	765	107	107	561	561
Upstream Blk Time (%)		2	2		
Queuing Penalty (veh)		15	18		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Baldwin Road & SB to NB X-over

Movement	EB
Directions Served	L
Maximum Queue (ft)	16
Average Queue (ft)	1
95th Queue (ft)	7
Link Distance (ft)	24
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Baldwin Road & NB to SB X-over

Movement	WB	WB
Directions Served	L	L
Maximum Queue (ft)	36	56
Average Queue (ft)	12	28
95th Queue (ft)	34	56
Link Distance (ft)	27	27
Upstream Blk Time (%)	1	12
Queuing Penalty (veh)	1	7
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Morgan Road & Baldwin Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	63
Average Queue (ft)	27
95th Queue (ft)	51
Link Distance (ft)	412
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Jordan Road & Baldwin Road

Movement	EB	EB	WB	NB	NB
Directions Served	L	L	R	T	TR
Maximum Queue (ft)	28	24	26	8	7
Average Queue (ft)	12	1	5	0	0
95th Queue (ft)	35	9	20	7	5
Link Distance (ft)	21	21	569	147	147
Upstream Blk Time (%)	3	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: S. Baldwin Commons & SB Baldwin Road

Movement	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	R	LT	T	T	T	R
Maximum Queue (ft)	187	192	12	23	275	431	175
Average Queue (ft)	83	103	1	5	100	264	13
95th Queue (ft)	162	200	7	20	211	404	75
Link Distance (ft)	212	212	17	17	348	348	
Upstream Blk Time (%)	1	11	1	10	0	3	
Queuing Penalty (veh)	0	0	2	17	0	13	
Storage Bay Dist (ft)							75
Storage Blk Time (%)						39	
Queuing Penalty (veh)						6	

Intersection: 7: NB Baldwin Road & S. Baldwin Commons

Movement	EB	NB	NB	NB	NB	NB
Directions Served	L	L	L	T	T	T
Maximum Queue (ft)	27	141	155	212	149	79
Average Queue (ft)	2	95	102	112	54	23
95th Queue (ft)	12	182	200	252	150	63
Link Distance (ft)	17			174	174	174
Upstream Blk Time (%)	4	0	1	5	0	
Queuing Penalty (veh)	4	0	0	30	1	
Storage Bay Dist (ft)		130	130			
Storage Blk Time (%)		2	13	3		
Queuing Penalty (veh)		12	70	9		

Intersection: 8: SB Baldwin Road & Brown Road

Movement	WB	WB	SB	SB	SB	SB
Directions Served	L	L	L	L	T	T
Maximum Queue (ft)	76	85	126	132	66	92
Average Queue (ft)	40	32	99	101	14	39
95th Queue (ft)	85	73	134	142	46	88
Link Distance (ft)	26	26	49	49	49	49
Upstream Blk Time (%)	61	49	50	39	1	5
Queuing Penalty (veh)	210	169	134	105	2	15
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: NB Baldwin Road & Brown Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	LT	T	T	T	R	T	T	TR
Maximum Queue (ft)	48	43	394	407	425	281	276	290
Average Queue (ft)	16	8	243	347	392	253	215	229
95th Queue (ft)	59	30	431	508	471	309	305	316
Link Distance (ft)	26	26	387	387	387	255	255	255
Upstream Blk Time (%)	26	14	22	47	92	39	22	38
Queuing Penalty (veh)	44	24	0	0	0	0	0	0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 12: Dummy Node

Movement	NB
Directions Served	L
Maximum Queue (ft)	23
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: Baldwin Road & NB to SB X-over

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: SB Baldwin Road/Baldiwn Road & Dummy Node

Movement	EB	WB	SB
Directions Served	R	T	T
Maximum Queue (ft)	75	82	30
Average Queue (ft)	24	35	2
95th Queue (ft)	50	78	17
Link Distance (ft)	93	33	138
Upstream Blk Time (%)	0	18	
Queuing Penalty (veh)	0	9	
Storage Bay Dist (ft)			
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 20: Baldiwn Road

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: Baldwin Road & Dummy Node

Movement	NB
Directions Served	TR
Maximum Queue (ft)	11
Average Queue (ft)	0
95th Queue (ft)	8
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 24: Baldwin Road & Dummy Node

Movement	WB
Directions Served	R
Maximum Queue (ft)	143
Average Queue (ft)	62
95th Queue (ft)	118
Link Distance (ft)	343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 26: Dummy Node & Baldwin Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	28
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	67
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 28: Baldwin Road & Dummy Node

Movement	SB
Directions Served	T
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	2
Link Distance (ft)	50
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: Baldwin Road & SB to NB X-over

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 31: Baldwin Road

Movement	SB	NW	NW
Directions Served	T	R	R
Maximum Queue (ft)	28	19	31
Average Queue (ft)	1	1	3
95th Queue (ft)	11	18	29
Link Distance (ft)	107	386	386
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: Dummy Node

Movement	NB
Directions Served	T
Maximum Queue (ft)	8
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	80
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 36:

Movement	EB	SB	SB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	93	122	118	56	62
Average Queue (ft)	39	46	24	2	2
95th Queue (ft)	90	164	90	32	31
Link Distance (ft)	123	148	148	148	148
Upstream Blk Time (%)	7	15	0	0	0
Queuing Penalty (veh)	0	43	1	1	1
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 37: NB Baldwin Road & Dummy Node

Movement	NB	NB
Directions Served	T	TR
Maximum Queue (ft)	50	18
Average Queue (ft)	5	1
95th Queue (ft)	30	17
Link Distance (ft)	22	22
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	7	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 968

APPENDIX D: ALTERNATIVE A BUILD CONDITION REPORTS LOS & QUEUE

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah 2030	2030 PHF Flow Profile (veh)
2030 Build Alt-A	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	Judah	90	0	12.00	1	14.00	1	164.00	66.00	30.00
3	Baldwin	180	0	24.00	2	27.00	2	164.00	66.00	30.00
4	Judah	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Baldwin	164.00	20.00	1	24.00	2	24.00	2
2	Judah	164.00	33.00	2	14.00	1	14.00	1
3	Baldwin	164.00	20.00	1	24.00	2	24.00	2
4	Judah	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0
3	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2030 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	Baldwin	1	1	1306	61	0	3.0	1.00	0.900
2	Judah	0	38	3	121	0	3.0	1.00	0.900
3	Baldwin	59	98	399	2	0	3.0	1.00	0.900
4	Judah	0	3	4	6	0	3.0	1.00	0.900

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	1369		164		444	2171		0.6306	
2	Judah	None	162		1370		163	699		0.2319	
3	Baldwin	None	558		43		1489	2293		0.2433	
4	Judah	None	13		595		6	990		0.0131	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	4.34		4.34	5.57		A		A
2	Judah	None	6.41		6.41	0.97		A		A
3	Baldwin	None	2.75		2.75	1.29		A		A
4	Judah	None	3.54		3.54	0.04		A		A

2030 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	1521		182		493	2152		0.7067	
2	Judah	None	180		1521		181	642		0.2805	
3	Baldwin	None	620		48		1653	2289		0.2709	
4	Judah	None	14		661		7	965		0.0150	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	4.82		4.82	5.57		A		A
2	Judah	None	6.84		6.84	0.97		A		A
3	Baldwin	None	2.74		2.74	1.29		A		A
4	Judah	None	3.50		3.50	0.04		A		A

Approach Flow Profile

2030 AM Peak - Approach Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	164.79	19.50	67.17	1.56
7.5 - 15.0	164.79	19.50	67.17	1.56
15.0 - 22.5	164.79	19.50	67.17	1.56
22.5 - 30.0	190.14	22.50	77.50	1.81
30.0 - 37.5	190.14	22.50	77.50	1.81
37.5 - 45.0	164.79	19.50	67.17	1.56
45.0 - 52.5	164.79	19.50	67.17	1.56
52.5 - 60.0	164.79	19.50	67.17	1.56
Peak 15 min	190.14	22.50	77.50	1.81
Peak 60 min	171.12	20.25	69.75	1.63

Exit Flow Profile

2030 AM Peak - Exit Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	53.41	19.61	179.01	0.72
7.5 - 15.0	53.44	19.62	179.22	0.72
15.0 - 22.5	53.44	19.62	179.23	0.72
22.5 - 30.0	61.62	22.61	206.42	0.83
30.0 - 37.5	61.67	22.64	206.79	0.83
37.5 - 45.0	53.49	19.64	179.62	0.72
45.0 - 52.5	53.45	19.62	179.24	0.72
52.5 - 60.0	53.44	19.62	179.23	0.72
0-60	444	163	1489	6
%Trucks	3.00	3.00	3.00	3.00

Economics

Economic Input Data

2030 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2030 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2030 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	772.09	11581	Vehicles Injury	0.00	0	Vehicle Delay Cost	11581
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	0.00	0	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	772.09	11581	Totals	0.00	0	TOTAL COST	11581

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2102		2102
Capacity	veh/hr	6153		6153
Average Delay	sec/veh	4.07		4.07
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.38		2.38

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	23	5	430	1347	14
Future Volume (Veh/h)	6	23	5	430	1347	14
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	25	5	467	1464	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1715	740	1479			
vC1, stage 1 conf vol	1472					
vC2, stage 2 conf vol	244					
vCu, unblocked vol	1715	740	1479			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	93	99			
cM capacity (veh/h)	171	360	451			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	32	5	234	234	976	503
Volume Left	7	5	0	0	0	0
Volume Right	25	0	0	0	0	15
cSH	290	451	1700	1700	1700	1700
Volume to Capacity	0.11	0.01	0.14	0.14	0.57	0.30
Queue Length 95th (ft)	9	1	0	0	0	0
Control Delay (s)	19.0	13.1	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	19.0	0.1			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	0	104	466	0	0
Future Volume (vph)	16	0	104	466	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.7		6.1	6.1		
Lane Util. Factor	1.00		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1863		3650	5406		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	1863		3650	5406		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	17	0	109	491	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	17	0	109	491	0	0
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	Prot		custom	NA		
Protected Phases	4			2 5		
Permitted Phases			5			
Actuated Green, G (s)	18.6		10.8	77.0		
Effective Green, g (s)	18.6		10.8	77.0		
Actuated g/C Ratio	0.16		0.09	0.64		
Clearance Time (s)	5.7		6.1			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	288		328	3468		
v/s Ratio Prot	c0.01			c0.09		
v/s Ratio Perm			c0.03			
v/c Ratio	0.06		0.33	0.14		
Uniform Delay, d1	43.2		51.2	8.5		
Progression Factor	0.03		1.17	0.57		
Incremental Delay, d2	0.1		0.6	0.0		
Delay (s)	1.3		60.6	4.9		
Level of Service	A		E	A		
Approach Delay (s)	1.3			15.0	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	317	0	0	241	136	0	434	424	0	0	0
Future Volume (vph)	4	317	0	0	241	136	0	434	424	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7			6.1	6.1		6.1				
Lane Util. Factor		0.95			0.95	1.00		0.91				
Frt		1.00			1.00	0.85		0.93				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3723			3725	1667		4956				
Flt Permitted		0.95			1.00	1.00		1.00				
Satd. Flow (perm)		3541			3725	1667		4956				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	345	0	0	262	148	0	472	461	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	127	0	132	0	0	0	0
Lane Group Flow (vph)	0	349	0	0	262	21	0	801	0	0	0	0
Turn Type	Perm	NA			NA	Prot		NA				
Protected Phases		4			1	1		2				
Permitted Phases	4											
Actuated Green, G (s)		18.6			17.3	17.3		66.2				
Effective Green, g (s)		18.6			17.3	17.3		66.2				
Actuated g/C Ratio		0.16			0.14	0.14		0.55				
Clearance Time (s)		5.7			6.1	6.1		6.1				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		548			537	240		2734				
v/s Ratio Prot					c0.07	0.01		c0.16				
v/s Ratio Perm		c0.10										
v/c Ratio		0.64			0.49	0.09		0.29				
Uniform Delay, d1		47.5			47.3	44.5		14.4				
Progression Factor		0.05			1.00	1.00		1.00				
Incremental Delay, d2		1.9			0.7	0.2		0.3				
Delay (s)		4.3			48.0	44.7		14.7				
Level of Service		A			D	D		B				
Approach Delay (s)		4.3			46.8			14.7			0.0	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	4	523	6	0	0
Future Volume (Veh/h)	0	4	523	6	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	568	7	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			667			
pX, platoon unblocked	0.95	0.95			0.95	
vC, conflicting volume	572	288			575	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	456	158			459	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	509	820			1048	

Direction, Lane #	WB 1	NB 1	NB 2
Volume Total	4	379	196
Volume Left	0	0	0
Volume Right	4	0	7
cSH	820	1700	1700
Volume to Capacity	0.00	0.22	0.12
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.4	0.0	
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	47	0	0	482	0	0
Future Volume (Veh/h)	47	0	0	482	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.93	0.92	0.92
Hourly flow rate (vph)	51	0	0	518	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				610		
pX, platoon unblocked	0.97					
vC, conflicting volume	173	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	61	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	100			
cM capacity (veh/h)	915	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3
Volume Total	26	26	173	173	173
Volume Left	26	26	0	0	0
Volume Right	0	0	0	0	0
cSH	915	915	1700	1700	1700
Volume to Capacity	0.03	0.03	0.10	0.10	0.10
Queue Length 95th (ft)	2	2	0	0	0
Control Delay (s)	9.0	9.0	0.0	0.0	0.0
Lane LOS	A	A			
Approach Delay (s)	9.0		0.0		
Approach LOS	A				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	0	0	487	0	0
Future Volume (Veh/h)	36	0	0	487	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	39	0	0	541	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	270	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	100			
cM capacity (veh/h)	696	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total	20	20	270	270
Volume Left	20	20	0	0
Volume Right	0	0	0	0
cSH	696	696	1700	1700
Volume to Capacity	0.03	0.03	0.16	0.16
Queue Length 95th (ft)	2	2	0	0
Control Delay (s)	10.3	10.3	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	10.3		0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
6: Baldwin Road & S. Baldwin Commons

01/03/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	16	25	51	53	0	0	0	0	0	1614	12
Future Volume (vph)	0	16	25	51	53	0	0	0	0	0	1614	12
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7	5.7		6.1						6.1	6.1
Lane Util. Factor		1.00	1.00		0.95						0.95	1.00
Frt		1.00	0.85		1.00						1.00	0.85
Flt Protected		1.00	1.00		0.98						1.00	1.00
Satd. Flow (prot)		1923	1683		3672						3725	1667
Flt Permitted		1.00	1.00		0.98						1.00	1.00
Satd. Flow (perm)		1923	1683		3672						3725	1667
Peak-hour factor, PHF	0.92	0.84	0.84	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	19	30	54	56	0	0	0	0	0	1754	13
RTOR Reduction (vph)	0	0	25	0	0	0	0	0	0	0	0	5
Lane Group Flow (vph)	0	19	5	0	110	0	0	0	0	0	1754	8
Heavy Vehicles (%)	2%	4%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	Split	NA						NA	Prot
Protected Phases		4		1!	1!						6!	6!
Permitted Phases			4									
Actuated Green, G (s)		18.6	18.6		17.3						72.7	72.7
Effective Green, g (s)		18.6	18.6		17.3						72.7	72.7
Actuated g/C Ratio		0.16	0.16		0.14						0.61	0.61
Clearance Time (s)		5.7	5.7		6.1						6.1	6.1
Vehicle Extension (s)		3.0	3.0		3.0						3.0	3.0
Lane Grp Cap (vph)		298	260		529						2256	1009
v/s Ratio Prot		c0.01			c0.03						c0.47	0.00
v/s Ratio Perm			0.00									
v/c Ratio		0.06	0.02		0.21						0.78	0.01
Uniform Delay, d1		43.3	43.0		45.3						17.6	9.4
Progression Factor		1.00	1.00		0.01						1.00	1.00
Incremental Delay, d2		0.1	0.0		0.2						1.7	0.0
Delay (s)		43.4	43.0		0.6						19.4	9.4
Level of Service		D	D		A						B	A
Approach Delay (s)		43.1			0.6			0.0			19.3	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	241	0	0	0	321	1390
Future Volume (vph)	241	0	0	0	321	1390
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.1				5.7	6.1
Lane Util. Factor	0.97				0.97	0.95
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3614				3614	3725
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3614				3614	3725
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	262	0	0	0	349	1511
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	262	0	0	0	349	1511
Turn Type	Prot				Prot	NA
Protected Phases	1				4	2 4
Permitted Phases						
Actuated Green, G (s)	17.3				18.6	90.9
Effective Green, g (s)	17.3				18.6	90.9
Actuated g/C Ratio	0.14				0.16	0.76
Clearance Time (s)	6.1				5.7	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	521				560	2821
v/s Ratio Prot	c0.07				c0.10	c0.41
v/s Ratio Perm						
v/c Ratio	0.50				0.62	0.54
Uniform Delay, d1	47.4				47.4	5.9
Progression Factor	0.03				1.03	0.25
Incremental Delay, d2	0.7				1.5	0.1
Delay (s)	2.0				50.5	1.6
Level of Service	A				D	A
Approach Delay (s)	2.0		0.0			10.8
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	83	0	0	1490	113
Future Volume (Veh/h)	0	83	0	0	1490	113
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	90	0	0	1620	123
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1682	872	1743			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1682	872	1743			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	69	100			
cM capacity (veh/h)	85	294	357			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	90	1080	663
Volume Left	0	0	0
Volume Right	90	0	123
cSH	294	1700	1700
Volume to Capacity	0.31	0.64	0.39
Queue Length 95th (ft)	32	0	0
Control Delay (s)	22.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	22.6	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	104	0	0	1613	25
Future Volume (Veh/h)	0	104	0	0	1613	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	113	0	0	1753	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				793		
pX, platoon unblocked						
vC, conflicting volume	1766	890	1780			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1766	890	1780			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	60	100			
cM capacity (veh/h)	75	286	345			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	113	1169	611
Volume Left	0	0	0
Volume Right	113	0	27
cSH	286	1700	1700
Volume to Capacity	0.40	0.69	0.36
Queue Length 95th (ft)	45	0	0
Control Delay (s)	25.6	0.0	0.0
Lane LOS	D		
Approach Delay (s)	25.6	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Baldwin Road & NB to SB X-over

01/03/2023

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	58	0	0	0	0	1501
Future Volume (Veh/h)	58	0	0	0	0	1501
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	0	0	0	0	1632
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1255			
pX, platoon unblocked						
vC, conflicting volume	816	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	816	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	100			100	
cM capacity (veh/h)	315	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	63	816	816
Volume Left	63	0	0
Volume Right	0	0	0
cSH	315	1700	1700
Volume to Capacity	0.20	0.48	0.48
Queue Length 95th (ft)	18	0	0
Control Delay (s)	19.3	0.0	0.0
Lane LOS	C		
Approach Delay (s)	19.3	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	76	0	0	1462	133
Future Volume (Veh/h)	0	76	0	0	1462	133
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	83	0	0	1589	145
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1662	867	1734			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1662	867	1734			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	72	100			
cM capacity (veh/h)	88	296	359			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	83	1059	675
Volume Left	0	0	0
Volume Right	83	0	145
cSH	296	1700	1700
Volume to Capacity	0.28	0.62	0.40
Queue Length 95th (ft)	28	0	0
Control Delay (s)	21.8	0.0	0.0
Lane LOS	C		
Approach Delay (s)	21.8	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
39: Baldwin Road & Baldwin Village South Driveway - Outward

01/03/2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	160	0	0	1559	0
Future Volume (Veh/h)	0	160	0	0	1559	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	174	0	0	1695	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1108		
pX, platoon unblocked						
vC, conflicting volume	1695	848	1695			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1695	848	1695			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	43	100			
cM capacity (veh/h)	84	305	372			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	174	848	848
Volume Left	0	0	0
Volume Right	174	0	0
cSH	305	1700	1700
Volume to Capacity	0.57	0.50	0.50
Queue Length 95th (ft)	83	0	0
Control Delay (s)	31.4	0.0	0.0
Lane LOS	D		
Approach Delay (s)	31.4	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah 2030	2030 PHF Flow Profile (veh)
2030 Build Alt-A	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	Judah	90	0	12.00	1	14.00	1	164.00	66.00	30.00
3	Baldwin	180	0	24.00	2	27.00	2	164.00	66.00	30.00
4	Judah	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	Baldwin	164.00	20.00	1	24.00	2	24.00	2
2	Judah	164.00	33.00	2	14.00	1	14.00	1
3	Baldwin	164.00	20.00	1	24.00	2	24.00	2
4	Judah	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0
3	Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	Judah	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2030 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	Baldwin	11	6	758	61	0	3.0	1.00	0.900
2	Judah	0	173	4	79	0	3.0	1.00	0.900
3	Baldwin	136	304	1617	18	0	3.0	1.00	0.900
4	Judah	0	9	6	15	0	3.0	1.00	0.900

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	836		451		1801	1880		0.4446	
2	Judah	None	256		919		368	868		0.2949	
3	Baldwin	None	2075		194		981	2141		0.9694	
4	Judah	None	30		2222		28	378		0.0793	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	3.49		3.49	2.57		A		A
2	Judah	None	5.58		5.58	1.28		A		A
3	Baldwin	None	35.87		35.87	96.63		E		E
4	Judah	None	9.88		9.88	0.27		A		A

2030 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Baldwin	None	929		466		1872	1865		0.4980	
2	Judah	None	284		1009		385	834		0.3410	
3	Baldwin	None	2306		215		1078	2119		1.0880	
4	Judah	None	33		2305		29	347		0.0960	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Baldwin	None	3.63		3.63	2.57		A		A
2	Judah	None	5.80		5.80	1.28		A		A
3	Baldwin	None	48.19		48.19	96.63		E		E
4	Judah	None	10.15		10.15	0.27		B		B

Approach Flow Profile

2030 PM Peak - Approach Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	100.63	30.81	249.77	3.61
7.5 - 15.0	100.63	30.81	249.77	3.61
15.0 - 22.5	100.63	30.81	249.77	3.61
22.5 - 30.0	116.11	35.56	288.19	4.17
30.0 - 37.5	116.11	35.56	288.19	4.17
37.5 - 45.0	100.63	30.81	249.77	3.61
45.0 - 52.5	100.63	30.81	249.77	3.61
52.5 - 60.0	100.63	30.81	249.77	3.61
Peak 15 min	116.11	35.56	288.19	4.17
Peak 60 min	104.50	32.00	259.38	3.75

Exit Flow Profile

2030 PM Peak - Exit Flows (Veh / Hour)

Time Slice	Baldwin	Judah	Baldwin	Judah
0.0 - 7.5	214.88	43.96	117.71	3.33
7.5 - 15.0	218.18	44.58	118.16	3.37
15.0 - 22.5	218.40	44.62	118.19	3.37
22.5 - 30.0	233.99	48.09	134.60	3.68
30.0 - 37.5	234.01	48.10	134.85	3.69
37.5 - 45.0	233.18	47.40	119.66	3.54
45.0 - 52.5	229.28	46.67	119.12	3.49
52.5 - 60.0	219.31	44.79	118.27	3.38
0-60	1801	368	981	28
%Trucks	3.00	3.00	3.00	3.00

Economics

Economic Input Data

2030 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2030 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2030 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	772.09	11581	Vehicles Injury	0.00	0	Vehicle Delay Cost	118664
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	7138.83	107082	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	7910.91	118664	Totals	0.00	0	TOTAL COST	118664

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3197		3197
Capacity	veh/hr	5267		5267
Average Delay	sec/veh	24.73		24.73
L.O.S. (Signal)	A – F	C		C
L.O.S. (Unsig)	A – F	C		C
Total Delay	veh.hrs	21.97		21.97

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	8	33	1783	820	20
Future Volume (Veh/h)	11	8	33	1783	820	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	9	36	1938	891	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1943	456	913			
vC1, stage 1 conf vol	902					
vC2, stage 2 conf vol	1041					
vCu, unblocked vol	1943	456	913			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	95			
cM capacity (veh/h)	223	551	742			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	21	36	969	969	594	319
Volume Left	12	36	0	0	0	0
Volume Right	9	0	0	0	0	22
cSH	299	742	1700	1700	1700	1700
Volume to Capacity	0.07	0.05	0.57	0.57	0.35	0.19
Queue Length 95th (ft)	6	4	0	0	0	0
Control Delay (s)	17.9	10.1	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	17.9	0.2			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	129	0	344	1891	0	0
Future Volume (vph)	129	0	344	1891	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.7		6.1	6.1		
Lane Util. Factor	1.00		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1863		3650	5406		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	1863		3650	5406		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	140	0	362	1991	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	140	0	362	1991	0	0
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	Prot		custom	NA		
Protected Phases	4			2 5		
Permitted Phases			5			
Actuated Green, G (s)	31.5		29.1	51.9		
Effective Green, g (s)	31.5		29.1	51.9		
Actuated g/C Ratio	0.26		0.24	0.43		
Clearance Time (s)	5.7		6.1			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	489		885	2338		
v/s Ratio Prot	c0.08			c0.37		
v/s Ratio Perm			0.10			
v/c Ratio	0.29		0.41	0.85		
Uniform Delay, d1	35.3		38.2	30.6		
Progression Factor	0.04		0.59	0.46		
Incremental Delay, d2	0.3		0.0	0.3		
Delay (s)	1.7		22.7	14.4		
Level of Service	A		C	B		
Approach Delay (s)	1.7			15.7	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	360	0	0	694	681	0	1545	665	0	0	0
Future Volume (vph)	20	360	0	0	694	681	0	1545	665	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7			6.1	6.1		6.1				
Lane Util. Factor		0.95			0.95	1.00		0.91				
Frt		1.00			1.00	0.85		0.95				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3716			3725	1667		5111				
Flt Permitted		0.88			1.00	1.00		1.00				
Satd. Flow (perm)		3283			3725	1667		5111				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	391	0	0	754	740	0	1679	723	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	340	0	65	0	0	0	0
Lane Group Flow (vph)	0	413	0	0	754	400	0	2337	0	0	0	0
Turn Type	D.Pm	NA			NA	Prot		NA				
Protected Phases		4			1	1		2				
Permitted Phases	1											
Actuated Green, G (s)		31.5			18.7	18.7		51.9				
Effective Green, g (s)		31.5			18.7	18.7		51.9				
Actuated g/C Ratio		0.26			0.16	0.16		0.43				
Clearance Time (s)		5.7			6.1	6.1		6.1				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		861			580	259		2210				
v/s Ratio Prot					0.20	c0.24		c0.46				
v/s Ratio Perm		c0.13										
v/c Ratio		0.48			1.30	1.54		1.06				
Uniform Delay, d1		37.3			50.6	50.6		34.0				
Progression Factor		0.02			1.00	1.00		1.00				
Incremental Delay, d2		0.4			147.3	263.0		36.5				
Delay (s)		1.3			198.0	313.6		70.6				
Level of Service		A			F	F		E				
Approach Delay (s)		1.3			255.3			70.6			0.0	
Approach LOS		A			F			E			A	

Intersection Summary			
HCM 2000 Control Delay	128.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
27: Baldwin Road & Jordan Road

01/04/2023

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	7	1847	4	0	0
Future Volume (Veh/h)	0	7	1847	4	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	8	2008	4	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			648			
pX, platoon unblocked	0.62	0.62			0.62	
vC, conflicting volume	2010	1006			2012	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1412	0			1415	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	80	676			298	

Direction, Lane #	WB 1	NB 1	NB 2
Volume Total	8	1339	673
Volume Left	0	0	0
Volume Right	8	0	4
cSH	676	1700	1700
Volume to Capacity	0.01	0.79	0.40
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	0	0	1770	0	0
Future Volume (Veh/h)	62	0	0	1770	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.93	0.92	0.92
Hourly flow rate (vph)	67	0	0	1903	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				591		
pX, platoon unblocked	0.67					
vC, conflicting volume	634	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	100	100			
cM capacity (veh/h)	689	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3
Volume Total	34	34	634	634	634
Volume Left	34	34	0	0	0
Volume Right	0	0	0	0	0
cSH	689	689	1700	1700	1700
Volume to Capacity	0.05	0.05	0.37	0.37	0.37
Queue Length 95th (ft)	4	4	0	0	0
Control Delay (s)	10.5	10.5	0.0	0.0	0.0
Lane LOS	B	B			
Approach Delay (s)	10.5		0.0		
Approach LOS	B				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	0	0	1924	0	0
Future Volume (Veh/h)	80	0	0	1924	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	0	0	2091	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1046	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	61	100	100			
cM capacity (veh/h)	224	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total	44	44	1046	1046
Volume Left	44	44	0	0
Volume Right	0	0	0	0
cSH	224	224	1700	1700
Volume to Capacity	0.19	0.19	0.61	0.61
Queue Length 95th (ft)	18	18	0	0
Control Delay (s)	24.9	24.9	0.0	0.0
Lane LOS	C	C		
Approach Delay (s)	24.9		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	129	288	48	296	0	0	0	0	0	958	18
Future Volume (vph)	0	129	288	48	296	0	0	0	0	0	958	18
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7	5.7		6.1						6.1	6.1
Lane Util. Factor		1.00	1.00		0.95						0.95	1.00
Frt		1.00	0.85		1.00						1.00	0.85
Flt Protected		1.00	1.00		0.99						1.00	1.00
Satd. Flow (prot)		1923	1683		3736						3725	1667
Flt Permitted		1.00	1.00		0.52						1.00	1.00
Satd. Flow (perm)		1923	1683		1945						3725	1667
Peak-hour factor, PHF	0.92	0.84	0.84	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	154	343	51	312	0	0	0	0	0	1041	20
RTOR Reduction (vph)	0	0	208	0	0	0	0	0	0	0	0	13
Lane Group Flow (vph)	0	154	135	0	363	0	0	0	0	0	1041	7
Heavy Vehicles (%)	2%	4%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	Perm	NA						NA	Perm
Protected Phases		4			5						6	
Permitted Phases			4	5								6
Actuated Green, G (s)		31.5	31.5		29.1						41.5	41.5
Effective Green, g (s)		31.5	31.5		29.1						41.5	41.5
Actuated g/C Ratio		0.26	0.26		0.24						0.35	0.35
Clearance Time (s)		5.7	5.7		6.1						6.1	6.1
Vehicle Extension (s)		3.0	3.0		3.0						3.0	3.0
Lane Grp Cap (vph)		504	441		471						1288	576
v/s Ratio Prot		0.08									c0.28	
v/s Ratio Perm			c0.08		c0.19							0.00
v/c Ratio		0.31	0.31		0.77						0.81	0.01
Uniform Delay, d1		35.5	35.5		42.3						35.6	25.8
Progression Factor		1.00	1.00		0.18						1.00	1.00
Incremental Delay, d2		0.3	0.4		7.1						3.8	0.0
Delay (s)		35.8	35.9		14.6						39.5	25.8
Level of Service		D	D		B						D	C
Approach Delay (s)		35.9			14.6			0.0			39.2	
Approach LOS		D			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	694	0	0	0	380	865
Future Volume (vph)	694	0	0	0	380	865
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.1				5.7	6.1
Lane Util. Factor	0.97				0.97	0.95
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3614				3614	3725
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3614				3614	3725
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	754	0	0	0	413	940
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	754	0	0	0	413	940
Turn Type	Prot				Prot	NA
Protected Phases	1				4	2 4
Permitted Phases						
Actuated Green, G (s)	18.7				31.5	89.5
Effective Green, g (s)	18.7				31.5	89.5
Actuated g/C Ratio	0.16				0.26	0.75
Clearance Time (s)	6.1				5.7	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	563				948	2778
v/s Ratio Prot	c0.21				c0.11	c0.25
v/s Ratio Perm						
v/c Ratio	1.34				0.44	0.34
Uniform Delay, d1	50.6				36.8	5.2
Progression Factor	0.14				1.51	2.18
Incremental Delay, d2	153.8				0.2	0.1
Delay (s)	160.9				55.9	11.4
Level of Service	F				E	B
Approach Delay (s)	160.9		0.0			25.0
Approach LOS	F		A			C

Intersection Summary			
HCM 2000 Control Delay	73.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	148	0	0	829	136
Future Volume (Veh/h)	0	148	0	0	829	136
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	161	0	0	901	148
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	901	450	1049			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	901	450	1049			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	71	100			
cM capacity (veh/h)	278	556	659			

Direction, Lane #	EB 1	SB 1	SB 2	SB 3
Volume Total	161	450	450	148
Volume Left	0	0	0	0
Volume Right	161	0	0	148
cSH	556	1700	1700	1700
Volume to Capacity	0.29	0.27	0.27	0.09
Queue Length 95th (ft)	30	0	0	0
Control Delay (s)	14.1	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	14.1	0.0		
Approach LOS	B			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	71	0	0	876	154
Future Volume (Veh/h)	0	71	0	0	876	154
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	77	0	0	952	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				772		
pX, platoon unblocked						
vC, conflicting volume	1036	560	1119			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1036	560	1119			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	100			
cM capacity (veh/h)	227	472	620			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	77	635	484
Volume Left	0	0	0
Volume Right	77	0	167
cSH	472	1700	1700
Volume to Capacity	0.16	0.37	0.28
Queue Length 95th (ft)	14	0	0
Control Delay (s)	14.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.1	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	0	0	0	0	852
Future Volume (Veh/h)	110	0	0	0	0	852
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	0	0	0	0	926
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1234			
pX, platoon unblocked						
vC, conflicting volume	463	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	463	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	100			100	
cM capacity (veh/h)	528	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	120	463	463
Volume Left	120	0	0
Volume Right	0	0	0
cSH	528	1700	1700
Volume to Capacity	0.23	0.27	0.27
Queue Length 95th (ft)	22	0	0
Control Delay (s)	13.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.8	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	36	0	0	816	87
Future Volume (Veh/h)	0	36	0	0	816	87
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	39	0	0	887	95
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	934	491	982			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	934	491	982			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	100			
cM capacity (veh/h)	264	523	699			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	39	591	391
Volume Left	0	0	0
Volume Right	39	0	95
cSH	523	1700	1700
Volume to Capacity	0.07	0.35	0.23
Queue Length 95th (ft)	6	0	0
Control Delay (s)	12.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	12.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
39: Baldwin Road & Baldwin Village South Driveway - Outward

01/04/2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	115	0	0	962	0
Future Volume (Veh/h)	0	115	0	0	962	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	125	0	0	1046	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1087		
pX, platoon unblocked						
vC, conflicting volume	1046	523	1046			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	523	1046			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	75	100			
cM capacity (veh/h)	224	499	661			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	125	523	523
Volume Left	0	0	0
Volume Right	125	0	0
cSH	499	1700	1700
Volume to Capacity	0.25	0.31	0.31
Queue Length 95th (ft)	25	0	0
Control Delay (s)	14.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.6	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Baldwin Road & Judah Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	ULT	TR	ULT	TR
Maximum Queue (ft)	95	31	66	43	242	243
Average Queue (ft)	46	4	16	4	109	82
95th Queue (ft)	82	20	49	24	200	191
Link Distance (ft)	282	768	38	38	316	316
Upstream Blk Time (%)			1	0	0	0
Queuing Penalty (veh)			4	0	2	2
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Baldwin Road & SB to NB X-over

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	48	18
Average Queue (ft)	20	1
95th Queue (ft)	43	9
Link Distance (ft)	14	14
Upstream Blk Time (%)	4	0
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Baldwin Road & NB to SB X-over

Movement	WB
Directions Served	L
Maximum Queue (ft)	76
Average Queue (ft)	38
95th Queue (ft)	72
Link Distance (ft)	25
Upstream Blk Time (%)	25
Queuing Penalty (veh)	15
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Morgan Road & Baldwin Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	116
Average Queue (ft)	51
95th Queue (ft)	94
Link Distance (ft)	412
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Jordan Xover & Baldwin Road

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	37	34
Average Queue (ft)	23	5
95th Queue (ft)	40	23
Link Distance (ft)	6	6
Upstream Blk Time (%)	5	1
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Baldwin Road & S. Baldwin Commons

Movement	EB	EB	SB	SB	SB
Directions Served	T	R	T	T	R
Maximum Queue (ft)	54	43	322	336	111
Average Queue (ft)	10	10	235	241	9
95th Queue (ft)	34	31	304	314	67
Link Distance (ft)	208	208	322	322	
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			1	3	
Storage Bay Dist (ft)					75
Storage Blk Time (%)				26	
Queuing Penalty (veh)				3	

Intersection: 7: Baldwin Road & S. Baldwin Commons

Movement	EB	NB	NB	NB	NB	NB
Directions Served	L	L	L	T	T	T
Maximum Queue (ft)	18	105	112	66	57	103
Average Queue (ft)	1	49	51	20	10	35
95th Queue (ft)	7	93	94	51	39	83
Link Distance (ft)	2			184	184	184
Upstream Blk Time (%)	1					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)		130	130			
Storage Blk Time (%)		0	0	0		
Queuing Penalty (veh)		0	1	0		

Intersection: 8: Baldwin Road & Brown Road

Movement	WB	WB	SB	SB	SB	SB
Directions Served	L	L	L	L	T	T
Maximum Queue (ft)	26	17	188	221	224	158
Average Queue (ft)	5	1	120	131	34	43
95th Queue (ft)	21	8	180	198	121	97
Link Distance (ft)	25	25			284	284
Upstream Blk Time (%)	13	2			0	
Queuing Penalty (veh)	15	2			1	
Storage Bay Dist (ft)			135	135		
Storage Blk Time (%)			6	10	0	
Queuing Penalty (veh)			40	71	0	

Intersection: 9: Baldwin Road & Brown Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	LT	T	T	T	R	T	T	TR
Maximum Queue (ft)	43	57	203	179	198	263	169	220
Average Queue (ft)	5	15	124	58	86	150	53	91
95th Queue (ft)	25	46	195	158	161	236	132	160
Link Distance (ft)	25	25	387	387	387	256	256	256
Upstream Blk Time (%)	8	23				0		0
Queuing Penalty (veh)	14	37				0		0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 12: Dummy Node

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 15: Baldwin Road & NB to SB X-over

Movement	NB
Directions Served	L
Maximum Queue (ft)	14
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Baldwin Road/Baldiwn Road & Dummy Node

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 20: Baldiwn Road & Jordan Xover

Movement	SB
Directions Served	L
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: Baldwin Road

Movement	NB
Directions Served	T
Maximum Queue (ft)	67
Average Queue (ft)	14
95th Queue (ft)	56
Link Distance (ft)	11
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 24: Baldwin Road & Dummy Node

Movement	WB
Directions Served	R
Maximum Queue (ft)	48
Average Queue (ft)	21
95th Queue (ft)	47
Link Distance (ft)	343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 26: Baldwin Road

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	14	10
Average Queue (ft)	1	0
95th Queue (ft)	8	5
Link Distance (ft)	48	48
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 27: Baldwin Road & Jordan Road

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	31	58	6
Average Queue (ft)	4	43	0
95th Queue (ft)	22	77	4
Link Distance (ft)	333	2	2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 28: Baldwin Road & Baldwin Village South Driveway

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	81	7	14
Average Queue (ft)	37	0	1
95th Queue (ft)	65	3	7
Link Distance (ft)	220	5	5
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: Baldwin Road & SB to NB X-over

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 31: Baldwin Road

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	28	37
Average Queue (ft)	2	2
95th Queue (ft)	14	17
Link Distance (ft)	38	38
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 34: Baldwin Road & Baldwin Village North Driveway

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	63	31	11
Average Queue (ft)	23	4	0
95th Queue (ft)	53	20	6
Link Distance (ft)	314		168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		75	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 36: Baldwin Village Mid Driveway

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	77	6	22
Average Queue (ft)	38	0	1
95th Queue (ft)	67	4	12
Link Distance (ft)	262	117	117
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 38: Baldwin Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 39: Baldwin Road & Baldwin Village South Driveway - Outward

Movement	EB
Directions Served	R
Maximum Queue (ft)	180
Average Queue (ft)	76
95th Queue (ft)	144
Link Distance (ft)	304
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 42:

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 44:

Movement	EB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	79	5	9
Average Queue (ft)	46	0	0
95th Queue (ft)	74	4	5
Link Distance (ft)	49	79	79
Upstream Blk Time (%)	14		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 45: Baldwin Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 46:

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 215

Intersection: 1: Baldwin Road & Judah Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	ULT	TR	ULT	TR
Maximum Queue (ft)	150	54	139	127	165	124
Average Queue (ft)	64	15	105	90	60	31
95th Queue (ft)	116	44	128	136	123	85
Link Distance (ft)	282	768	38	38	316	316
Upstream Blk Time (%)			84	53		
Queuing Penalty (veh)			831	523		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Baldwin Road & SB to NB X-over

Movement	EB	EB	NB	NB
Directions Served	L	L	T	T
Maximum Queue (ft)	80	54	113	110
Average Queue (ft)	38	20	11	10
95th Queue (ft)	68	49	94	90
Link Distance (ft)	32	32	216	216
Upstream Blk Time (%)	37	15	1	1
Queuing Penalty (veh)	15	6	8	6
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Baldwin Road & NB to SB X-over

Movement	WB
Directions Served	L
Maximum Queue (ft)	73
Average Queue (ft)	38
95th Queue (ft)	64
Link Distance (ft)	25
Upstream Blk Time (%)	15
Queuing Penalty (veh)	17
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Morgan Road & Baldwin Road

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	68	4
Average Queue (ft)	31	0
95th Queue (ft)	56	3
Link Distance (ft)	412	258
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Jordan Xover & Baldwin Road

Movement	EB	EB	NB	NB	NB
Directions Served	L	L	T	T	T
Maximum Queue (ft)	50	52	6	36	40
Average Queue (ft)	25	11	0	2	3
95th Queue (ft)	44	39	4	18	19
Link Distance (ft)	6	6	129	129	129
Upstream Blk Time (%)	15	5			
Queuing Penalty (veh)	5	1			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Baldwin Road & S. Baldwin Commons

Movement	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	R	LT	T	T	T	R
Maximum Queue (ft)	192	201	44	44	339	334	174
Average Queue (ft)	76	86	3	11	242	235	21
95th Queue (ft)	149	165	21	35	323	319	102
Link Distance (ft)	220	220	21	21	302	302	
Upstream Blk Time (%)	0	0	1	18	1	1	
Queuing Penalty (veh)	0	0	2	31	7	5	
Storage Bay Dist (ft)							75
Storage Blk Time (%)						42	
Queuing Penalty (veh)						8	

Intersection: 7: Baldwin Road & S. Baldwin Commons

Movement	EB	NB	NB	NB	NB	NB
Directions Served	L	L	L	T	T	T
Maximum Queue (ft)	37	138	156	180	198	211
Average Queue (ft)	6	56	77	86	83	112
95th Queue (ft)	25	113	129	146	150	176
Link Distance (ft)	21			202	202	202
Upstream Blk Time (%)	10		0	0	0	0
Queuing Penalty (veh)	13		0	1	0	1
Storage Bay Dist (ft)		130	130			
Storage Blk Time (%)		0	1	1		
Queuing Penalty (veh)		0	3	4		

Intersection: 8: Baldwin Road & Brown Road

Movement	WB	WB	SB	SB	SB	SB
Directions Served	L	L	L	L	T	T
Maximum Queue (ft)	56	55	189	221	280	270
Average Queue (ft)	21	13	136	148	143	143
95th Queue (ft)	49	41	198	219	253	231
Link Distance (ft)	25	25			222	222
Upstream Blk Time (%)	41	23		1	2	1
Queuing Penalty (veh)	141	78		0	13	4
Storage Bay Dist (ft)			135	135		
Storage Blk Time (%)			21	24	3	
Queuing Penalty (veh)			92	102	10	

Intersection: 9: Baldwin Road & Brown Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	LT	T	T	T	R	T	T	TR
Maximum Queue (ft)	72	40	385	413	429	289	286	303
Average Queue (ft)	31	5	183	337	404	240	248	276
95th Queue (ft)	69	25	333	525	417	316	312	292
Link Distance (ft)	25	25	387	387	387	256	256	256
Upstream Blk Time (%)	45	10	0	29	94	15	15	62
Queuing Penalty (veh)	86	20	0	0	0	0	0	0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 12: Dummy Node

Movement	NB
Directions Served	L
Maximum Queue (ft)	29
Average Queue (ft)	3
95th Queue (ft)	15
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: Baldwin Road & NB to SB X-over

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	25	48	76
Average Queue (ft)	1	3	3
95th Queue (ft)	11	41	46
Link Distance (ft)		331	331
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250		
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 16: Baldwin Road/Baldiwn Road & Dummy Node

Movement	EB	WB	SB
Directions Served	R	L	T
Maximum Queue (ft)	23	73	4
Average Queue (ft)	5	39	0
95th Queue (ft)	19	68	3
Link Distance (ft)	93	19	123
Upstream Blk Time (%)		20	
Queuing Penalty (veh)		10	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 19:

Movement	NB	NB
Directions Served	T	TR
Maximum Queue (ft)	47	42
Average Queue (ft)	8	6
95th Queue (ft)	49	41
Link Distance (ft)	21	21
Upstream Blk Time (%)	3	2
Queuing Penalty (veh)	34	19
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: Baldiwn Road & Jordan Xover

Movement	SB
Directions Served	L
Maximum Queue (ft)	25
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 24: Baldwin Road & Dummy Node

Movement	WB
Directions Served	R
Maximum Queue (ft)	173
Average Queue (ft)	76
95th Queue (ft)	139
Link Distance (ft)	343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 26: Baldwin Road

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	9	7
Average Queue (ft)	0	0
95th Queue (ft)	6	5
Link Distance (ft)	49	49
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 27: Baldwin Road & Jordan Road

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	35	54	67
Average Queue (ft)	8	44	19
95th Queue (ft)	30	77	62
Link Distance (ft)	333	2	2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 28: Baldwin Road & Baldwin Village South Driveway

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	56	3	26
Average Queue (ft)	23	0	1
95th Queue (ft)	50	2	10
Link Distance (ft)	220	6	6
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: Baldwin Road & SB to NB X-over

Movement	SB
Directions Served	L
Maximum Queue (ft)	45
Average Queue (ft)	4
95th Queue (ft)	27
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Baldwin Road

Movement	SB	SB	NW	NW
Directions Served	T	T	R	R
Maximum Queue (ft)	18	9	138	133
Average Queue (ft)	1	0	97	68
95th Queue (ft)	9	5	142	147
Link Distance (ft)	38	38	49	49
Upstream Blk Time (%)	0	0	60	39
Queuing Penalty (veh)	0	0	597	385
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 34: Baldwin Road & Baldwin Village North Driveway

Movement	EB	NB	SB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	44	41	6	6
Average Queue (ft)	15	10	0	0
95th Queue (ft)	42	35	4	4
Link Distance (ft)	314		168	168
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		75		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 36: Baldwin Village Mid Driveway & Baldwin Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	87
Average Queue (ft)	39
95th Queue (ft)	72
Link Distance (ft)	247
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 38: Baldwin Road & Dummy Node

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 39: Baldwin Road & Baldwin Village South Driveway - Outward

Movement	EB	SB
Directions Served	R	T
Maximum Queue (ft)	80	11
Average Queue (ft)	41	0
95th Queue (ft)	70	8
Link Distance (ft)	304	106
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 42: Baldwin Road & Dummy Node

Movement	NB	NB
Directions Served	T	TR
Maximum Queue (ft)	24	30
Average Queue (ft)	2	1
95th Queue (ft)	15	13
Link Distance (ft)	44	44
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 45: Baldwin Road & Dummy Node

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	55	46
Average Queue (ft)	5	2
95th Queue (ft)	34	20
Link Distance (ft)	22	22
Upstream Blk Time (%)	1	0
Queuing Penalty (veh)	4	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 46:

Movement	NB	NB
Directions Served	T	T
Maximum Queue (ft)	353	357
Average Queue (ft)	145	124
95th Queue (ft)	410	401
Link Distance (ft)	439	439
Upstream Blk Time (%)	7	6
Queuing Penalty (veh)	72	57
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3212

APPENDIX E: ALTERNATIVE B BUILD CONDITION REPORTS LOS & QUEUE

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah 2030	2030 PHF Flow Profile (veh)
2030 Build Alt-B	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	SB Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	EB Judah Road	90	0	12.00	1	14.00	1	164.00	66.00	30.00
3	NB Baldwin	180	0	24.00	2	27.00	2	164.00	66.00	30.00
4	WB Judah Road	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	SB Baldwin	164.00	20.00	1	24.00	2	24.00	2
2	EB Judah Road	164.00	33.00	2	14.00	1	14.00	1
3	NB Baldwin	164.00	20.00	1	24.00	2	24.00	2
4	WB Judah Road	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	SB Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	EB Judah Road	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0
3	NB Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	WB Judah Road	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2030 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	SB Baldwin	1	1	1306	61	0	3.0	1.00	0.900
2	EB Judah Road	0	38	3	121	0	3.0	1.00	0.900
3	NB Baldwin	18	98	399	2	0	3.0	1.00	0.900
4	WB Judah Road	0	3	4	6	0	3.0	1.00	0.900

Operational Results

2030 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB Baldwin	None	1369		123		444	2212		0.6188	
2	EB Judah Road	None	162		1329		163	714		0.2269	
3	NB Baldwin	None	517		43		1448	2293		0.2254	
4	WB Judah Road	None	13		554		6	1005		0.0129	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB Baldwin	None	4.12		4.12	5.24		A		A
2	EB Judah Road	None	6.23		6.23	0.94		A		A
3	NB Baldwin	None	2.49		2.49	1.08		A		A
4	WB Judah Road	None	3.49		3.49	0.04		A		A

2030 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB Baldwin	None	1521		137		493	2199		0.6919	
2	EB Judah Road	None	180		1475		181	659		0.2732	
3	NB Baldwin	None	574		48		1607	2289		0.2510	
4	WB Judah Road	None	14		615		7	982		0.0147	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB Baldwin	None	4.54		4.54	5.24		A		A
2	EB Judah Road	None	6.62		6.62	0.94		A		A
3	NB Baldwin	None	2.48		2.48	1.08		A		A
4	WB Judah Road	None	3.44		3.44	0.04		A		A

Approach Flow Profile

2030 AM Peak - Approach Flows (Veh / Hour)

Time Slice	SB Baldwin	EB Judah Road	NB Baldwin	WB Judah Road
0.0 - 7.5	164.79	19.50	62.23	1.56
7.5 - 15.0	164.79	19.50	62.23	1.56
15.0 - 22.5	164.79	19.50	62.23	1.56
22.5 - 30.0	190.14	22.50	71.81	1.81
30.0 - 37.5	190.14	22.50	71.81	1.81
37.5 - 45.0	164.79	19.50	62.23	1.56
45.0 - 52.5	164.79	19.50	62.23	1.56
52.5 - 60.0	164.79	19.50	62.23	1.56
Peak 15 min	190.14	22.50	71.81	1.81
Peak 60 min	171.12	20.25	64.63	1.63

Exit Flow Profile

2030 AM Peak - Exit Flows (Veh / Hour)

Time Slice	SB Baldwin	EB Judah Road	NB Baldwin	WB Judah Road
0.0 - 7.5	53.42	19.61	174.09	0.72
7.5 - 15.0	53.44	19.62	174.29	0.72
15.0 - 22.5	53.44	19.62	174.30	0.72
22.5 - 30.0	61.63	22.62	200.76	0.83
30.0 - 37.5	61.67	22.64	201.09	0.83
37.5 - 45.0	53.48	19.64	174.64	0.72
45.0 - 52.5	53.45	19.62	174.30	0.72
52.5 - 60.0	53.44	19.62	174.30	0.72
0-60	444	163	1448	6
%Trucks	3.00	3.00	3.00	3.00

Economics

Economic Input Data

2030 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2030 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2030 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	721.34	10820	Vehicles Injury	0.00	0	Vehicle Delay Cost	10820
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	0.00	0	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	721.34	10820	Totals	0.00	0	TOTAL COST	10820

Global Results

Performance and Accidents

2030 AM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	2061		2061
Capacity	veh/hr	6225		6225
Average Delay	sec/veh	3.88		3.88
L.O.S. (Signal)	A – F	A		A
L.O.S. (Unsig)	A – F	A		A
Total Delay	veh.hrs	2.22		2.22

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	23	5	430	1347	14
Future Volume (Veh/h)	6	23	5	430	1347	14
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	25	5	467	1464	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1715	740	1479			
vC1, stage 1 conf vol	1472					
vC2, stage 2 conf vol	244					
vCu, unblocked vol	1715	740	1479			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	93	99			
cM capacity (veh/h)	171	360	451			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	32	5	234	234	976	503
Volume Left	7	5	0	0	0	0
Volume Right	25	0	0	0	0	15
cSH	290	451	1700	1700	1700	1700
Volume to Capacity	0.11	0.01	0.14	0.14	0.57	0.30
Queue Length 95th (ft)	9	1	0	0	0	0
Control Delay (s)	19.0	13.1	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	19.0	0.1			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	0	104	466	0	0
Future Volume (vph)	16	0	104	466	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.7		6.1	6.1		
Lane Util. Factor	1.00		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1863		3650	5406		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	1863		3650	5406		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	17	0	109	491	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	17	0	109	491	0	0
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	Prot		custom	NA		
Protected Phases	4			2 5		
Permitted Phases			5			
Actuated Green, G (s)	18.6		10.8	77.0		
Effective Green, g (s)	18.6		10.8	77.0		
Actuated g/C Ratio	0.16		0.09	0.64		
Clearance Time (s)	5.7		6.1			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	288		328	3468		
v/s Ratio Prot	c0.01			c0.09		
v/s Ratio Perm			c0.03			
v/c Ratio	0.06		0.33	0.14		
Uniform Delay, d1	43.2		51.2	8.5		
Progression Factor	0.03		1.17	0.57		
Incremental Delay, d2	0.1		0.6	0.0		
Delay (s)	1.3		60.6	4.9		
Level of Service	A		E	A		
Approach Delay (s)	1.3			15.0	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	317	0	0	241	136	0	434	424	0	0	0
Future Volume (vph)	4	317	0	0	241	136	0	434	424	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7			6.1	6.1		6.1				
Lane Util. Factor		0.95			0.95	1.00		0.91				
Frt		1.00			1.00	0.85		0.93				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3723			3725	1667		4956				
Flt Permitted		0.95			1.00	1.00		1.00				
Satd. Flow (perm)		3541			3725	1667		4956				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	345	0	0	262	148	0	472	461	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	127	0	132	0	0	0	0
Lane Group Flow (vph)	0	349	0	0	262	21	0	801	0	0	0	0
Turn Type	Perm	NA			NA	Prot		NA				
Protected Phases		4			1	1		2				
Permitted Phases	4											
Actuated Green, G (s)		18.6			17.3	17.3		66.2				
Effective Green, g (s)		18.6			17.3	17.3		66.2				
Actuated g/C Ratio		0.16			0.14	0.14		0.55				
Clearance Time (s)		5.7			6.1	6.1		6.1				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		548			537	240		2734				
v/s Ratio Prot					c0.07	0.01		c0.16				
v/s Ratio Perm		c0.10										
v/c Ratio		0.64			0.49	0.09		0.29				
Uniform Delay, d1		47.5			47.3	44.5		14.4				
Progression Factor		0.05			1.00	1.00		1.00				
Incremental Delay, d2		1.9			0.7	0.2		0.3				
Delay (s)		4.3			48.0	44.7		14.7				
Level of Service		A			D	D		B				
Approach Delay (s)		4.3			46.8			14.7			0.0	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	4	523	6	0	0
Future Volume (Veh/h)	0	4	523	6	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	568	7	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			667			
pX, platoon unblocked	0.95	0.95			0.95	
vC, conflicting volume	572	288			575	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	456	158			459	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	509	820			1048	

Direction, Lane #	WB 1	NB 1	NB 2
Volume Total	4	379	196
Volume Left	0	0	0
Volume Right	4	0	7
cSH	820	1700	1700
Volume to Capacity	0.00	0.22	0.12
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.4	0.0	
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	47	0	0	482	0	0
Future Volume (Veh/h)	47	0	0	482	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.93	0.92	0.92
Hourly flow rate (vph)	51	0	0	518	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				610		
pX, platoon unblocked	0.97					
vC, conflicting volume	173	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	61	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	100			
cM capacity (veh/h)	915	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3
Volume Total	26	26	173	173	173
Volume Left	26	26	0	0	0
Volume Right	0	0	0	0	0
cSH	915	915	1700	1700	1700
Volume to Capacity	0.03	0.03	0.10	0.10	0.10
Queue Length 95th (ft)	2	2	0	0	0
Control Delay (s)	9.0	9.0	0.0	0.0	0.0
Lane LOS	A	A			
Approach Delay (s)	9.0		0.0		
Approach LOS	A				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	0	0	487	0	0
Future Volume (Veh/h)	36	0	0	487	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	39	0	0	541	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	270	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	100			
cM capacity (veh/h)	696	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total	20	20	270	270
Volume Left	20	20	0	0
Volume Right	0	0	0	0
cSH	696	696	1700	1700
Volume to Capacity	0.03	0.03	0.16	0.16
Queue Length 95th (ft)	2	2	0	0
Control Delay (s)	10.3	10.3	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	10.3		0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
6: Baldwin Road & S. Baldwin Commons

01/03/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	16	25	51	53	0	0	0	0	0	1614	12
Future Volume (vph)	0	16	25	51	53	0	0	0	0	0	1614	12
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7	5.7		6.1						6.1	6.1
Lane Util. Factor		1.00	1.00		0.95						0.95	1.00
Frt		1.00	0.85		1.00						1.00	0.85
Flt Protected		1.00	1.00		0.98						1.00	1.00
Satd. Flow (prot)		1923	1683		3672						3725	1667
Flt Permitted		1.00	1.00		0.98						1.00	1.00
Satd. Flow (perm)		1923	1683		3672						3725	1667
Peak-hour factor, PHF	0.92	0.84	0.84	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	19	30	54	56	0	0	0	0	0	1754	13
RTOR Reduction (vph)	0	0	25	0	0	0	0	0	0	0	0	5
Lane Group Flow (vph)	0	19	5	0	110	0	0	0	0	0	1754	8
Heavy Vehicles (%)	2%	4%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	Split	NA						NA	Prot
Protected Phases		4		1!	1!						6!	6!
Permitted Phases			4									
Actuated Green, G (s)		18.6	18.6		17.3						72.7	72.7
Effective Green, g (s)		18.6	18.6		17.3						72.7	72.7
Actuated g/C Ratio		0.16	0.16		0.14						0.61	0.61
Clearance Time (s)		5.7	5.7		6.1						6.1	6.1
Vehicle Extension (s)		3.0	3.0		3.0						3.0	3.0
Lane Grp Cap (vph)		298	260		529						2256	1009
v/s Ratio Prot		c0.01			c0.03						c0.47	0.00
v/s Ratio Perm			0.00									
v/c Ratio		0.06	0.02		0.21						0.78	0.01
Uniform Delay, d1		43.3	43.0		45.3						17.6	9.4
Progression Factor		1.00	1.00		0.01						1.00	1.00
Incremental Delay, d2		0.1	0.0		0.2						1.7	0.0
Delay (s)		43.4	43.0		0.6						19.4	9.4
Level of Service		D	D		A						B	A
Approach Delay (s)		43.1			0.6			0.0			19.3	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	241	0	0	0	321	1390
Future Volume (vph)	241	0	0	0	321	1390
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.1				5.7	6.1
Lane Util. Factor	0.97				0.97	0.95
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3614				3614	3725
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3614				3614	3725
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	262	0	0	0	349	1511
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	262	0	0	0	349	1511
Turn Type	Prot				Prot	NA
Protected Phases	1				4	2 4
Permitted Phases						
Actuated Green, G (s)	17.3				18.6	90.9
Effective Green, g (s)	17.3				18.6	90.9
Actuated g/C Ratio	0.14				0.16	0.76
Clearance Time (s)	6.1				5.7	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	521				560	2821
v/s Ratio Prot	c0.07				c0.10	c0.41
v/s Ratio Perm						
v/c Ratio	0.50				0.62	0.54
Uniform Delay, d1	47.4				47.4	5.9
Progression Factor	0.03				1.03	0.25
Incremental Delay, d2	0.7				1.5	0.1
Delay (s)	2.0				50.5	1.6
Level of Service	A				D	A
Approach Delay (s)	2.0		0.0			10.8
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	83	0	0	1490	113
Future Volume (Veh/h)	0	83	0	0	1490	113
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	90	0	0	1620	123
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1682	872	1743			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1682	872	1743			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	69	100			
cM capacity (veh/h)	85	294	357			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	90	1080	663
Volume Left	0	0	0
Volume Right	90	0	123
cSH	294	1700	1700
Volume to Capacity	0.31	0.64	0.39
Queue Length 95th (ft)	32	0	0
Control Delay (s)	22.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	22.6	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	104	0	0	1613	25
Future Volume (Veh/h)	0	104	0	0	1613	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	113	0	0	1753	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				793		
pX, platoon unblocked						
vC, conflicting volume	1766	890	1780			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1766	890	1780			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	60	100			
cM capacity (veh/h)	75	286	345			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	113	1169	611
Volume Left	0	0	0
Volume Right	113	0	27
cSH	286	1700	1700
Volume to Capacity	0.40	0.69	0.36
Queue Length 95th (ft)	45	0	0
Control Delay (s)	25.6	0.0	0.0
Lane LOS	D		
Approach Delay (s)	25.6	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	58	0	0	0	0	1501
Future Volume (Veh/h)	58	0	0	0	0	1501
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	0	0	0	0	1632
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1255			
pX, platoon unblocked						
vC, conflicting volume	816	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	816	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	100			100	
cM capacity (veh/h)	315	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	63	816	816
Volume Left	63	0	0
Volume Right	0	0	0
cSH	315	1700	1700
Volume to Capacity	0.20	0.48	0.48
Queue Length 95th (ft)	18	0	0
Control Delay (s)	19.3	0.0	0.0
Lane LOS	C		
Approach Delay (s)	19.3	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	0	0	0	0	1421
Future Volume (Veh/h)	41	0	0	0	0	1421
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	0	0	0	0	1545
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	772	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	772	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	336	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	45	772	772
Volume Left	45	0	0
Volume Right	0	0	0
cSH	336	1700	1700
Volume to Capacity	0.13	0.45	0.45
Queue Length 95th (ft)	11	0	0
Control Delay (s)	17.4	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.4	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	76	0	0	1462	133
Future Volume (Veh/h)	0	76	0	0	1462	133
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	83	0	0	1589	145
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1662	867	1734			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1662	867	1734			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	72	100			
cM capacity (veh/h)	88	296	359			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	83	1059	675
Volume Left	0	0	0
Volume Right	83	0	145
cSH	296	1700	1700
Volume to Capacity	0.28	0.62	0.40
Queue Length 95th (ft)	28	0	0
Control Delay (s)	21.8	0.0	0.0
Lane LOS	C		
Approach Delay (s)	21.8	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
39: Baldwin Road & Baldwin Village South Driveway - Outward

01/03/2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	160	0	0	1559	0
Future Volume (Veh/h)	0	160	0	0	1559	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	174	0	0	1695	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1108		
pX, platoon unblocked						
vC, conflicting volume	1695	848	1695			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1695	848	1695			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	43	100			
cM capacity (veh/h)	84	305	372			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	174	848	848
Volume Left	0	0	0
Volume Right	174	0	0
cSH	305	1700	1700
Volume to Capacity	0.57	0.50	0.50
Queue Length 95th (ft)	83	0	0
Control Delay (s)	31.4	0.0	0.0
Lane LOS	D		
Approach Delay (s)	31.4	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

Scheme Summary

Control Data

Control Data and Model Parameters

Baldwin at Judah 2030	2030 PHF Flow Profile (veh)
2030 Build Alt-B	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
Full Geometry	Output flows: Vehicles
English Units (ft)	50% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (ft)

Approach and Entry Geometry

Leg	Leg Names	Approach Bearing (deg)	Grade Separation G	Half Width V	Approach Lanes n	Entry Width E	Entry Lanes n	Flare Length L'	Entry Radius R	Entry Angle Phi
1	SB Baldwin	0	0	24.00	2	27.00	2	164.00	66.00	30.00
2	EB Judah Road	90	0	12.00	1	14.00	1	164.00	66.00	30.00
3	NB Baldwin	180	0	24.00	2	27.00	2	164.00	66.00	30.00
4	WB Judah Road	270	0	12.00	1	14.00	1	164.00	66.00	30.00

Circulating and Exit Geometry

Leg	Leg Names	Inscribed Diameter D	Circulating Width C	Circulating Lanes nc	Exit Width Ex	Exit Lanes nex	Exit Half Width Vx	Exit Half Width Lanes nvx
1	SB Baldwin	164.00	20.00	1	24.00	2	24.00	2
2	EB Judah Road	164.00	33.00	2	14.00	1	14.00	1
3	NB Baldwin	164.00	20.00	1	24.00	2	24.00	2
4	WB Judah Road	164.00	33.00	2	14.00	1	14.00	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (ft)	Default Capacity	Calib Capacity	V (ft)	Default Capacity	Calib Capacity
1	SB Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
2	EB Judah Road	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0
3	NB Baldwin	0	1.000	0	1.000	20.00	3584	0	24.00	3584	0
4	WB Judah Road	0	1.000	0	1.000	20.00	1792	0	14.00	2091	0

Traffic Flow Data (veh/hr)

2030 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	SB Baldwin	11	6	758	61	0	3.0	1.00	0.900
2	EB Judah Road	0	173	4	79	0	3.0	1.00	0.900
3	NB Baldwin	41	304	1617	18	0	3.0	1.00	0.900
4	WB Judah Road	0	9	6	15	0	3.0	1.00	0.900

Operational Results

2030 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB Baldwin	None	836		359		1811	1973		0.4236	
2	EB Judah Road	None	256		825		370	903		0.2834	
3	NB Baldwin	None	1980		194		887	2140		0.9250	
4	WB Judah Road	None	30		2140		28	409		0.0734	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB Baldwin	None	3.22		3.22	2.38		A		A
2	EB Judah Road	None	5.28		5.28	1.20		A		A
3	NB Baldwin	None	21.18		21.18	56.52		C		C
4	WB Judah Road	None	9.15		9.15	0.27		A		A

2030 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB Baldwin	None	929		384		1941	1949		0.4767	
2	EB Judah Road	None	284		914		398	870		0.3270	
3	NB Baldwin	None	2200		215		983	2119		1.0383	
4	WB Judah Road	None	33		2291		30	352		0.0946	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB Baldwin	None	3.34		3.34	2.38		A		A
2	EB Judah Road	None	5.46		5.46	1.20		A		A
3	NB Baldwin	None	31.30		31.30	56.52		D		D
4	WB Judah Road	None	9.81		9.81	0.27		A		A

Approach Flow Profile

2030 PM Peak - Approach Flows (Veh / Hour)

Time Slice	SB Baldwin	EB Judah Road	NB Baldwin	WB Judah Road
0.0 - 7.5	100.63	30.81	238.33	3.61
7.5 - 15.0	100.63	30.81	238.33	3.61
15.0 - 22.5	100.63	30.81	238.33	3.61
22.5 - 30.0	116.11	35.56	275.00	4.17
30.0 - 37.5	116.11	35.56	275.00	4.17
37.5 - 45.0	100.63	30.81	238.33	3.61
45.0 - 52.5	100.63	30.81	238.33	3.61
52.5 - 60.0	100.63	30.81	238.33	3.61
Peak 15 min	116.11	35.56	275.00	4.17
Peak 60 min	104.50	32.00	247.50	3.75

Exit Flow Profile

2030 PM Peak - Exit Flows (Veh / Hour)

Time Slice	SB Baldwin	EB Judah Road	NB Baldwin	WB Judah Road
0.0 - 7.5	217.30	44.41	106.65	3.36
7.5 - 15.0	218.40	44.62	106.76	3.37
15.0 - 22.5	218.51	44.64	106.77	3.37
22.5 - 30.0	241.25	49.46	122.68	3.76
30.0 - 37.5	243.91	49.97	122.98	3.80
37.5 - 45.0	234.30	47.61	107.39	3.55
45.0 - 52.5	219.04	44.74	106.79	3.38
52.5 - 60.0	218.72	44.68	106.77	3.37
0-60	1811	370	887	28
%Trucks	3.00	3.00	3.00	3.00

Economics

Economic Input Data

2030 - Vehicle Delay Parameters

Peaks	Peak / Day	Days / Year	Delay Cost ($ / hour)
AM Peak	1	325	15.00
OFF Peak	14	325	15.00
PM Peak	1	325	15.00

2030 - Accident Severity Proportions and Costs

Accident Type	Proportion (%)	Cost ($)
Fatal Vehicle Accident	0.3	0
Incapacitating Vehicle Accident	17.7	0
Non-incapacitating Vehicle Accident	82	0
Damage Only Vehicle Accident	100	0
Pedestrian Injury Accident	100	0

Economics - Results Data

2030 Delay and Accident Costs

Delay Costs			Accident Costs			Total Costs	
Peak	Delays Veh.hrs	Costs ($)	Accident Types	Annual Accidents	Accident Costs	Cost Type	Costs ($/year)
AM	721.34	10820	Vehicles Injury	0.00	0	Vehicle Delay Cost	73442
OFF	0.00	0	Vehicles DO	0.00	0	Vehicle Injury Acc Cost	0
PM	4174.77	62622	Pedestrians	0.00	0	Vehicle DO Acc Cost	0
						Pedestrian Accident Cost	0
						Total Accident Cost	0
Total	4896.11	73442	Totals	0.00	0	TOTAL COST	73442

Global Results

Performance and Accidents

2030 PM Peak Global Performance

Parameter	Units	Entries	Bypasses	Total
Arrive Flows	veh/hr	3102		3102
Capacity	veh/hr	5426		5426
Average Delay	sec/veh	14.91		14.91
L.O.S. (Signal)	A – F	B		B
L.O.S. (Unsig)	A – F	B		B
Total Delay	veh.hrs	12.85		12.85

HCM Unsignalized Intersection Capacity Analysis
34: Baldwin Road & Baldwin Village North Driveway

01/04/2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	8	33	1783	828	20
Future Volume (Veh/h)	11	8	33	1783	828	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	9	36	1938	900	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1952	461	922			
vC1, stage 1 conf vol	911					
vC2, stage 2 conf vol	1041					
vCu, unblocked vol	1952	461	922			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	95			
cM capacity (veh/h)	222	547	736			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	21	36	969	969	600	322
Volume Left	12	36	0	0	0	0
Volume Right	9	0	0	0	0	22
cSH	298	736	1700	1700	1700	1700
Volume to Capacity	0.07	0.05	0.57	0.57	0.35	0.19
Queue Length 95th (ft)	6	4	0	0	0	0
Control Delay (s)	18.0	10.1	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	18.0	0.2			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	129	0	344	1891	0	0
Future Volume (vph)	129	0	344	1891	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.7		6.1	6.1		
Lane Util. Factor	1.00		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	0.95		0.95	1.00		
Satd. Flow (prot)	1863		3650	5406		
Flt Permitted	0.95		0.95	1.00		
Satd. Flow (perm)	1863		3650	5406		
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92
Adj. Flow (vph)	140	0	362	1991	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	140	0	362	1991	0	0
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	Prot		custom	NA		
Protected Phases	4			2 5		
Permitted Phases			5			
Actuated Green, G (s)	31.5		29.1	51.9		
Effective Green, g (s)	31.5		29.1	51.9		
Actuated g/C Ratio	0.26		0.24	0.43		
Clearance Time (s)	5.7		6.1			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	489		885	2338		
v/s Ratio Prot	c0.08			c0.37		
v/s Ratio Perm			0.10			
v/c Ratio	0.29		0.41	0.85		
Uniform Delay, d1	35.3		38.2	30.6		
Progression Factor	0.04		0.59	0.46		
Incremental Delay, d2	0.3		0.0	0.3		
Delay (s)	1.7		22.7	14.4		
Level of Service	A		C	B		
Approach Delay (s)	1.7			15.7	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	360	0	0	694	681	0	1545	665	0	0	0
Future Volume (vph)	20	360	0	0	694	681	0	1545	665	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7			6.1	6.1		6.1				
Lane Util. Factor		0.95			0.95	1.00		0.91				
Frt		1.00			1.00	0.85		0.95				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		3716			3725	1667		5111				
Flt Permitted		0.88			1.00	1.00		1.00				
Satd. Flow (perm)		3283			3725	1667		5111				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	391	0	0	754	740	0	1679	723	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	340	0	65	0	0	0	0
Lane Group Flow (vph)	0	413	0	0	754	400	0	2337	0	0	0	0
Turn Type	D.Pm	NA			NA	Prot		NA				
Protected Phases		4			1	1		2				
Permitted Phases	1											
Actuated Green, G (s)		31.5			18.7	18.7		51.9				
Effective Green, g (s)		31.5			18.7	18.7		51.9				
Actuated g/C Ratio		0.26			0.16	0.16		0.43				
Clearance Time (s)		5.7			6.1	6.1		6.1				
Vehicle Extension (s)		3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		861			580	259		2210				
v/s Ratio Prot					0.20	c0.24		c0.46				
v/s Ratio Perm		c0.13										
v/c Ratio		0.48			1.30	1.54		1.06				
Uniform Delay, d1		37.3			50.6	50.6		34.0				
Progression Factor		0.02			1.00	1.00		1.00				
Incremental Delay, d2		0.4			147.3	263.0		36.5				
Delay (s)		1.3			198.0	313.6		70.6				
Level of Service		A			F	F		E				
Approach Delay (s)		1.3			255.3			70.6			0.0	
Approach LOS		A			F			E			A	

Intersection Summary			
HCM 2000 Control Delay	128.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	7	1847	4	0	0
Future Volume (Veh/h)	0	7	1847	4	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	8	2008	4	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			648			
pX, platoon unblocked	0.62	0.62			0.62	
vC, conflicting volume	2010	1006			2012	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1412	0			1415	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	80	676			298	

Direction, Lane #	WB 1	NB 1	NB 2
Volume Total	8	1339	673
Volume Left	0	0	0
Volume Right	8	0	4
cSH	676	1700	1700
Volume to Capacity	0.01	0.79	0.40
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	0	0	1770	0	0
Future Volume (Veh/h)	62	0	0	1770	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.93	0.92	0.92
Hourly flow rate (vph)	67	0	0	1903	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				591		
pX, platoon unblocked	0.67					
vC, conflicting volume	634	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	100	100			
cM capacity (veh/h)	689	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3
Volume Total	34	34	634	634	634
Volume Left	34	34	0	0	0
Volume Right	0	0	0	0	0
cSH	689	689	1700	1700	1700
Volume to Capacity	0.05	0.05	0.37	0.37	0.37
Queue Length 95th (ft)	4	4	0	0	0
Control Delay (s)	10.5	10.5	0.0	0.0	0.0
Lane LOS	B	B			
Approach Delay (s)	10.5		0.0		
Approach LOS	B				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	0	0	1924	0	0
Future Volume (Veh/h)	80	0	0	1924	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	0	0	2091	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1046	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	61	100	100			
cM capacity (veh/h)	224	1084	1622			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total	44	44	1046	1046
Volume Left	44	44	0	0
Volume Right	0	0	0	0
cSH	224	224	1700	1700
Volume to Capacity	0.19	0.19	0.61	0.61
Queue Length 95th (ft)	18	18	0	0
Control Delay (s)	24.9	24.9	0.0	0.0
Lane LOS	C	C		
Approach Delay (s)	24.9		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	129	288	48	296	0	0	0	0	0	958	18
Future Volume (vph)	0	129	288	48	296	0	0	0	0	0	958	18
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.7	5.7		6.1						6.1	6.1
Lane Util. Factor		1.00	1.00		0.95						0.95	1.00
Frt		1.00	0.85		1.00						1.00	0.85
Flt Protected		1.00	1.00		0.99						1.00	1.00
Satd. Flow (prot)		1923	1683		3736						3725	1667
Flt Permitted		1.00	1.00		0.52						1.00	1.00
Satd. Flow (perm)		1923	1683		1945						3725	1667
Peak-hour factor, PHF	0.92	0.84	0.84	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	154	343	51	312	0	0	0	0	0	1041	20
RTOR Reduction (vph)	0	0	208	0	0	0	0	0	0	0	0	13
Lane Group Flow (vph)	0	154	135	0	363	0	0	0	0	0	1041	7
Heavy Vehicles (%)	2%	4%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	Perm	NA						NA	Perm
Protected Phases		4			5						6	
Permitted Phases			4	5								6
Actuated Green, G (s)		31.5	31.5		29.1						41.5	41.5
Effective Green, g (s)		31.5	31.5		29.1						41.5	41.5
Actuated g/C Ratio		0.26	0.26		0.24						0.35	0.35
Clearance Time (s)		5.7	5.7		6.1						6.1	6.1
Vehicle Extension (s)		3.0	3.0		3.0						3.0	3.0
Lane Grp Cap (vph)		504	441		471						1288	576
v/s Ratio Prot		0.08									c0.28	
v/s Ratio Perm			c0.08		c0.19							0.00
v/c Ratio		0.31	0.31		0.77						0.81	0.01
Uniform Delay, d1		35.5	35.5		42.3						35.6	25.8
Progression Factor		1.00	1.00		0.18						1.00	1.00
Incremental Delay, d2		0.3	0.4		7.1						3.8	0.0
Delay (s)		35.8	35.9		14.6						39.5	25.8
Level of Service		D	D		B						D	C
Approach Delay (s)		35.9			14.6			0.0			39.2	
Approach LOS		D			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	694	0	0	0	380	865
Future Volume (vph)	694	0	0	0	380	865
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.1				5.7	6.1
Lane Util. Factor	0.97				0.97	0.95
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3614				3614	3725
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3614				3614	3725
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	754	0	0	0	413	940
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	754	0	0	0	413	940
Turn Type	Prot				Prot	NA
Protected Phases	1				4	2 4
Permitted Phases						
Actuated Green, G (s)	18.7				31.5	89.5
Effective Green, g (s)	18.7				31.5	89.5
Actuated g/C Ratio	0.16				0.26	0.75
Clearance Time (s)	6.1				5.7	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	563				948	2778
v/s Ratio Prot	c0.21				c0.11	c0.25
v/s Ratio Perm						
v/c Ratio	1.34				0.44	0.34
Uniform Delay, d1	50.6				36.8	5.2
Progression Factor	0.14				1.51	2.18
Incremental Delay, d2	153.8				0.2	0.1
Delay (s)	160.9				55.9	11.4
Level of Service	F				E	B
Approach Delay (s)	160.9		0.0			25.0
Approach LOS	F		A			C

Intersection Summary			
HCM 2000 Control Delay	73.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.9
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	148	0	0	829	136
Future Volume (Veh/h)	0	148	0	0	829	136
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	161	0	0	901	148
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	901	450	1049			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	901	450	1049			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	71	100			
cM capacity (veh/h)	278	556	659			

Direction, Lane #	EB 1	SB 1	SB 2	SB 3
Volume Total	161	450	450	148
Volume Left	0	0	0	0
Volume Right	161	0	0	148
cSH	556	1700	1700	1700
Volume to Capacity	0.29	0.27	0.27	0.09
Queue Length 95th (ft)	30	0	0	0
Control Delay (s)	14.1	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	14.1	0.0		
Approach LOS	B			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	71	0	0	876	154
Future Volume (Veh/h)	0	71	0	0	876	154
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	77	0	0	952	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				772		
pX, platoon unblocked						
vC, conflicting volume	1036	560	1119			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1036	560	1119			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	100			
cM capacity (veh/h)	227	472	620			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	77	635	484
Volume Left	0	0	0
Volume Right	77	0	167
cSH	472	1700	1700
Volume to Capacity	0.16	0.37	0.28
Queue Length 95th (ft)	14	0	0
Control Delay (s)	14.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.1	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	0	0	0	0	852
Future Volume (Veh/h)	110	0	0	0	0	852
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	0	0	0	0	926
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1234			
pX, platoon unblocked						
vC, conflicting volume	463	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	463	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	100			100	
cM capacity (veh/h)	528	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	120	463	463
Volume Left	120	0	0
Volume Right	0	0	0
cSH	528	1700	1700
Volume to Capacity	0.23	0.27	0.27
Queue Length 95th (ft)	22	0	0
Control Delay (s)	13.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.8	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	95	0	0	0	0	884
Future Volume (Veh/h)	95	0	0	0	0	884
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	0	0	0	0	961
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	480	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	480	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	100			100	
cM capacity (veh/h)	514	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	103	480	480
Volume Left	103	0	0
Volume Right	0	0	0
cSH	514	1700	1700
Volume to Capacity	0.20	0.28	0.28
Queue Length 95th (ft)	19	0	0
Control Delay (s)	13.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.7	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	36	0	0	816	87
Future Volume (Veh/h)	0	36	0	0	816	87
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	39	0	0	887	95
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	934	491	982			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	934	491	982			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	100			
cM capacity (veh/h)	264	523	699			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	39	591	391
Volume Left	0	0	0
Volume Right	39	0	95
cSH	523	1700	1700
Volume to Capacity	0.07	0.35	0.23
Queue Length 95th (ft)	6	0	0
Control Delay (s)	12.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	12.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
39: Baldwin Road & Baldwin Village South Driveway - Outward

01/04/2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	115	0	0	962	0
Future Volume (Veh/h)	0	115	0	0	962	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	125	0	0	1046	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1087		
pX, platoon unblocked						
vC, conflicting volume	1046	523	1046			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	523	1046			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	75	100			
cM capacity (veh/h)	224	499	661			

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	125	523	523
Volume Left	0	0	0
Volume Right	125	0	0
cSH	499	1700	1700
Volume to Capacity	0.25	0.31	0.31
Queue Length 95th (ft)	25	0	0
Control Delay (s)	14.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.6	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Baldwin Road & Judah Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	ULT	TR	ULT	TR
Maximum Queue (ft)	102	35	61	39	212	202
Average Queue (ft)	43	2	16	2	85	52
95th Queue (ft)	79	16	48	18	167	153
Link Distance (ft)	282	768	38	38	316	316
Upstream Blk Time (%)			1	0		
Queuing Penalty (veh)			3	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Baldwin Road & SB to NB X-over

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	39	34
Average Queue (ft)	18	2
95th Queue (ft)	40	14
Link Distance (ft)	14	14
Upstream Blk Time (%)	4	0
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Baldwin Road & NB to SB X-over

Movement	WB
Directions Served	L
Maximum Queue (ft)	75
Average Queue (ft)	36
95th Queue (ft)	69
Link Distance (ft)	25
Upstream Blk Time (%)	26
Queuing Penalty (veh)	15
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Morgan Road & Baldwin Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	111
Average Queue (ft)	49
95th Queue (ft)	92
Link Distance (ft)	412
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Jordan Xover & Baldwin Road

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	48	30
Average Queue (ft)	22	5
95th Queue (ft)	42	22
Link Distance (ft)	6	6
Upstream Blk Time (%)	5	0
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Baldwin Road & S. Baldwin Commons

Movement	EB	EB	SB	SB	SB
Directions Served	T	R	T	T	R
Maximum Queue (ft)	50	47	341	351	145
Average Queue (ft)	10	10	243	252	12
95th Queue (ft)	35	30	322	337	74
Link Distance (ft)	208	208	322	322	
Upstream Blk Time (%)			0	1	
Queuing Penalty (veh)			3	6	
Storage Bay Dist (ft)					75
Storage Blk Time (%)				26	
Queuing Penalty (veh)				3	

Intersection: 7: Baldwin Road & S. Baldwin Commons

Movement	EB	NB	NB	NB	NB	NB
Directions Served	L	L	L	T	T	T
Maximum Queue (ft)	11	103	98	78	48	106
Average Queue (ft)	0	52	46	21	9	32
95th Queue (ft)	5	95	90	57	34	78
Link Distance (ft)	2			184	184	184
Upstream Blk Time (%)	1					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)		130	130			
Storage Blk Time (%)		0	0	0		
Queuing Penalty (veh)		1	0	0		

Intersection: 8: Baldwin Road & Brown Road

Movement	WB	WB	SB	SB	SB	SB
Directions Served	L	L	L	L	T	T
Maximum Queue (ft)	25	11	187	224	247	186
Average Queue (ft)	4	0	123	131	34	52
95th Queue (ft)	20	6	185	194	128	121
Link Distance (ft)	25	25			284	284
Upstream Blk Time (%)	10	1			0	0
Queuing Penalty (veh)	12	1			1	0
Storage Bay Dist (ft)			135	135		
Storage Blk Time (%)			6	10	0	
Queuing Penalty (veh)			41	69	0	

Intersection: 9: Baldwin Road & Brown Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	LT	T	T	T	R	T	T	TR
Maximum Queue (ft)	37	57	207	163	190	244	165	197
Average Queue (ft)	4	13	125	55	93	139	47	88
95th Queue (ft)	21	43	192	148	164	214	123	156
Link Distance (ft)	25	25	387	387	387	256	256	256
Upstream Blk Time (%)	8	24				0		0
Queuing Penalty (veh)	13	40				0		0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 12: Dummy Node

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 15: Baldwin Road & NB to SB X-over

Movement	NB
Directions Served	L
Maximum Queue (ft)	18
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Baldwin Road/Baldiwn Road & Dummy Node

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 20: Baldiwn Road & Jordan Xover

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: Baldwin Road

Movement	NB
Directions Served	T
Maximum Queue (ft)	56
Average Queue (ft)	13
95th Queue (ft)	52
Link Distance (ft)	11
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 24: Baldwin Road & Dummy Node

Movement	WB
Directions Served	R
Maximum Queue (ft)	44
Average Queue (ft)	20
95th Queue (ft)	47
Link Distance (ft)	343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 26: Proposed Xover & Baldwin Road

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	59	30	16
Average Queue (ft)	29	2	1
95th Queue (ft)	56	15	8
Link Distance (ft)	3	43	43
Upstream Blk Time (%)	10	0	0
Queuing Penalty (veh)	4	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 27: Baldwin Road & Jordan Rd

Movement	WB	NB
Directions Served	R	T
Maximum Queue (ft)	31	70
Average Queue (ft)	5	40
95th Queue (ft)	23	79
Link Distance (ft)	333	2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 28: Baldwin Road & Baldwin Village South Driveway

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	85	13	11
Average Queue (ft)	37	0	1
95th Queue (ft)	67	6	8
Link Distance (ft)	220	5	5
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: Baldwin Road & SB to NB X-over

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 31: Baldwin Road

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	41	35
Average Queue (ft)	4	2
95th Queue (ft)	21	14
Link Distance (ft)	38	38
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 34: Baldwin Road & Baldwin Village North Driveway

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	48	31	6
Average Queue (ft)	22	3	0
95th Queue (ft)	47	18	4
Link Distance (ft)	314		168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		75	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 36: Baldwin Village Mid Driveway

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	82	20
Average Queue (ft)	41	1
95th Queue (ft)	71	12
Link Distance (ft)	262	117
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 38: Baldwin Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 39: Baldwin Road & Baldwin Village South Driveway - Outward

Movement	EB
Directions Served	R
Maximum Queue (ft)	152
Average Queue (ft)	70
95th Queue (ft)	127
Link Distance (ft)	304
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 42:

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 44:

Movement	EB
Directions Served	R
Maximum Queue (ft)	68
Average Queue (ft)	41
95th Queue (ft)	69
Link Distance (ft)	49
Upstream Blk Time (%)	8
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 46: Proposed Xover

Movement	NB
Directions Served	L
Maximum Queue (ft)	25
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	350
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 218

Intersection: 1: Baldwin Road & Judah Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	ULT	TR	ULT	TR
Maximum Queue (ft)	121	42	136	127	101	83
Average Queue (ft)	58	13	101	73	51	16
95th Queue (ft)	100	39	127	141	92	57
Link Distance (ft)	282	768	38	38	316	316
Upstream Blk Time (%)			76	45		
Queuing Penalty (veh)			733	435		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Baldwin Road & SB to NB X-over

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	70	52
Average Queue (ft)	36	19
95th Queue (ft)	60	48
Link Distance (ft)	34	34
Upstream Blk Time (%)	33	11
Queuing Penalty (veh)	13	5
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Baldwin Road & NB to SB X-over

Movement	WB
Directions Served	L
Maximum Queue (ft)	74
Average Queue (ft)	40
95th Queue (ft)	66
Link Distance (ft)	25
Upstream Blk Time (%)	14
Queuing Penalty (veh)	16
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Morgan Road & Baldwin Road

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	57	22
Average Queue (ft)	26	1
95th Queue (ft)	47	11
Link Distance (ft)	412	258
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Jordan Xover & Baldwin Road

Movement	EB	EB	NB	NB	NB
Directions Served	L	L	T	T	T
Maximum Queue (ft)	52	53	40	38	47
Average Queue (ft)	26	11	2	3	3
95th Queue (ft)	45	38	17	19	21
Link Distance (ft)	6	6	129	129	129
Upstream Blk Time (%)	17	5			
Queuing Penalty (veh)	5	1			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Baldwin Road & S. Baldwin Commons

Movement	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	R	LT	T	T	T	R
Maximum Queue (ft)	163	213	40	46	358	371	175
Average Queue (ft)	74	92	3	12	241	238	16
95th Queue (ft)	146	179	19	36	332	329	81
Link Distance (ft)	220	220	21	21	302	302	
Upstream Blk Time (%)		1	2	20	2	1	
Queuing Penalty (veh)		0	4	35	8	7	
Storage Bay Dist (ft)							75
Storage Blk Time (%)						42	
Queuing Penalty (veh)						7	

Intersection: 7: Baldwin Road & S. Baldwin Commons

Movement	EB	NB	NB	NB	NB	NB
Directions Served	L	L	L	T	T	T
Maximum Queue (ft)	34	136	144	166	182	215
Average Queue (ft)	5	56	73	98	84	108
95th Queue (ft)	23	121	128	148	147	172
Link Distance (ft)	21			202	202	202
Upstream Blk Time (%)	12			0	0	0
Queuing Penalty (veh)	15			0	0	1
Storage Bay Dist (ft)		130	130			
Storage Blk Time (%)		0	1	1		
Queuing Penalty (veh)		2	6	4		

Intersection: 8: Baldwin Road & Brown Road

Movement	WB	WB	SB	SB	SB	SB
Directions Served	L	L	L	L	T	T
Maximum Queue (ft)	56	53	189	219	271	264
Average Queue (ft)	19	11	141	157	146	141
95th Queue (ft)	47	38	200	231	257	224
Link Distance (ft)	25	25			222	222
Upstream Blk Time (%)	39	16		2	3	1
Queuing Penalty (veh)	137	58		0	18	3
Storage Bay Dist (ft)			135	135		
Storage Blk Time (%)			24	29	2	
Queuing Penalty (veh)			104	125	8	

Intersection: 9: Baldwin Road & Brown Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	LT	T	T	T	R	T	T	TR
Maximum Queue (ft)	74	40	374	402	432	284	293	307
Average Queue (ft)	39	7	167	317	405	232	242	275
95th Queue (ft)	73	31	308	521	418	308	322	288
Link Distance (ft)	25	25	387	387	387	256	256	256
Upstream Blk Time (%)	57	11	0	22	95	13	16	63
Queuing Penalty (veh)	108	22	0	0	0	0	0	0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 12: Dummy Node

Movement	NB
Directions Served	L
Maximum Queue (ft)	48
Average Queue (ft)	3
95th Queue (ft)	23
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: Baldwin Road & NB to SB X-over

Movement	NB
Directions Served	L
Maximum Queue (ft)	11
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Baldwin Road/Baldiwn Road & Dummy Node

Movement	EB	WB	SB	SB
Directions Served	R	L	T	T
Maximum Queue (ft)	40	73	32	14
Average Queue (ft)	6	36	1	0
95th Queue (ft)	22	64	15	8
Link Distance (ft)	93	19	123	123
Upstream Blk Time (%)		17		
Queuing Penalty (veh)		9		
Storage Bay Dist (ft)				
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 19:

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 20: Baldiwn Road & Jordan Xover

Movement	SB
Directions Served	L
Maximum Queue (ft)	24
Average Queue (ft)	1
95th Queue (ft)	11
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 24: Baldwin Road & Dummy Node

Movement	WB
Directions Served	R
Maximum Queue (ft)	184
Average Queue (ft)	80
95th Queue (ft)	153
Link Distance (ft)	343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 26: Proposed Xover & Baldwin Road

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	63	22	12
Average Queue (ft)	32	1	1
95th Queue (ft)	56	10	7
Link Distance (ft)	7	44	44
Upstream Blk Time (%)	7	0	0
Queuing Penalty (veh)	7	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 27: Baldwin Road & Jordan Road

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	35	64	60
Average Queue (ft)	8	46	18
95th Queue (ft)	30	77	58
Link Distance (ft)	333	2	2
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 28: Baldwin Road & Baldwin Village South Driveway

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	63	4	18
Average Queue (ft)	22	0	1
95th Queue (ft)	49	4	9
Link Distance (ft)	220	6	6
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 30: Baldwin Road & SB to NB X-over

Movement	SB
Directions Served	L
Maximum Queue (ft)	20
Average Queue (ft)	1
95th Queue (ft)	14
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	300
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Baldwin Road

Movement	SB	SB	NW	NW
Directions Served	T	T	R	R
Maximum Queue (ft)	28	12	138	132
Average Queue (ft)	1	0	90	58
95th Queue (ft)	10	6	142	144
Link Distance (ft)	38	38	38	38
Upstream Blk Time (%)	0	0	50	31
Queuing Penalty (veh)	0	0	483	304
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 34: Baldwin Road & Baldwin Village North Driveway

Movement	EB	NB	NB
Directions Served	LR	L	T
Maximum Queue (ft)	30	44	7
Average Queue (ft)	13	14	0
95th Queue (ft)	37	41	5
Link Distance (ft)	314		316
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		75	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 36: Baldwin Village Mid Driveway & Baldwin Road

Movement	EB
Directions Served	R
Maximum Queue (ft)	98
Average Queue (ft)	40
95th Queue (ft)	77
Link Distance (ft)	247
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 38: Baldwin Road & Dummy Node

Movement	NB	NB
Directions Served	T	TR
Maximum Queue (ft)	4	6
Average Queue (ft)	0	0
95th Queue (ft)	3	4
Link Distance (ft)	55	55
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 39: Baldwin Road & Baldwin Village South Driveway - Outward

Movement	EB
Directions Served	R
Maximum Queue (ft)	95
Average Queue (ft)	43
95th Queue (ft)	74
Link Distance (ft)	304
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 42: Baldwin Road & Dummy Node

Movement	NB	NB	NB
Directions Served	T	T	TR
Maximum Queue (ft)	29	21	21
Average Queue (ft)	2	1	1
95th Queue (ft)	15	12	12
Link Distance (ft)	44	44	44
Upstream Blk Time (%)	0	0	0
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 45: Baldwin Road & Dummy Node

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	97	38
Average Queue (ft)	6	1
95th Queue (ft)	41	11
Link Distance (ft)	22	22
Upstream Blk Time (%)	2	0
Queuing Penalty (veh)	11	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 46: Proposed Xover

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	16	234	230
Average Queue (ft)	1	67	56
95th Queue (ft)	10	195	190
Link Distance (ft)		438	438
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Network Summary

Network wide Queuing Penalty: 2697

APPENDIX F: CRASH ANALYSIS

Crash Detail for 1/1/2017 - 12/31/2021

Criteria: WHERE A.AGENCY_ID = 14 AND A.GeoCoords.STIntersects (GEOMETRY::STGeomFromWKB(GEOGRAPHY::STPointFromText('POINT(-83.3071222959849 42.7089078028209)', 4326).STBuffer(30.48).STAsBinary(),4326)) = 1

#1 **Location:** S BALDWIN (0.864) 400 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1165943

Date: 09/30/2017 **Day:** Sat **Hour:** 12p **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 170179750

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear
3	S	slow/stop on rd	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 1165943

#2 **Location:** SB BALDWIN (0.838) 300 feet Nof BROWN RD **Crash ID:** 1332676

Date: 03/02/2018 **Day:** Fri **Hour:** 10a **Weather:** cloudy **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 2 **Injy 0:** 0 **How:** head-on/lt

CVT: Orion Twp **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 180039878

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront
2	NE	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 1332676

#3 **Location:** S BALDWIN (1.669) 300 feet Nof BROWN RD **Crash ID:** 1450654

Date: 08/01/2018 **Day:** Wed **Hour:** 7am **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180144573

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1450654

#4 **Location:** NB BALDWIN (1.688) 400 feet Nof BROWN RD **Crash ID:** 1755273

Date: 06/25/2019 **Day:** Tue **Hour:** 5pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 190121670

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	failed to yield	car	rtside
2	N	go straight	veh in transpt	none	none	none	none	car	lftside

UD10: 1755273

#5 **Location:** S BALDWIN (0.834) 278 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 2123861

Date: 10/15/2020 **Day:** Thu **Hour:** 12p **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** ss-same

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 200208028

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	veh in transpt	none	none	none	imprp turn	car	lftside
2	W	go straight	veh in transpt	none	none	none	none	car	rtfront

UD10: 2123861

#6 **Location:** S BALDWIN (1.688) 400 feet Nof BROWN RD **Crash ID:** 2173820

Date: 12/15/2020 **Day:** Tue **Hour:** 7pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200249455

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2173820

#7 **Location:** SB BALDWIN (0.864) 400 feet Nof BROWN **Crash ID:** 2177747

Date: 12/18/2020 **Day:** Fri **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200251640

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2177747

#8 **Location:** NB S BALDWIN (1.678) 350 feet Nof BROWN RD **Crash ID:** 2177751

Date: 12/18/2020 **Day:** Fri **Hour:** 5pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200251750

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	right turn	veh in transpt	none	none	none	imprp lane use	car	lftfront
2	N	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 2177751

#9 **Location:** NB S BALDWIN (1.688) 400 feet Nof BROWN RD **Crash ID:** 2435246

Date: 11/02/2021 **Day:** Tue **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 210228897

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	failed to yield	car	rtfront
2	N	change lanes	veh in transpt	none	none	none	none	car	lftrear

UD10: 2435246

#10 **Location:** SB S BALDWIN (0.857) 400 feet Nof BROWN RD **Crash ID:** 2476827

Date: 12/07/2021 **Day:** Tue **Hour:** 5am **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** median **HBD:** N **Drugs:** N **Complaint #:** 210255046

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unknown	car	rtfront
2	S	left turn	veh in transpt	none	none	none	unknown	car	rtrear

UD10: 2476827

Crash Type

Count	Type
0	uncoded
0	single
0	head-on
1	head-on/lt
0	angle
6	rr-end
0	rr-end/lt
0	rr-end/rt
3	ss-same
0	ss-opp
0	back
0	other
0	unknown
Totals	10

Lighting Conditions

Count	Type
0	uncoded
7	day
0	dawn
0	dusk
3	dark/ltd
0	dark/unltd
0	other
0	unknown
Totals	10

Weather Conditions

Count	Type
0	uncoded
7	clear
3	cloudy
0	fog
0	rain
0	snow
0	wind
0	sleet/hail
0	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	10

Road Condition

Count	Type
0	uncoded
9	dry
1	wet
0	ice
0	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	10

Crashes by Month

Count	Type
0	January
0	February
1	March
0	April
0	May
1	June
0	July
1	August
1	September
1	October
1	November
4	December
Totals	10

Hazardous Action

Count	Type
10	none
0	speeding
0	spd too slow
2	failed to yield
1	disrgd traffic cntrl
0	wrong way
0	left of center
0	imprp passing
1	imprp lane use
1	imprp turn
0	imprp/no signal
0	imprp backing
4	unable to stop
0	other
2	unknown
0	reckls driving
0	carels driving
Totals	21

Unit Type

Count	Type
0	Bicyclist
0	Engineer
21	Vehicle
0	Pedestrian
Totals	21

Crashes by Year

Count	Type
1	2017
2	2018
1	2019
4	2020
2	2021
Totals	10

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	0	2	0	2
Crashes	0	0	0	1	9	10

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	0	0
Not Drinking	0	0	0	1	9	10
Totals	0	0	0	1	9	10

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	0	0	0	0	0
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	1	0	0	0	0	1
6a-7a	0	0	0	0	0	0	0	0
7a-8a	0	0	0	1	0	0	0	1
8a-9a	0	0	0	0	0	0	0	0
9a-10a	0	0	0	0	0	0	0	0
10a-11a	0	0	0	0	0	1	0	1
11a-12p	0	0	0	0	0	0	0	0
12p-1p	0	0	0	0	1	0	1	2
1p-2p	0	0	0	0	0	0	0	0
2p-3p	0	0	0	0	0	1	0	1
3p-4p	0	0	0	0	0	0	0	0
4p-5p	0	0	1	0	0	0	0	1
5p-6p	0	0	1	0	0	1	0	2
6p-7p	0	0	0	0	0	0	0	0
7p-8p	0	0	1	0	0	0	0	1
8p-9p	0	0	0	0	0	0	0	0
9p-10p	0	0	0	0	0	0	0	0
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	0	0	0
Totals	0	0	4	1	1	3	1	10

Crash Detail for 1/1/2017 - 12/31/2021
Criteria: WHERE A.AGENCY_ID = 14 AND A.GeoCoords.STIntersects (GEOMETRY::STGeomFromWKB(GEOGRAPHY::STPointFromText('POINT(-83.3070740162226 42.707949932328)', 4326).STBuffer(30.48).STAsBinary(),4326)) = 1

#1 **Location:** NB BALDWIN (1.617) 25 feet Nof BROWN RD **Crash ID:** 9957820

Date: 02/02/2017 **Day:** Thu **Hour:** 10a **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 2 **Injy 0:** 3 **How:** angle

CVT: Orion Twp **Area:** median **HBD:** N **Drugs:** N **Complaint #:** 170019373

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	lftrear
2	W	left turn	veh in transpt	none	none	none	none	car	ctrfront

UD10: 9957820

#2 **Location:** BALDWIN RD (1.615) 15 feet Nof BROWN RD **Crash ID:** 9983257

Date: 03/04/2017 **Day:** Sat **Hour:** 6pm **Weather:** clear **Roadway:** dry **LIght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** angle

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 170038492

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	right turn	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	S	go straight	veh in transpt	none	none	none	none	car	rtrear

UD10: 9983257

#3 **Location:** S BALDWIN (1.608) 20 feet Sof S BALDWIN/BROWN TURN **Crash ID:** 1021554

Date: 04/18/2017 **Day:** Tue **Hour:** 2pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170008721

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	lftrear
2	S	left turn	veh in transpt	none	none	none	none	pickup	rtside

UD10: 1021554

#4 **Location:** NB BALDWIN (1.61) 10 feet Sof BROWN RD **Crash ID:** 1027766

Date: 04/27/2017 **Day:** Thu **Hour:** 3pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170073933

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop other	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1027766

#5 **Location:** NB BALDWIN (1.606) 30 feet Sof BROWN RD **Crash ID:** 1032114

Date: 04/29/2017 **Day:** Sat **Hour:** 10p **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 170075497

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	start on rdwy	veh in transpt	none	none	none	none	car	ctrrear
2	N	unknown	veh in transpt	none	none	none	unable to stop	uncoded	none

UD10: 1032114

#6 **Location:** SB S BALDWIN (0.793) 65 feet Nof BROWN RD **Crash ID:** 1039789

Date: 05/09/2017 **Day:** Tue **Hour:** 5am **Weather:** clear **Roadway:** dry **Llght:** dawn

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 170081659

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	start on rdwy	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 1039789

#7 **Location:** SB S BALDWIN (0.79) 45 feet NWof BROWN RD **Crash ID:** 1051825

Date: 05/23/2017 **Day:** Tue **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 170091054

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	lftfront
2	W	left turn	veh in transpt	none	none	none	none	car	rtrear

UD10: 1051825

#8 **Location:** S BALDWIN (1.614) 9 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1064872

Date: 06/04/2017 **Day:** Sun **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end/rt

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 170099464

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	NW	right turn	veh in transpt	none	none	none	other	car	ctrrear
2	N	go straight	veh in transpt	none	none	none	none	car	ctrfront

UD10: 1064872

#9 **Location:** BALDWIN (1.621) 50 feet Nof BROWN RD **Crash ID:** 1087008

Date: 07/02/2017 **Day:** Sun **Hour:** 9am **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 170119436

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	start on rdwy	veh in transpt	none	none	none	other	car	lftfront
2	S	right turn	veh in transpt	none	none	none	none	car	rtrear

UD10: 1087008

#10 **Location:** NB BALDWIN (1.603) 50 feet Sof BROWN ROAD **Crash ID:** 1089981

Date: 07/03/2017 **Day:** Mon **Hour:** 6pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 170015003

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	right turn	veh in transpt	none	none	none	failed to yield	car	lftfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtfront

UD10: 1089981

#11 **Location:** SB BALDWIN (0.781) 0 feet Xof BROWN RD **Crash ID:** 1088046

Date: 07/04/2017 **Day:** Tue **Hour:** 2pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 170120892

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	W	left turn	veh in transpt	none	none	none	none	pickup	rtrear

UD10: 1088046

#12 **Location:** NB BALDWIN (1.612) 0 feet Xof BROWN ROAD **Crash ID:** 1094569

Date: 07/13/2017 **Day:** Thu **Hour:** 7am **Weather:** rain **Roadway:** wet **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 170015827

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	left turn	veh in transpt	none	none	none	none	car	rtside
2	N	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront

UD10: 1094569

#13 **Location:** NB BALDWIN (1.618) 30 feet Nof BROWN RD **Crash ID:** 1106356

Date: 07/20/2017 **Day:** Thu **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170132217

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	start on rdwy	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1106356

#14 **Location:** S BALDWIN (1.618) 30 feet Nof N S BALDWIN/BROWN TURN **Crash ID:** 1167388

Date: 10/05/2017 **Day:** Thu **Hour:** 8am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 170182944

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	failed to yield	car	lftfront
2	E	left turn	veh in transpt	none	none	none	none	car	ctrfront

UD10: 1167388

#15 **Location:** NB BALDWIN (1.605) 35 feet Sof BROWN RD **Crash ID:** 1197012

Date: 10/13/2017 **Day:** Fri **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 170188423

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1197012

#16 **Location:** SB S BALDWIN (0.79) 50 feet Nof S S BALDWIN/BROWN TURN **Crash ID:** 1200834

Date: 11/04/2017 **Day:** Sat **Hour:** 10a **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 170202901

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1200834

#17 **Location:** S BALDWIN (0.771) 53 feet Sof S BALDWIN/BROWN TURN **Crash ID:** 1268941

Date: 12/30/2017 **Day:** Sat **Hour:** 11a **Weather:** clear **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170030353

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	backing	veh in transpt	none	none	none	imprp backing	sm truck	ctrrear
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrfront

UD10: 1268941

#18 **Location:** NB BALDWIN (1.603) 50 feet Sof BROWN RD **Crash ID:** 1279658

Date: 01/06/2018 **Day:** Sat **Hour:** 8am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180003405

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	failed to yield	pickup	rtside
2	N	go straight	veh in transpt	none	none	none	none	car	lftfront

UD10: 1279658

#19 **Location:** BROWN (0.007) 35 feet Eof S BALDWIN RD **Crash ID:** 1279677

Date: 01/06/2018 **Day:** Sat **Hour:** 6pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180003679

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	W	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1279677

#20 **Location:** NB BALDWIN (1.625) 70 feet Nof BROWN RD **Crash ID:** 1294790

Date: 01/14/2018 **Day:** Sun **Hour:** 9pm **Weather:** blowing snow **Roadway:** snow **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180014028

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unknown	car	none
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1294790

#21 **Location:** NB S BALDWIN (1.603) 50 feet Sof BROWN RD **Crash ID:** 1294789

Date: 01/22/2018 **Day:** Mon **Hour:** 12p **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180014020

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	avoid veh-ft/bk	veh in transpt	none	none	none	failed to yield	car	rtside
2	N	go straight	veh in transpt	none	none	none	none	car	lftside

UD10: 1294789

#22 **Location:** S BALDWIN (1.609) 15 feet Eof BROWN RD **Crash ID:** 1301380

Date: 01/26/2018 **Day:** Fri **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 1 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180016907

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	W	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1301380

#23 **Location:** S BALDWIN (0.784) 16 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1303820

Date: 02/02/2018 **Day:** Fri **Hour:** 5am **Weather:** clear **Roadway:** dry **Llght:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** fwy other **HBD:** N **Drugs:** N **Complaint #:** 180002621

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	unknown	pickup	none
2	S	go straight	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1303820

#24 **Location:** NB BALDWIN RD (1.614) 10 feet Nof BROWN RD **Crash ID:** 1332589

Date: 03/01/2018 **Day:** Thu **Hour:** 4pm **Weather:** snow **Roadway:** snow **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180039411

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	right turn	veh in transpt	none	none	none	failed to yield	car	lftfront
2	N	left turn	veh in transpt	none	none	none	none	car	rtrear

UD10: 1332589

#25 **Location:** BROWN (0.005) 29 feet Eof S BALDWIN RD **Crash ID:** 1332630

Date: 03/06/2018 **Day:** Tue **Hour:** 10a **Weather:** cloudy **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** head-on/lt

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180042546

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	failed to yield	car	lftfront
2	SE	left turn	veh in transpt	none	none	none	none	pickup	rtside

UD10: 1332630

#26 **Location:** BROWN RD (0.002) 10 feet Wof BALDWIN RD **Crash ID:** 1336291

Date: 03/08/2018 **Day:** Thu **Hour:** 3pm **Weather:** snow **Roadway:** snow **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180044233

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	veh in transpt	none	none	none	imprp lane use	car	none
2	W	left turn	veh in transpt	none	none	none	none	truck/bus	rtfront

UD10: 1336291

#27 **Location:** NB BALDWIN (1.618) 30 feet Nof BROWN RD **Crash ID:** 1342972

Date: 03/11/2018 **Day:** Sun **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** median **HBD:** N **Drugs:** N **Complaint #:** 180046085

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	S	go straight	veh in transpt	none	none	none	none	car	rtfront

UD10: 1342972

#28 **Location:** BROWN (0.005) 29 feet Eof S BALDWIN RD **Crash ID:** 1392596

Date: 05/18/2018 **Day:** Fri **Hour:** 12p **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180092660

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	W	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1392596

#29 **Location:** BROWN (0.006) 50 feet Wof BALDWIN RD. **Crash ID:** 1394876

Date: 05/19/2018 **Day:** Sat **Hour:** 10p **Weather:** clear **Roadway:** dry **Light:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180093748

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	ran off road/r	none	none	none	unknown	car	ctrfront

UD10: 1394876

#30 **Location:** S BALDWIN (1.614) 9 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1404072

Date: 05/30/2018 **Day:** Wed **Hour:** 2pm **Weather:** clear **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180101116

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	rtfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1404072

#31 **Location:** BROWN (0.003) 17 feet Eof S BALDWIN RD **Crash ID:** 1415611

Date: 06/09/2018 **Day:** Sat **Hour:** 9pm **Weather:** rain **Roadway:** wet **Light:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180108331

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	loss of control	none	none	none	other	car	rtfront

UD10: 1415611

#32 **Location:** S BALDWIN (1.615) 14 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1413311

Date: 06/13/2018 **Day:** Wed **Hour:** 3pm **Weather:** clear **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180110785

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	imprp lane use	car	lftside
2	N	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 1413311

#33 **Location:** SB BALDWIN RD. (1.609) 15 feet Sof BROWN RD. **Crash ID:** 1456116

Date: 08/03/2018 **Day:** Fri **Hour:** 9pm **Weather:** clear **Roadway:** dry **Light:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180146461

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 1456116

#34 **Location:** S BALDWIN (1.618) 30 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1461783

Date: 08/13/2018 **Day:** Mon **Hour:** 3pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180018597

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear
2	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront

UD10: 1461783

#35 **Location:** NB S BALDWIN (1.614) 10 feet Nof BROWN RD **Crash ID:** 1478197

Date: 08/30/2018 **Day:** Thu **Hour:** 3pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 180163556

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		left turn	veh in transpt	none	none	none	unknown	car	none
2	N	go straight	veh in transpt	none	none	none	none	car	lftside

UD10: 1478197

#36 **Location:** NB BALDWIN (1.621) 50 feet Nof N BROWN RD **Crash ID:** 1485903

Date: 09/10/2018 **Day:** Mon **Hour:** 7pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180170640

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	imprp lane use	car	rtrear
2	N	go straight	veh in transpt	none	none	none	none	car	lftfront

UD10: 1485903

#37 **Location:** BALDWIN (0.007) 40 feet Wof BROWN ROAD **Crash ID:** 1484652

Date: 09/11/2018 **Day:** Tue **Hour:** 11a **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 180020927

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront
2	E	left turn	veh in transpt	none	none	none	none	car	lftfront

UD10: 1484652

#38 **Location:** NB S BALDWIN (1.615) 15 feet Nof BROWN RD **Crash ID:** 1496402

Date: 09/22/2018 **Day:** Sat **Hour:** 7pm **Weather:** clear **Roadway:** dry **Llght:** dusk

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180178806

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	imprp lane use	car	rtfront
2	S	go straight	veh in transpt	none	none	none	none	car	lftrear

UD10: 1496402

#39 **Location:** S BALDWIN (1.615) 14 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1511807

Date: 10/01/2018 **Day:** Mon **Hour:** 6pm **Weather:** fog **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180184686

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	u-turn	veh in transpt	none	none	none	imprp lane use	truck/bus	rtside
2	N	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 1511807

#40 **Location:** S BALDWIN/BROWN (0.009) 32 feet Wof S BALDWIN RD **Crash ID:** 1526689

Date: 10/21/2018 **Day:** Sun **Hour:** 11a **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 180198530

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		left turn	veh in transpt	none	none	none	unknown	truck/bus	none
2	W	left turn	veh in transpt	none	none	none	none	car	lftside

UD10: 1526689

#41 **Location:** NB S BALDWIN (1.598) 75 feet Sof BROWN RD **Crash ID:** 1573656

Date: 11/30/2018 **Day:** Fri **Hour:** 5pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180226233

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unable to stop	pickup	none
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1573656

#42 **Location:** SB S BALDWIN (0.79) 50 feet Nof BROWN RD **Crash ID:** 1597822

Date: 12/29/2018 **Day:** Sat **Hour:** 7pm **Weather:** clear **Roadway:** dry **Llght:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 5 **How:** rr-end

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 180245103

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1597822

#43 **Location:** S BALDWIN (1.615) 14 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1597904

Date: 01/02/2019 **Day:** Wed **Hour:** 6pm **Weather:** snow **Roadway:** wet **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190001181

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	NE	left turn	veh in transpt	none	none	none	other	truck/bus	lftrear
2	N	go straight	veh in transpt	none	none	none	none	pickup	rtfront

UD10: 1597904

#44 **Location:** WB BROWN (0.009) 49 feet Eof N S BALDWIN RD **Crash ID:** 1638261

Date: 02/06/2019 **Day:** Wed **Hour:** 2pm **Weather:** rain **Roadway:** ice **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190002383

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	W	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1638261

#45 **Location:** BROWN (0.002) 13 feet Eof N S BALDWIN RD **Crash ID:** 1686269

Date: 04/10/2019 **Day:** Wed **Hour:** 3pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190066908

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	right turn	veh in transpt	none	none	none	imprp turn	truck/bus	rtside
2	N	right turn	veh in transpt	none	none	none	none	car	lftside

UD10: 1686269

#46 **Location:** S BALDWIN (1.621) 50 feet Nof BROWN RD **Crash ID:** 1704109

Date: 05/02/2019 **Day:** Thu **Hour:** 10a **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 190081965

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	sm truck	ctrrear

UD10: 1704109

#47 **Location:** S BALDWIN (1.608) 20 feet Sof S BALDWIN/BROWN TURN **Crash ID:** 1731624

Date: 05/30/2019 **Day:** Thu **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190102042

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	imprp lane use	car	rtfront
2	N	go straight	veh in transpt	none	none	none	none	car	lftfront

UD10: 1731624

#48 **Location:** S BALDWIN RD. (1.609) 15 feet Sof BROWN RD. RD **Crash ID:** 1755299

Date: 07/01/2019 **Day:** Mon **Hour:** 3pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190126152

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1755299

#49 **Location:** NB BALDWIN (1.608) 20 feet Sof BROWN RD **Crash ID:** 1756441

Date: 07/04/2019 **Day:** Thu **Hour:** 9am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 2 **Injy 0:** 3 **How:** angle

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190128426

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	other	car	lftside
2	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront

UD10: 1756441

#50 **Location:** BALDWIN (1.621) 50 feet Nof BROWN RD **Crash ID:** 1759720

Date: 07/04/2019 **Day:** Thu **Hour:** 9am **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 5 **How:** rr-end

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190128433

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear
3	S	go straight	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1759720

#51 **Location:** BALDWIN (1.606) 30 feet Eof BROWN RD **Crash ID:** 1762660

Date: 07/07/2019 **Day:** Sun **Hour:** 4pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190130589

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	veh in transpt	none	none	none	unable to stop	car	lftfront
2	N	avoid veh-ft/bk	veh in transpt	none	none	none	none	car	rtrear

UD10: 1762660

#52 **Location:** BROWN (0.009) 30 feet Wof BALDWIN RD **Crash ID:** 1771018

Date: 07/16/2019 **Day:** Tue **Hour:** 2pm **Weather:** rain **Roadway:** wet **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190137040

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	W	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1771018

#53 **Location:** NB BALDWIN (1.621) 50 feet Nof BROWN RD **Crash ID:** 1794207

Date: 08/20/2019 **Day:** Tue **Hour:** 9am **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190163159

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	right turn	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtside
3	N	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 1794207

#54 **Location:** NB S BALDWIN (1.613) 5 feet Nof BROWN RD **Crash ID:** 1797975

Date: 08/22/2019 **Day:** Thu **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190164870

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	passing	veh in transpt	none	none	none	imprp passing	car	lftrear
2	E	left turn	veh in transpt	none	none	none	none	car	ctrfront

UD10: 1797975

#55 **Location:** NB S BALDWIN (1.61) 10 feet Eof E BROWN RD **Crash ID:** 1843802

Date: 10/07/2019 **Day:** Mon **Hour:** 6am **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190197214

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	pickup	lftside
2	E	left turn	veh in transpt	none	none	none	none	car	ctrfront

UD10: 1843802

#56 **Location:** S BALDWIN (0.783) 10 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1872490

Date: 10/29/2019 **Day:** Tue **Hour:** 12p **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190213181

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1872490

#57 **Location:** NB S BALDWIN (1.614) 10 feet Nof BROWN RD **Crash ID:** 1888214

Date: 11/11/2019 **Day:** Mon **Hour:** 3pm **Weather:** snow **Roadway:** snow **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190222581

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront
2	W	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 1888214

#58 **Location:** SB S BALDWIN (0.792) 60 feet Nof BROWN RD **Crash ID:** 1888277

Date: 11/18/2019 **Day:** Mon **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190227097

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	lftfront
2	S	stop on road	veh in transpt	none	none	none	none	car	rtrear

UD10: 1888277

#59 **Location:** SB S BALDWIN (0.778) 15 feet Sof BROWN RD **Crash ID:** 1902483

Date: 12/02/2019 **Day:** Mon **Hour:** 10p **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** head-on/lt

CVT: Orion Twp **Area:** median **HBD:** N **Drugs:** N **Complaint #:** 190237124

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	veh in transpt	none	none	none	failed to yield	car	rtside
2	SE	go straight	veh in transpt	none	none	none	none	car	ctrfront

UD10: 1902483

#60 **Location:** NB BALDWIN RD (1.615) 15 feet Nof BROWN RD. **Crash ID:** 1902470

Date: 12/03/2019 **Day:** Tue **Hour:** 12p **Weather:** blowing snow **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** head-on/lt

CVT: Orion Twp **Area:** median **HBD:** N **Drugs:** N **Complaint #:** 190237473

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	left turn	veh in transpt	none	none	none	failed to yield	pickup	lftside
2	NW	go straight	veh in transpt	none	none	none	none	pickup	lftfront

UD10: 1902470

#61 **Location:** NB S BALDWIN (1.616) 20 feet Nof BROWN RD **Crash ID:** 1921514

Date: 12/19/2019 **Day:** Thu **Hour:** 6pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190249679

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	right turn	veh in transpt	none	none	none	failed to yield	car	lftfront
2	N	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 1921514

#62 **Location:** BALDWIN (1.609) 16 feet Sof BROWN RD **Crash ID:** 1932804

Date: 01/01/2020 **Day:** Wed **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200000340

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	left turn	veh in transpt	none	none	none	unknown	car	rtside
2	S	left turn	veh in transpt	none	none	none	unknown	car	lftside

UD10: 1932804

#63 **Location:** NB BROWN (0) 0 feet Xof E S BALDWIN RD **Crash ID:** 1940623

Date: 01/17/2020 **Day:** Fri **Hour:** 9am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 200001052

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1940623

#64 **Location:** BROWN (0) 0 feet Xof S BALDWIN ROAD **Crash ID:** 1963328

Date: 02/08/2020 **Day:** Sat **Hour:** 5pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 200002647

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	veh in transpt	none	none	none	imprp turn	car	lftfront
2	W	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 1963328

#65 **Location:** S BALDWIN (1.611) 5 feet Sof S BALDWIN/BROWN TURN **Crash ID:** 1968199

Date: 02/13/2020 **Day:** Thu **Hour:** 2pm **Weather:** snow **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200031690

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1968199

#66 **Location:** S BALDWIN (1.617) 26 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 1986510

Date: 02/29/2020 **Day:** Sat **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** angle

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 200042979

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	enter rdwy	veh in transpt	none	none	none	failed to yield	car	lftside
2	N	go straight	veh in transpt	none	none	none	none	car	rtfront

UD10: 1986510

#67 **Location:** NB S BALDWIN (1.621) 48 feet Nof BROWN RD **Crash ID:** 2027862

Date: 06/08/2020 **Day:** Mon **Hour:** 3pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200115525

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	failed to yield	car	lftfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 2027862

#68 **Location:** SB S BALDWIN (0.784) 16 feet Nof BROWN RD **Crash ID:** 2036917

Date: 06/20/2020 **Day:** Sat **Hour:** 9pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200124408

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unknown	uncoded	none
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2036917

#69 **Location:** BROWN (0.005) 26 feet Eof BALDWIN **Crash ID:** 2051851

Date: 07/13/2020 **Day:** Mon **Hour:** 9pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200140592

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	car	none
2	W	stop on road	veh in transpt	none	none	none	none	car	lftrear

UD10: 2051851

#70 **Location:** SB S BALDWIN (0.785) 21 feet Nof BROWN RD **Crash ID:** 2055994

Date: 07/16/2020 **Day:** Thu **Hour:** 12p **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200142473

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unable to stop	car	none
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2055994

#71 **Location:** NB BALDWIN (1.614) 11 feet Nof BROWN RD **Crash ID:** 2085224

Date: 08/23/2020 **Day:** Sun **Hour:** 3pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 1 **How:** head-on/lt

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 200170169

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront
2	S	left turn	veh in transpt	none	none	none	none	car	rtfront

UD10: 2085224

#72 **Location:** S BALDWIN (1.608) 20 feet Sof S BALDWIN/BROWN TURN **Crash ID:** 2102457

Date: 09/06/2020 **Day:** Sun **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200179998

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unable to stop	car	none
2	N	go straight	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2102457

#73 **Location:** S BALDWIN (1.603) 50 feet Sof S BALDWIN/BROWN TURN **Crash ID:** 2103529

Date: 09/10/2020 **Day:** Thu **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200014027

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2103529

#74 **Location:** SB BALDWIN (0.012) 15 feet Wof BROWN RD **Crash ID:** 2110493

Date: 09/23/2020 **Day:** Wed **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end/lt

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200191612

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	left turn	veh in transpt	none	none	none	unable to stop	car	rtfront
2	E	slow/stop on rd	veh in transpt	none	none	none	none	car	lftrear

UD10: 2110493

#75 **Location:** SB BALDWIN (0.776) 25 feet Sof BROWN RD **Crash ID:** 2105533

Date: 09/25/2020 **Day:** Fri **Hour:** 9am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200193001

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	carels driving	car	rtrear
2	S	go straight	veh in transpt	none	none	none	none	car	lftfront

UD10: 2105533

#76 **Location:** S BALDWIN/BROWN (0.015) 0 feet Xof S BALDWIN RD **Crash ID:** 2109873

Date: 09/30/2020 **Day:** Wed **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200015247

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	right turn	veh in transpt	none	none	none	failed to yield	car	lftfront
2	E	left turn	veh in transpt	none	none	none	none	car	rtfront

UD10: 2109873

#77 **Location:** SB S BALDWIN (0.785) 20 feet Nof BROWN RD **Crash ID:** 2122246

Date: 10/01/2020 **Day:** Thu **Hour:** 8pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200197841

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	u-turn	veh in transpt	none	none	none	imprp turn	car	lftfront
2	S	left turn	veh in transpt	none	none	none	none	car	rtfront

UD10: 2122246

#78 **Location:** S BALDWIN (1.616) 20 feet Nof BROWN RD **Crash ID:** 2123815

Date: 10/09/2020 **Day:** Fri **Hour:** 7pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 200204007

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		right turn	veh in transpt	none	none	none	unknown	car	none
2	N	go straight	veh in transpt	none	none	none	none	car	rtrear

UD10: 2123815

#79 **Location:** S BALDWIN (0.786) 27 feet Nof E S BALDWIN/BROWN TURN **Crash ID:** 2133155

Date: 10/25/2020 **Day:** Sun **Hour:** 11a **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end/lt

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200214879

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	start on rdwy	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 2133155

#80 **Location:** BALDWIN RD. (1.609) 15 feet Eof BROWN RD. RD **Crash ID:** 2158183

Date: 11/17/2020 **Day:** Tue **Hour:** 8pm **Weather:** clear **Roadway:** dry **Llght:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** angle

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 200231773

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	right turn	veh in transpt	none	none	none	failed to yield	car	rtfront
2	N	right turn	veh in transpt	none	none	none	unknown	car	none

UD10: 2158183

#81 **Location:** SB S BALDWIN (0.79) 50 feet Nof BROWN RD **Crash ID:** 2189461

Date: 12/18/2020 **Day:** Fri **Hour:** 6pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200251815

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2189461

#82 **Location:** S BALDWIN (1.615) 16 feet Nof BROWN RD **Crash ID:** 2189468

Date: 01/05/2021 **Day:** Tue **Hour:** 3pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 210002694

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unknown	car	none
2	N	go straight	veh in transpt	none	none	none	none	car	lftrear

UD10: 2189468

#83 **Location:** BROWN (0.002) 11 feet Sof S S BALDWIN RD **Crash ID:** 2194748

Date: 01/09/2021 **Day:** Sat **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210005161

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	veh in transpt	none	none	none	imprp lane use	car	rtside
2	W	left turn	veh in transpt	none	none	none	none	car	lftside

UD10: 2194748

#84 **Location:** BROWN (0.004) 21 feet Eof S BALDWIN RD **Crash ID:** 2234751

Date: 03/06/2021 **Day:** Sat **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210044604

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	change lanes	veh in transpt	none	none	none	other	car	rtfront
2	W	stop on road	veh in transpt	none	none	none	none	car	lftside

UD10: 2234751

#85 **Location:** S BALDWIN (1.626) 74 feet Nof S BALDWIN/BROWN TURN **Crash ID:** 2249722

Date: 03/30/2021 **Day:** Tue **Hour:** 11a **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 0 **How:** single

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210062506

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	pedestrian	none	none	none	none	car	lftside
2		playing in rdwy	veh in transpt	none	none	none	other	uncoded	none

UD10: 2249722

#86 **Location:** BROWN (0.001) 5 feet Eof BALDWIN **Crash ID:** 2257532

Date: 04/03/2021 **Day:** Sat **Hour:** 11a **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 7 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210065489

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	left turn	veh in transpt	none	none	none	imprp turn	car	lftside
2	E	left turn	veh in transpt	none	none	none	none	car	rtfront

UD10: 2257532

#87 **Location:** NB BALDWIN (1.627) 79 feet Nof BROWN RD **Crash ID:** 2275471

Date: 04/26/2021 **Day:** Mon **Hour:** 10a **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** median **HBD:** N **Drugs:** N **Complaint #:** 210083835

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	avoid veh-ft/bk	curb	none	none	none	none	car	undercrg

UD10: 2275471

#88 **Location:** S BALDWIN (1.613) 5 feet Nof BROWN RD **Crash ID:** 2273262

Date: 05/05/2021 **Day:** Wed **Hour:** 10a **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 1 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210088208

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	pickup	ctrfront
2	E	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 2273262

#89 **Location:** BROWN (0.002) 11 feet Eof BALDWIN **Crash ID:** 2291416

Date: 05/28/2021 **Day:** Fri **Hour:** 2pm **Weather:** clear **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210105402

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	W	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2291416

#90 **Location:** S BALDWIN (0.779) 11 feet Sof S BALDWIN/BROWN TURN **Crash ID:** 2295008

Date: 05/28/2021 **Day:** Fri **Hour:** 3pm **Weather:** cloudy **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** ss-same

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 210105419

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	none	car	rtside
2	S	change lanes	veh in transpt	none	none	none	imprp lane use	car	lftfront

UD10: 2295008

#91 **Location:** S BALDWIN (1.614) 11 feet Nof BROWN RD **Crash ID:** 2333335

Date: 07/13/2021 **Day:** Tue **Hour:** 12p **Weather:** cloudy **Roadway:** wet **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210142328

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	u-turn	veh in transpt	none	none	none	failed to yield	car	rtfront
2	NE	go straight	veh in transpt	none	none	none	none	car	lftrear

UD10: 2333335

#92 **Location:** S BALDWIN (1.611) 5 feet Sof S BALDWIN/BROWN TURN **Crash ID:** 2344620

Date: 07/27/2021 **Day:** Tue **Hour:** 7pm **Weather:** clear **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 2 **Injy C:** 0 **Injy 0:** 1 **How:** head-on/lt

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210153860

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront
2	SE	left turn	veh in transpt	none	none	none	none	car	rtfront

UD10: 2344620

#93 **Location:** NB S BALDWIN (1.611) 5 feet Eof BROWN RD **Crash ID:** 2376791

Date: 08/26/2021 **Day:** Thu **Hour:** 1pm **Weather:** unknown **Roadway:** unknown **Light:** unknown

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** ss-same

CVT: Orion Twp **Area:** median **HBD:** N **Drugs:** N **Complaint #:** 210181997

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		left turn	veh in transpt	none	none	none	unknown	car	none
2	E	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 2376791

#94 **Location:** S BALDWIN (1.612) 0 feet Xof S BALDWIN/BROWN TURN **Crash ID:** 2371711

Date: 09/06/2021 **Day:** Mon **Hour:** 12p **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210014895

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	u-turn	veh in transpt	none	none	none	imprp lane use	car	lftside
2	S	left turn	veh in transpt	none	none	none	none	car	rtfront

UD10: 2371711

#95 **Location:** NB S BALDWIN (1.608) 21 feet Sof BROWN RD **Crash ID:** 2379524

Date: 09/08/2021 **Day:** Wed **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210186319

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2379524

#96 **Location:** SB S BALDWIN (0.79) 50 feet Nof BROWN RD **Crash ID:** 2401186

Date: 09/25/2021 **Day:** Sat **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 210198940

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2401186

#97 **Location:** BROWN (0) 5 feet Eof BALDWIN ROAD **Crash ID:** 2401725

Date: 10/02/2021 **Day:** Sat **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210016513

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	change lanes	veh in transpt	none	none	none	imprp lane use	car	rtside
2	E	right turn	veh in transpt	none	none	none	none	car	lftside

UD10: 2401725

#98 **Location:** S BALDWIN (0.775) 29 feet Sof BROWN RD **Crash ID:** 2415146

Date: 10/14/2021 **Day:** Thu **Hour:** 10a **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210213877

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	lftfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	rtrear

UD10: 2415146

#99 **Location:** NB BALDWIN (1.621) 50 feet Nof BROWN RD **Crash ID:** 2423637

Date: 10/19/2021 **Day:** Tue **Hour:** 8pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210218074

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	failed to yield	car	lftfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtfront

UD10: 2423637

#100 **Location:** BALDWIN (0.776) 100 feet Sof BROWN ROAD **Crash ID:** 2417377

Date: 10/22/2021 **Day:** Fri **Hour:** 5pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 2 **Injy C:** 1 **Injy 0:** 0 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 210017684

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2417377

#101 **Location:** NB S BALDWIN (1.608) 20 feet Sof BROWN RD **Crash ID:** 2428313

Date: 10/25/2021 **Day:** Mon **Hour:** 4pm **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210222590

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	car	ctrfront
3	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2428313

#102 **Location:** NB BALDWIN (1.615) 15 feet Nof BROWN RD **Crash ID:** 2434519

Date: 10/31/2021 **Day:** Sun **Hour:** 2pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210227237

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unable to stop	car	none
2	N	stop on road	veh in transpt	none	none	none	none	car	rtrear

UD10: 2434519

#103 **Location:** SB BALDWIN (0.781) 0 feet Xof BROWN ROAD **Crash ID:** 2434667

Date: 11/09/2021 **Day:** Tue **Hour:** 5pm **Weather:** clear **Roadway:** dry **Llght:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210018751

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	start on rdwy	veh in transpt	none	none	none	failed to yield	car	lftfront
2	W	left turn	veh in transpt	none	none	none	none	car	rtfront

UD10: 2434667

#104 **Location:** NB BALDWIN (1.612) 20 feet Wof BROWN RD RD **Crash ID:** 2435264

Date: 11/11/2021 **Day:** Thu **Hour:** 9am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 1 **How:** head-on/lt

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210235878

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront
2	SE	left turn	veh in transpt	none	none	none	none	car	ctrfront

UD10: 2435264

#105 **Location:** NB BALDWIN (1.614) 10 feet Nof BROWN RD **Crash ID:** 2445279

Date: 11/12/2021 **Day:** Fri **Hour:** 3pm **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** angle

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 210236830

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	failed to yield	pickup	ctrfront
2	S	go straight	veh in transpt	none	none	none	none	car	rtrear

UD10: 2445279

#106 **Location:** BALDWIN (0.767) 150 feet Sof BROWN ROAD **Crash ID:** 2458430

Date: 12/02/2021 **Day:** Thu **Hour:** 10a **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 210020046

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 2458430

#107 **Location:** SB S BALDWIN (0.785) 20 feet Nof BROWN RD **Crash ID:** 2463390

Date: 12/02/2021 **Day:** Thu **Hour:** 2pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210251262

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	failed to yield	car	rtside
2	S	go straight	veh in transpt	none	none	none	none	car	lftside

UD10: 2463390

#108 **Location:** SB S BALDWIN (0.785) 20 feet Nof BROWN RD **Crash ID:** 2469099

Date: 12/03/2021 **Day:** Fri **Hour:** 7am **Weather:** clear **Roadway:** dry **Llght:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210251901

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	failed to yield	car	rtside
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	lftside

UD10: 2469099

#109 **Location:** SB S BALDWIN (0.787) 30 feet Nof BROWN RD **Crash ID:** 2469107

Date: 12/03/2021 **Day:** Fri **Hour:** 2pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210252151

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	start on rdwy	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	start on rdwy	veh in transpt	none	none	none	none	car	rtrear

UD10: 2469107

#110 **Location:** SB BROWN (0.004) 20 feet Eof S S BALDWIN RD **Crash ID:** 2476002

Date: 12/06/2021 **Day:** Mon **Hour:** 12p **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210254531

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	left turn	veh in transpt	none	none	none	imprp lane use	car	rtfront
2	E	left turn	veh in transpt	none	none	none	none	car	lftrear

UD10: 2476002

#111 **Location:** NB S BALDWIN (1.616) 20 feet Nof BROWN RD **Crash ID:** 2494922

Date: 12/11/2021 **Day:** Sat **Hour:** 6pm **Weather:** clear **Roadway:** dry **LIght:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** ss-same

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210258829

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	veh in transpt	none	none	none	failed to yield	car	rtfront
2	N	right turn	veh in transpt	none	none	none	none	car	lftfront

UD10: 2494922

#112 **Location:** NB BALDWIN (1.598) 150 feet Sof BROWN ROAD **Crash ID:** 2483163

Date: 12/26/2021 **Day:** Sun **Hour:** 3pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210021602

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 2483163

Crash Type

Count	Type
0	uncoded
4	single
0	head-on
6	head-on/lt
20	angle
43	rr-end
2	rr-end/lt
1	rr-end/rt
36	ss-same
0	ss-opp
0	back
0	other
0	unknown
Totals	112

Lighting Conditions

Count	Type
0	uncoded
87	day
1	dawn
1	dusk
16	dark/ltd
6	dark/unltd
0	other
1	unknown
Totals	112

Weather Conditions

Count	Type
0	uncoded
82	clear
13	cloudy
1	fog
8	rain
5	snow
0	wind
0	sleet/hail
2	blowing snow
0	blowing sand
0	smoke
1	unknown
Totals	112

Road Condition

Count	Type
0	uncoded
91	dry
15	wet
1	ice
4	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
1	unknown
Totals	112

Crashes by Month

Count	Type
10	January
6	February
7	March
6	April
10	May
5	June
14	July
7	August
11	September
15	October
8	November
13	December
Totals	112

Hazardous Action

Count	Type
110	none
0	speeding
0	spd too slow
24	failed to yield
11	disrgd traffic cntrl
0	wrong way
0	left of center
1	imprp passing
11	imprp lane use
4	imprp turn
0	imprp/no signal
1	imprp backing
42	unable to stop
7	other
12	unknown
0	reckls driving
1	carels driving
Totals	224

Unit Type

Count	Type
0	Bicyclist
0	Engineer
223	Vehicle
1	Pedestrian
Totals	224

Crashes by Year

Count	Type
17	2017
25	2018
19	2019
20	2020
31	2021
Totals	112

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	2	7	8	0	17
Crashes	0	2	5	5	100	112

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	0	0
Not Drinking	0	2	5	5	100	112
Totals	0	2	5	5	100	112

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	0	0	0	0	0
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	1	0	0	1	0	2
6a-7a	0	1	0	0	0	0	0	1
7a-8a	0	0	0	0	1	1	0	2
8a-9a	0	0	0	0	1	0	1	2
9a-10a	1	0	1	0	3	2	0	7
10a-11a	0	1	1	1	4	0	1	8
11a-12p	2	0	2	0	0	0	2	6
12p-1p	0	3	3	0	1	1	0	8
1p-2p	1	0	0	3	1	0	4	9
2p-3p	2	1	4	2	3	3	1	16
3p-4p	2	4	1	2	3	2	0	14
4p-5p	2	1	0	1	4	1	0	9
5p-6p	0	0	1	0	0	2	1	4
6p-7p	0	2	0	1	1	1	3	8
7p-8p	0	1	1	0	0	1	2	5
8p-9p	0	0	2	0	1	0	0	3
9p-10p	1	1	0	0	0	1	2	5
10p-11p	0	1	0	0	0	0	2	3
11p-12a	0	0	0	0	0	0	0	0
Totals	11	16	17	10	23	16	19	112

SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 01/2016)

External # 0859168 | Crash ID 1301380

File Class C3155

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 180016907

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: YALDOO (00431)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
01/26/2018	16:22	02	Rear End	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	Signal	On the Road	Clear	INTR Other Related

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	03	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
S	BALDWIN	RD		

Distance / Direction: 15 Feet E
Trafficway: Not Physically Divided

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	BROWN	RD		

UNIT / DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Total Occupants	Hazardous Action
01	Yes	MI	#############	##/##/#### (76)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	M	01	Unable to Stop

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## ORION, MI 48359-1650 (###) ###-####	Yes	O	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
NONE	NONE

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	● Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
F5172	MI		2003	GMC	SONOMA	RED

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1GTDT13X93K129936	Pickup Truck	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################		

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
01	01	Minor Damage	W	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event): First ● 17 - Motor Veh in Transport | Second | Third | Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information:
##########################
##########################
##################################, ## #####-#### (###) ###-####

Owner Information:

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Total Occupants	Hazardous Action
02	Yes	MI	#############	##/##/#### (51)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	01	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## FLINT, MI 48532-2265 (###) ###-####	Yes	A	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
REFUSED	REFUSED

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
DLC7126	MI		2016	BUICK	REGAL	GRAY

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
2G4GS5GX4G9118038	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################		

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
05	05	Minor Damage	W	Private	Slowing/Stop on Roadway

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

WITNESS

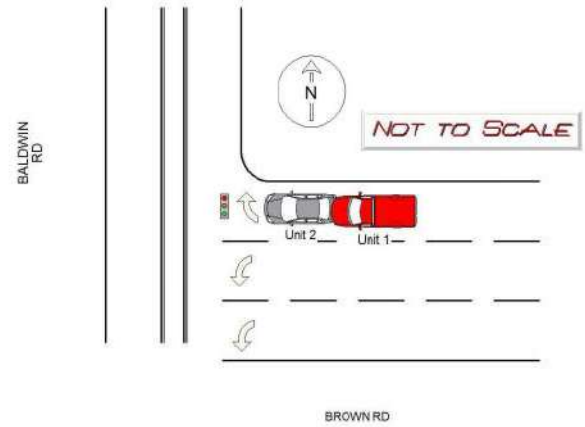
Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	01/26/2018 (16:22)	DEPUTY C.JOHNSON (1797)		No

Narrative

UNIT 2 STATED THAT SHE WAS STOPPED AT A RED LIGHT WHEN SHE WAS REAR ENDED BY UNIT 1. UNIT 1 STATED THAT HE REAR ENDED UNIT 2.

Diagram



SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 11/2020)

External # 1168714 | Crash ID 2273262

File Class 9300-1

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 210088208

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: KENDRICK (01648)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
05/05/2021	10:28	02	Angle	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	Stop Sign	On the Road	Clear	INTR Within Intersection

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	03	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
S	BALDWIN	RD		

Distance / Direction: 5 Feet N
Trafficway: Divided Hwy with Barrier

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	BROWN	RD		

UNIT / DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
01	Yes	MI	############	##/##/#### (74)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	M	W	01	Disregard Traffic Control

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## WATERFORD, MI 48329-2520 (###) ###-####	Yes	O	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
NONE	NONE

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	● Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
EJL3076	MI		2015	CHEVROLET	COLORADO	RED

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1GCGTBE34F1194569	Pickup Truck	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################		

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
01	01	Functional Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
02	Yes	MI	#############	##/##/#### (47)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	M	W	01	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## CLARKSTON, MI 48348-5216 (###) ###-####	Yes	A	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Deployed - Front

Hospital	Ambulance
NONE	NONE

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
EAM5593	MI		2020	BMW	430XI	BLUE

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
WBA4J3C02LCD12464	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
03	03	Disabling Damage	E	Private	Turning Left

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

WITNESS

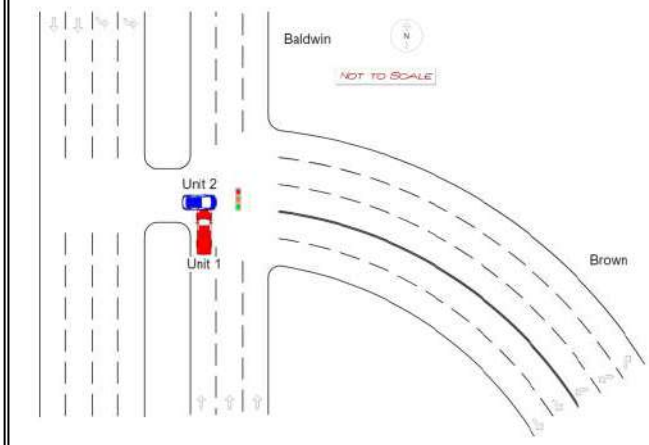
Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	05/05/2021 (10:28)	DEPUTY C.JOHNSON (1797)		Yes

Narrative

UNIT 1 RAN A RED LIGHT AND STRUCK UNIT 2. \NUNIT 2 WAS SRUCK BY UNIT 1.

Diagram



SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 01/2016)

External # 1022995 | Crash ID 1794207

File Class 93001

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 190163159

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: YALDOO (00431)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
08/20/2019	09:40	03	Angle	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	Signal	On the Road	Clear	INTR Within Intersection

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	03	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
	BALDWIN	RD		N

Distance / Direction: 50 Feet N
Trafficway: Divided Hwy wo/Barrier

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	BROWN	RD		

UNIT / DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Total Occupants	Hazardous Action
01	Yes	MI	#############	##/##/#### (68)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	01	Failed to Yield

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## OXFORD, MI 48371-4434 (###) ###-####	Yes	O	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
REFUSED	REFUSED

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	● Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
H0119	MI		2014	LINCOLN	NAVIGATOR L	BLACK

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
5LMJJ3J59EEL02354	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
01	01	Disabling Damage	W	Private	Turning Right

Sequence of Events (● indicates MOST harmful event): First ● 17 - Motor Veh in Transport | Second | Third | Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information
##########################
##########################
##################################, ## #####-#### (###) ###-####

Owner Information

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Total Occupants	Hazardous Action
02	Yes	MI	#############	##/##/#### (47)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	01	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## OXFORD MI, MI 48371-4961 (###) ###-####	Yes	B	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
WILLIAM BEAUMONT HOSPITAL TROY	REFUSED

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
5LSN72	MI		2010	JEEP		BLACK

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1J4PN2GK6AW177681	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To
###########################	###########################	BUCKHORN SERVICE 248-693-9375	

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
03	03	Disabling Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport	17 - Motor Veh in Transport		

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

WITNESS

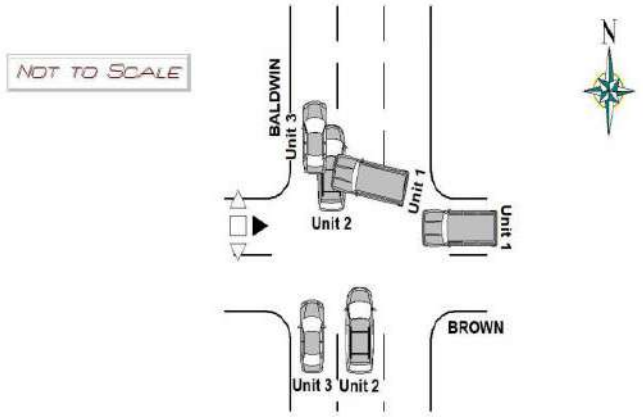
Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	08/20/2019 (09:45)	S. WILL (439)		No

Narrative

VEH #2 & 3 WERE N/B ON BALDWIN WITH A GREEN LIGHT. VEH #1 WAS W/B ON BROWN WITH A GREEN LIGHT. VEH #1 WENT THROUGH THE RED LIGHT HITTING VEH #2 CAUSING VEH #2 TO HIT VEH #3 CAUSING DAMAGE TO ALL VEHS.

Diagram



SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 01/2016)

External # 1022995 | Crash ID 1794207

File Class 93001

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 190163159

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: YALDOO (00431)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
08/20/2019	09:40	03	Angle	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	Signal	On the Road	Clear	INTR Within Intersection

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	03	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
	BALDWIN	RD		N

Distance / Direction	Trafficway
50 Feet N	Divided Hwy wo/Barrier

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	BROWN	RD		

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Total Occupants	Hazardous Action
03	Yes	MI	#############	##/##/#### (30)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	01	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## WATERFORD, MI 48327-4136 (###) ###-####	Yes	O	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
REFUSED	REFUSED

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
DNH1588	MI		2003	FORD	TAURUS	WHITE

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1FAFP55U63G140392	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################		

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
03	03	Functional Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State Driver License Number	Date of Birth (Age)	License Type / Endorsements	Sex	Total Occupants	Hazardous Action
				○ Operator ○ Chauffeur ○ Moped / ○ Cycle ○ Farm ○ Recreation			

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint

Driver Condition at Time of Crash 1st / 2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
		○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ○ Not Offered	○ Pending Test Results:	

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
		○ Blood ○ Urine ○ Field ○ Refused ○ Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information

WITNESS

Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos

Narrative	Diagram

SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 01/2016)

External # 1112979 | Crash ID 2085224

File Class 9300-1

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 200170169

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: RYMARZ (00796)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
08/23/2020	15:09	02	Head On-Left Turn	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	Signal	On the Road	Clear	INTR Within Intersection

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	03	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
	BALDWIN	RD		N

Distance / Direction: 10 Feet N
Trafficway: Divided Hwy wo/Barrier

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	BROWN	RD		

UNIT / DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Total Occupants	Hazardous Action
01	Yes	MI	############	##/##/#### (38)	○ Operator ● Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	M	01	Disregard Traffic Control

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## ORION, MI 48359-1137 (###) ###-####	Yes	O	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Deployed - Front

Hospital: NONE
Ambulance: NONE

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
EP53S	MI		2020	JEEP	GRAND CHEROK	BLACK

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1C4RJFBG9LC416326	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	BUCKHORN

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
01	01	Disabling Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event): First: ● 17 - Motor Veh in Transport | Second | Third | Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital | Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital | Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information:
##########################
##########################
##################################, ## #####-#### (###) ###-####

Owner Information

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Total Occupants	Hazardous Action
02	Yes	MI	############	##/##/#### (56)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	01	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## LAKE ORION, MI 48360-2717 (###) ###-####	No	B	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Unknown		Unknown			Deployed - Front

Hospital	Ambulance
ST JOSEPH MERCY OAKLAND	ORION TWP FIRE DEPT

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
DNT6598	MI		2017	BUICK	ENCLAVE	BLUE

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
5GAKVBKD4HJ138864	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	BUCKHORN

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
02	02	Disabling Damage	S	Private	Turning Left

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

WITNESS

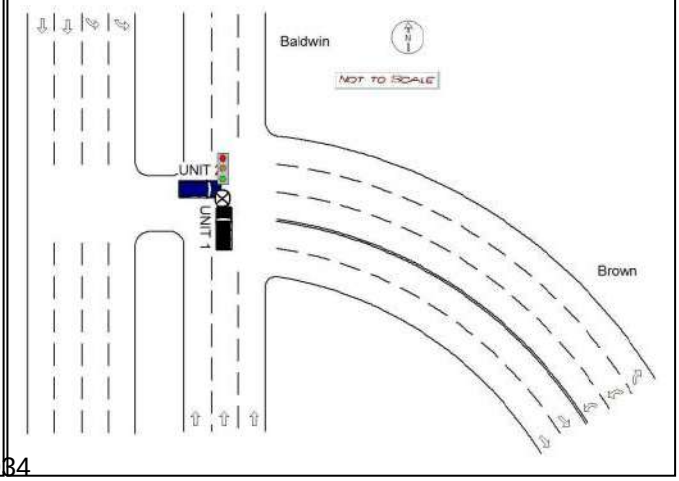
Witness Information	Witness Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	08/23/2020 (15:09)	VANBIESBROUCK (2745)		No

Narrative

UNIT 1 WAS TRAVELING N/B ON BALDWIN RD. UNIT 2 WAS FACING S/B, TURNING E/B ONTO BROWN RD. UNIT 2 TURNED LEFT ON THE GREEN SIGNAL, UNIT 1 PROCEEDED THROUGH THE RED LIGHT STRIKING UNIT 2. WITNESS WAS BEHIND UNIT 2 AND STATED UNIT 1 DISREGARDED RED SIGNAL.\N\NUNIT 2 DRIVER, MINOR INJURIES, TRANSPORTED TO ST. JOSEPH HOSPITAL BY ORION FIRE.

Diagram



SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 11/2020)

External # 1201241 | Crash ID 2379524

File Class 9300-1

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 210186319

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: YALDOO (00431)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
09/08/2021	13:06	02	Rear End	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	Signal	On the Road	Clear	INTR Other Related

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	05	45	Yes

Work Zone (if applicable) Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
S	BALDWIN	RD		N

Distance / Direction: 20 Feet S
Trafficway: Divided Hwy wo/Barrier

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	BROWN	RD		

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
01	Yes	MI	############	##/##/#### (19)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	W	01	Unable to Stop

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########## ########## LAKE ORION, MI 48360-1662 (###) ###-####	Yes	O	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Unknown			Deployed - Front

Hospital: NONE
Ambulance: NONE

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	● Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
DWG5739	MI		2007	HONDA	ACCORD	BLUE

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1HGCM66447A061680	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
###########################	###########################	BUCKHORN SERVICE 248-693-9375	BUCKHORNS LOT

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
01	01	Disabling Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital | Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital | Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information
##########################
##########################
##################################, ## #####-#### (###) ###-####

Owner Information

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
02	Yes	MI	############	##/##/#### (25)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	B	01	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## AUBURN HILLS, MI 48326-4539 (###) ###-####	No	B	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
REFUSED	ORION TWP FIRE DEPT

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
DJA6239	MI		2008	HONDA	CIVIC	SILVER

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1HGFA168X8L066495	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	BUCKHORNS LOT

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
05	05	Disabling Damage	N	Private	Slowing/Stop on Roadway

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

WITNESS

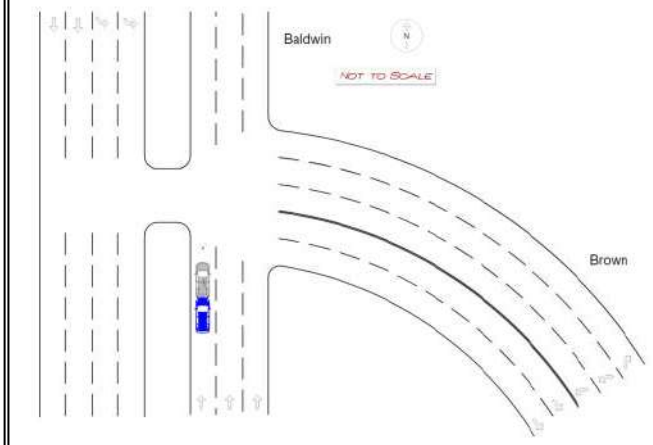
Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	09/08/2021 (13:06)	DEPUTY N. BODENDORFER (2688)		No

Narrative

UNIT 2 WAS TRAVELING NORTHBOUND BALDWIN ROAD AND STOPPED FOR A RED LIGHT AT BROWN ROAD. UNIT 1 WAS TRAVELING BEHIND UNIT 2 AND STRUCK UNIT 2 IN THE REAR END.

Diagram



SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 11/2020)

External # 1189853 | Crash ID 2344620

File Class 9300-1

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 210153860

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: YALDOO (00431)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
07/27/2021	19:31	02	Head On-Left Turn	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	Signal	On the Road	Clear	INTR Within Intersection

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	02	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
S	BALDWIN	RD		

Distance / Direction: 4 Feet S
Trafficway: Not Physically Divided

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	S BALDWIN/BROWN	TURN		

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
01	Yes	MI	###########	##/##/#### (53)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	W	02	Disregard Traffic Control

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########## ########## PONTIAC, MI 48340-1832 (###) ###-####	No	B	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Deployed - Combination

Hospital: REFUSED
Ambulance: ORION TWP FIRE DEPT

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	● Hazardous ● Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
DYL8955	MI		2021	CHEVROLET	TRAX	BROWN

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
KL7CJPSB9MB335962	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########	##########	BUCKHORN SERVICE 248-693-9375	BUCKHORN TOWING

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
01	01	Disabling Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint
########## ########## PONTIAC, MI 48340-1832 (###) ###-####	##/##/#### (25)	F		Front - Right	Shoulder and Lap Belt

Injury	Ejected	Trapped	Airbag Deployed
O			Deployed - Front

Hospital: REFUSED
Ambulance: REFUSED

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital | Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information:
##########
##########
##########, ## #####-#### (###) ###-####

Owner Information

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
02	Yes	MI	############	##/##/#### (62)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	W	01	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## CLARKSTON, MI 48348-4091 (###) ###-####	No	B	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Deployed - Front

Hospital	Ambulance
NONE	ORION TWP FIRE DEPT

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
1LMJ95	MI		2010	LEXS		

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
JTJBC1BA6A2013124	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	BUCKHORN TOWING

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
02	02	Disabling Damage	SE	Private	Turning Left

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

WITNESS

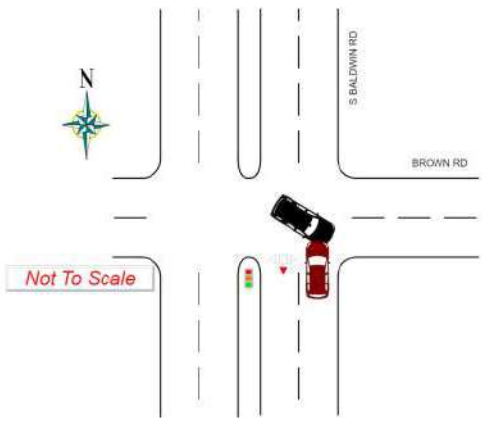
Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	07/27/2021 (19:31)	DEPUTY C. GARCIA (1924)		No

Narrative

UNIT 2 WAS TURNING LEFT WITH A GREEN ARROW TO GO EB ON BROWN FROM BALDWIN RD. UNIT 1 TRAVELING NB ON BALDWIN RD FAILED TO STOP FOR THE RED LIGHT CAUSING DISABLING DAMAGE TO BOTH VEHICLES WITH MINOR INJUIRES.

Diagram



SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 11/2020)

External # 1214431 | Crash ID 2417377

File Class 93001

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 210017684

ORI: MI 6385100
Department Name: Auburn Hills Police Department
Reviewer: STOINSKI (00095)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
10/22/2021	17:51	02	Rear End	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	None	On the Road	Clear	NON-FRWY Straight Roadway

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
93 - Auburn Hills	None		Daylight	Dry	04	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
	BALDWIN	ROAD		

Distance / Direction	Trafficway
100 Feet S	One-Way Traffic

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	BROWN	ROAD		

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
01	Yes	MI	############	##/##/#### (63)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	W	01	Unable to Stop

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########## ########## LAKE ORION, MI 48359-2045 (###) ###-####	Yes	B	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
REFUSED	REFUSED

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	● Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
8994K6	MI		2001	DODGE		GOLD

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
2B8GP54G01R201138	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
###########################	###########################		

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
01	01	Functional Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########## ########## ##########, ## #####-#### (###) ###-####	

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
02	Yes	MI	############	##/##/#### (27)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	M	W	02	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	############################## ############################## FARMINGTON HILLS, MI 48336-4963 (###) ###-####	Yes	B	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Not Deployed

Hospital	Ambulance
REFUSED	REFUSED

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
2LXF01	MI		2016	FORD	FOCUS	GRAY

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1FADP3L99GL382942	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##############################	##############################		

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
05	05	Functional Damage	N	Private	Stopped on Roadway

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport			

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint
############################## ############################## CADILLAC, MI 49601-8211 (###) ###-####	##/##/#### (24)	M		Front - Right	Shoulder and Lap Belt

Injury	Ejected	Trapped	Airbag Deployed
C			Not Deployed

Hospital	Ambulance
REFUSED	REFUSED

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
############################## ############################## ##################################, ## #####-#### (###) ###-####	

WITNESS

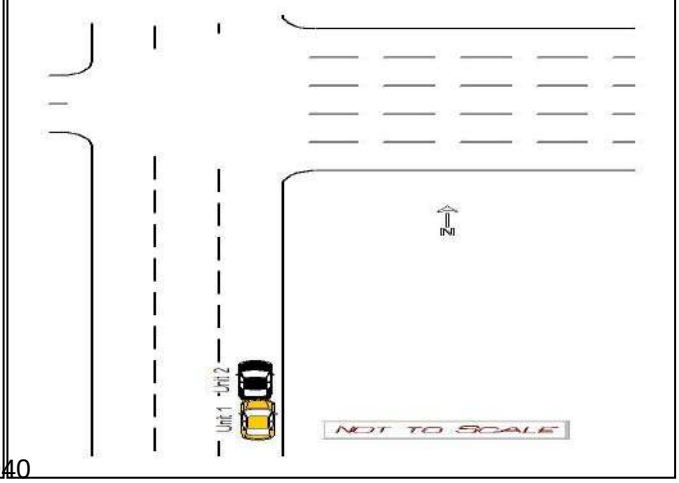
Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	10/22/2021 (17:51)	LEE (301)		No

Narrative

UNIT 1 WAS TRAVELING NORTHBOUND ON BALDWIN TOWARDS BROWN.\N\NUNIT 2 WAS STOPPED ON NORTHBOUND BALDWIN JUST SOUTH OF BROWN DUE TO TRAFFIC.\N\NUNIT 1 FAILED TO STOP AND REAR ENDED UNIT 2.\N\NBOTH UNITS REPORTED SORENESS/POSSIBLE INJURIES BUT REFUSED MEDICAL TREATMENT.\N\NUNIT 1 CITED.

Diagram



Crash Detail for 1/1/2017 - 12/31/2021

Criteria: WHERE A.AGENCY_ID = 14 AND A.GeoCoords.STIntersects (GEOMETRY::STGeomFromWKB(GEOGRAPHY::STPointFromText('POINT(-83.3071973978373 42.7106205014875)', 4326).STBuffer(30.48).STAsBinary(),4326)) = 1

#1 **Location:** S BALDWIN (1.808) 100 feet Sof MORGAN DR **Crash ID:** 1086989

Date: 06/30/2017 **Day:** Fri **Hour:** 2pm **Weather:** cloudy **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** transition **HBD:** N **Drugs:** N **Complaint #:** 170118200

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unknown	car	lftside
2	N	go straight	veh in transpt	none	none	none	unknown	car	none

UD10: 1086989

#2 **Location:** SB BALDWIN (1.789) 900 feet Nof BROWN RD **Crash ID:** 1140517

Date: 09/03/2017 **Day:** Sun **Hour:** 2pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170162279

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unknown	car	none
2	S	stop on road	veh in transpt	none	none	none	none	car	lftrear
3	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1140517

#3 **Location:** BALDWIN (1.813) 75 feet Sof MORGAN RD **Crash ID:** 1181028

Date: 10/16/2017 **Day:** Mon **Hour:** 1pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** transition **HBD:** N **Drugs:** N **Complaint #:** 170190215

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	other	car	rtside
2	N	change lanes	veh in transpt	none	none	none	none	pickup	lftside

UD10: 1181028

#4 **Location:** S BALDWIN (1.808) 100 feet Sof MORGAN RD **Crash ID:** 1495223

Date: 09/18/2018 **Day:** Tue **Hour:** 8am **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180175727

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1495223

#5 **Location:** S BALDWIN (1.813) 75 feet Sof MORGAN RD **Crash ID:** 1648626

Date: 02/16/2019 **Day:** Sat **Hour:** 12p **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 190030642

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1648626

#6 **Location:** NB S BALDWIN (1.807) 35 feet Nof JORDAN ST **Crash ID:** 1843876

Date: 10/11/2019 **Day:** Fri **Hour:** 10p **Weather:** rain **Roadway:** wet **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** median **HBD:** N **Drugs:** N **Complaint #:** 190200982

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	veh in transpt	none	none	none	failed to yield	pickup	rtrear
2	N	go straight	veh in transpt	none	none	none	none	pickup	lftfront

UD10: 1843876

#7 **Location:** BALDWIN (1.789) 58 feet Sof MORGAN **Crash ID:** 1970033

Date: 02/09/2020 **Day:** Sun **Hour:** 12p **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 200028473

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1970033

Crash Type

Count	Type
0	uncoded
0	single
0	head-on
0	head-on/lt
0	angle
4	rr-end
0	rr-end/lt
0	rr-end/rt
3	ss-same
0	ss-opp
0	back
0	other
0	unknown
Totals	7

Lighting Conditions

Count	Type
0	uncoded
6	day
0	dawn
0	dusk
1	dark/ltd
0	dark/unltd
0	other
0	unknown
Totals	7

Weather Conditions

Count	Type
0	uncoded
4	clear
2	cloudy
0	fog
1	rain
0	snow
0	wind
0	sleet/hail
0	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	7

Road Condition

Count	Type
0	uncoded
6	dry
1	wet
0	ice
0	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	7

Crashes by Month

Count	Type
0	January
2	February
0	March
0	April
0	May
1	June
0	July
0	August
2	September
2	October
0	November
0	December
Totals	7

Hazardous Action

Count	Type
7	none
0	speeding
0	spd too slow
1	failed to yield
0	disrgd traffic cntrl
0	wrong way
0	left of center
0	imprp passing
0	imprp lane use
0	imprp turn
0	imprp/no signal
0	imprp backing
3	unable to stop
1	other
3	unknown
0	reckls driving
0	carels driving
Totals	15

Unit Type

Count	Type
0	Bicyclist
0	Engineer
15	Vehicle
0	Pedestrian
Totals	15

Crashes by Year

Count	Type
3	2017
1	2018
2	2019
1	2020
Totals	7

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	0	0	0	0
Crashes	0	0	0	0	7	7

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	0	0
Not Drinking	0	0	0	0	7	7
Totals	0	0	0	0	7	7

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	0	0	0	0	0
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	0	0	0	0	0	0
6a-7a	0	0	0	0	0	0	0	0
7a-8a	0	0	0	0	0	0	0	0
8a-9a	0	0	1	0	0	0	0	1
9a-10a	0	0	0	0	0	0	0	0
10a-11a	0	0	0	0	0	0	0	0
11a-12p	0	0	0	0	0	0	0	0
12p-1p	1	0	0	0	0	0	1	2
1p-2p	0	1	0	0	0	0	0	1
2p-3p	1	0	0	0	0	1	0	2
3p-4p	0	0	0	0	0	0	0	0
4p-5p	0	0	0	0	0	0	0	0
5p-6p	0	0	0	0	0	0	0	0
6p-7p	0	0	0	0	0	0	0	0
7p-8p	0	0	0	0	0	0	0	0
8p-9p	0	0	0	0	0	0	0	0
9p-10p	0	0	0	0	0	0	0	0
10p-11p	0	0	0	0	0	1	0	1
11p-12a	0	0	0	0	0	0	0	0
Totals	2	1	1	0	0	2	1	7

Crash Detail for 1/1/2017 - 12/31/2021
Criteria: WHERE A.AGENCY_ID = 14 AND A.GeoCoords.STIntersects (GEOMETRY::STGeomFromWKB(GEOGRAPHY::STPointFromText('POINT(-83.3074790297838 42.7152360777724)', 4326).STBuffer(30.48).STAsBinary(),4326)) = 1

#1 **Location:** BALDWIN (2.123) 40 feet Nof JUDAH RD **Crash ID:** 9944906

Date: 01/20/2017 **Day:** Fri **Hour:** 6am **Weather:** clear **Roadway:** dry **Light:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 170011375

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	animal	none	none	none	none	car	lftfront

UD10: 9944906

#2 **Location:** S BALDWIN (2.118) 10 feet Nof JUDAH RD **Crash ID:** 1054392

Date: 05/25/2017 **Day:** Thu **Hour:** 6pm **Weather:** cloudy **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170092562

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1054392

#3 **Location:** S BALDWIN (2.115) 2640 feet Nof BROWN RD **Crash ID:** 1472280

Date: 08/27/2018 **Day:** Mon **Hour:** 11a **Weather:** cloudy **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 180161339

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	failed to yield	car	lftfront
2	N	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 1472280

#4 **Location:** S BALDWIN (2.122) 30 feet Nof JUDAH RD **Crash ID:** 1535227

Date: 10/30/2018 **Day:** Tue **Hour:** 12p **Weather:** cloudy **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 180204738

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	other non-fixed obj	none	none	none	unknown	car	ctrfront

UD10: 1535227

#5 **Location:** S BALDWIN (2.118) 10 feet Nof JUDAH RD **Crash ID:** 1628183

Date: 01/29/2019 **Day:** Tue **Hour:** 5pm **Weather:** clear **Roadway:** slush **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 190018836

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	right turn	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 1628183

#6 **Location:** BALDWIN (2.115) 10 feet Sof JUDAH **Crash ID:** 1727834

Date: 02/06/2019 **Day:** Wed **Hour:** 9pm **Weather:** snow **Roadway:** ice **LIght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 190100418

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	loss of control	none	none	none	other	car	rtfront

UD10: 1727834

#7 **Location:** S BALDWIN (2.122) 30 feet Nof S JUDAH RD **Crash ID:** 1643952

Date: 02/07/2019 **Day:** Thu **Hour:** 11a **Weather:** cloudy **Roadway:** wet **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** ss-same

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 190024628

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unknown	truck/bus	none
2	N	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 1643952

#8 **Location:** S BALDWIN (2.118) 10 feet Nof JUDAH RD **Crash ID:** 1686275

Date: 03/29/2019 **Day:** Fri **Hour:** 4pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 190059116

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	failed to yield	car	lftfront
2	S	left turn	veh in transpt	none	none	none	none	car	rtside

UD10: 1686275

#9 **Location:** NB BALDWIN (2.115) 10 feet Wof JUDAH RD **Crash ID:** 1787836

Date: 08/10/2019 **Day:** Sat **Hour:** 8am **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 190156132

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	start on rdwy	veh in transpt	none	none	none	failed to yield	pickup	lftfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtrear

UD10: 1787836

#10 **Location:** NB BALDWIN (2.115) 10 feet Wof JUDAH RD **Crash ID:** 1822547

Date: 09/20/2019 **Day:** Fri **Hour:** 7am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 190185807

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unknown	truck/bus	none
2	N	go straight	veh in transpt	none	none	none	unknown	truck/bus	rtside

UD10: 1822547

#11 **Location:** S BALDWIN (2.112) 30 feet Sof JUDAH RD **Crash ID:** 1831600

Date: 09/25/2019 **Day:** Wed **Hour:** 9pm **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 1 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 0 **How:** single

CVT: Orion Twp **Area:** unknown **HBD:** Y **Drugs:** N **Complaint #:** 190189659

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	ran off road/r	none	none	none	unknown	car	ctrfront

UD10: 1831600

#12 **Location:** BALDWIN (2.124) 50 feet Nof JUDAH RD **Crash ID:** 1880780

Date: 11/11/2019 **Day:** Mon **Hour:** 7am **Weather:** snow **Roadway:** snow **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 190222122

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	speeding	car	rtfront
2	N	go straight	veh in transpt	none	none	none	none	car	lftrear

UD10: 1880780

#13 **Location:** S BALDWIN (2.116) 5 feet Sof JUDAH RD **Crash ID:** 1883476

Date: 11/11/2019 **Day:** Mon **Hour:** 4pm **Weather:** snow **Roadway:** ice **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 190222613

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	pickup	lftrear

UD10: 1883476

#14 **Location:** BALDWIN (2.114) 21 feet Sof JUDAH RD **Crash ID:** 2001765

Date: 04/24/2020 **Day:** Fri **Hour:** 2pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 200083071

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	failed to yield	pickup	none
2	S	go straight	veh in transpt	none	none	none	none	car	rtfront

UD10: 2001765

#15 **Location:** S BALDWIN (2.115) 10 feet Sof JUDAH RD **Crash ID:** 2182105

Date: 12/16/2020 **Day:** Wed **Hour:** 4pm **Weather:** snow **Roadway:** ice **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200250207

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	none	veh in transpt	none	none	none	unable to stop	car	lftfront
2	N	none	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2182105

#16 **Location:** S BALDWIN (2.118) 32 feet Nof JUDAH RD **Crash ID:** 2222672

Date: 02/15/2021 **Day:** Mon **Hour:** 9am **Weather:** snow **Roadway:** snow **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 210030377

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	ran off road/r	none	none	none	speeding	car	ctrfront

UD10: 2222672

#17 **Location:** S BALDWIN (2.124) 0 feet Nof JUDAH RD **Crash ID:** 2355097

Date: 08/08/2021 **Day:** Sun **Hour:** 11a **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 210162673

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	avoid veh-ft/bk	veh in transpt	none	none	none	none	motorcycle	lftside
2	S	go straight	veh in transpt	none	none	none	none	motorcycle	rtrear

UD10: 2355097

#18 **Location:** NB BALDWIN (2.115) 32 feet Sof JUDAH RD **Crash ID:** 2377745

Date: 09/04/2021 **Day:** Sat **Hour:** 3pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 1 **Injy 0:** 0 **How:** ss-same

CVT: Orion Twp **Area:** unknown **HBD:** N **Drugs:** N **Complaint #:** 210183501

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	ran off road/r	none	none	none	carels driving	car	lftfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 2377745

#19 **Location:** SB S BALDWIN (1.303) 32 feet NEof JUDAH RD **Crash ID:** 2487957

Date: 12/19/2021 **Day:** Sun **Hour:** 1am **Weather:** clear **Roadway:** slush **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** Y **Drugs:** N **Complaint #:** 210264518

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	ran off road/r	none	none	none	speeding	car	ctrfront

UD10: 2487957

Crash Type

Count	Type
0	uncoded
6	single
0	head-on
0	head-on/lt
1	angle
3	rr-end
0	rr-end/lt
0	rr-end/rt
9	ss-same
0	ss-opp
0	back
0	other
0	unknown
Totals	19

Lighting Conditions

Count	Type
0	uncoded
15	day
0	dawn
0	dusk
3	dark/ltd
1	dark/unltd
0	other
0	unknown
Totals	19

Weather Conditions

Count	Type
0	uncoded
7	clear
7	cloudy
0	fog
0	rain
5	snow
0	wind
0	sleet/hail
0	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	19

Road Condition

Count	Type
0	uncoded
11	dry
1	wet
3	ice
2	snow
0	mud
2	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	19

Crashes by Month

Count	Type
2	January
3	February
1	March
1	April
1	May
0	June
0	July
3	August
3	September
1	October
2	November
2	December
Totals	19

Hazardous Action

Count	Type
14	none
3	speeding
0	spd too slow
5	failed to yield
0	disrgd traffic cntrl
0	wrong way
0	left of center
0	imprp passing
0	imprp lane use
0	imprp turn
0	imprp/no signal
0	imprp backing
3	unable to stop
1	other
5	unknown
0	reckls driving
1	carels driving
Totals	32

Unit Type

Count	Type
0	Bicyclist
0	Engineer
32	Vehicle
0	Pedestrian
Totals	32

Crashes by Year

Count	Type
2	2017
2	2018
9	2019
2	2020
4	2021
Totals	19

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	1	1	1	0	3
Crashes	0	1	1	0	17	19

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	1	0	0	1	2
Not Drinking	0	0	1	0	16	17
Totals	0	1	1	0	17	19

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	1	0	0	0	0	0	0	1
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	0	0	0	0	0	0
6a-7a	0	0	0	0	0	1	0	1
7a-8a	0	1	0	0	0	1	0	2
8a-9a	0	0	0	0	0	0	1	1
9a-10a	0	1	0	0	0	0	0	1
10a-11a	0	0	0	0	0	0	0	0
11a-12p	1	1	0	0	1	0	0	3
12p-1p	0	0	1	0	0	0	0	1
1p-2p	0	0	0	0	0	0	0	0
2p-3p	0	0	0	0	0	1	0	1
3p-4p	0	0	0	0	0	0	1	1
4p-5p	0	1	0	1	0	1	0	3
5p-6p	0	0	1	0	0	0	0	1
6p-7p	0	0	0	0	1	0	0	1
7p-8p	0	0	0	0	0	0	0	0
8p-9p	0	0	0	0	0	0	0	0
9p-10p	0	0	0	2	0	0	0	2
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	0	0	0
Totals	2	4	2	3	2	4	2	19

SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 01/2016)

External # 1033910 | Crash ID 1831600

File Class 54002

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 190189659

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: YALDOO (00431)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
09/25/2019	21:48	01	Single Motor Vehicle	● None ○ Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	None	Outside of Shoulder/Curb	Clear	INTR Roundabout

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	Unknown		Dark-Lighted	Dry	02	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
S	BALDWIN	RD		

Distance / Direction	Trafficway
30 Feet S	One-Way Traffic

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	JUDAH	RD		

UNIT/DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Total Occupants	Hazardous Action
01	Yes	MI	#############	##/##/#### (22)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	F	01	Unknown

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## CLARKSTON, MI 48346-2332 (###) ###-####	Yes	A	Front - Left	No Belts Used

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Unknown		Unknown		Yes	Deployed - Front

Hospital	Ambulance
MCLAREN FLINT	STAR EMS

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
Yes	Yes	○ Breath ● Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	● Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
DYX5869	MI		2007	FORD	ESCAPE	SILVER

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1FMCU93107KB81010	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	BUCKHORN'S

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
01	01	Disabling Damage	S	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	04 - Ran Off Roadway-Right	● 30 - Utility Pole/Lit. Support		

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

Damaged Property	Public	Owner & Phone

SANITIZED SANITIZED SANITIZED

UNIT / DRIVER

Unit Number	Unit Known	State Driver License Number	Date of Birth (Age)	License Type / Endorsements	Sex	Total Occupants	Hazardous Action
				O Operator O Chauffeur O Moped / O Cycle O Farm O Recreation			

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
		O Breath O Blood O Urine O Field O PBT O Refused O Not Offered	O Pending Test Results:	

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
		O Blood O Urine O Field O Refused O Not Offered	O Pending Test Results:	O Hazardous O Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK / BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	O H O P O T O N O S O X	O Farm O Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
O 10,000 lbs. or Less O 10,001 - 26,000 lbs. O Greater than 26,000 lbs.				O Placard O Cargo Spill		

OWNERS

Owner Information	Owner Information

WITNESS

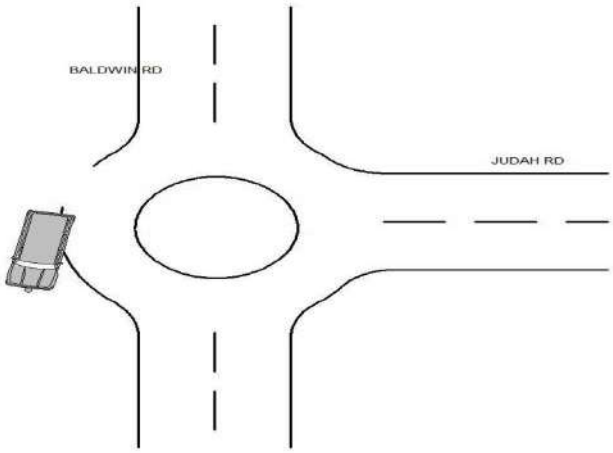
Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	09/25/2019 (21:48)	S. EDDY (1041)		No

Narrative

VEHICLE SOUTHBOUND ON BALDWIN AT JUDAH ROUNDABOUT. VEHICLE RAN OFF THE ROADWAY TO THE RIGHT STRIKING A LIGHT POLE. VEHICLE DISABLED. DRIVER ENTRAPPED, INJURED. NDTS

Diagram



SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 11/2020)

External # 1200356 | Crash ID 2377745

File Class 9300-1

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 210183501

ORI	Department Name	Reviewer
MI 6316300	Oakland Co Sheriff's Office	MCSPADIN (01225)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
09/04/2021	15:54	02	Sideswipe-Same	○ None ● Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	None	On the Road	Cloudy	INTR Roundabout

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	05	45	Yes

Work Zone (if applicable) Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
	BALDWIN	RD		N

Distance / Direction	Trafficway
10 Feet S	One-Way Traffic

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	JUDAH	RD		

UNIT / DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
01	Yes	MI	############	##/##/#### (28)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	M	B	01	Careless Driving

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## CLARKSTON, MI 48346 (###) ###-####	No	C	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Unknown		Unknown			Deployed - Front

Hospital	Ambulance
REFUSED	REFUSED

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	● Hazardous ● Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
ECA4449	MI		1999	FORD	ECONOLINE	WHITE

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
1FMRE11L9XHB02136	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
08	08	Disabling Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	04 - Ran Off Roadway-Right	28 - Traffic Sign / Post	● 05 - Re-enter Roadway	17 - Motor Veh in Transport

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information

Damaged Property	Public	Owner & Phone
YIELD PEDESTRAIN SIGN	No	########################## (###) ###-####

SANITIZED SANITIZED SANITIZED

UNIT / DRIVER

Unit Number	Unit Known	State	Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
02	Yes	MI	############	##/##/#### (19)	● Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation	M	W	01	None

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint
MV	########################## ########################## LAPEER, MI 48446-7772 (###) ###-####	Yes	B	Front - Left	Shoulder and Lap Belt

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed
Appeared Normal		Not Distracted			Deployed - Front

Hospital	Ambulance
REFUSED	REFUSED

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
No	No	○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ● Not Offered	○ Pending Test Results:	No

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
No	No	○ Blood ○ Urine ○ Field ○ Refused ● Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color
DTK0809	MI		2010	VOLKSWAGEN	GTI	BLACK

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect
WVWED7AJ5AW340687	Passenger Car, SUV, Van	Not Applicable		

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash
No	No Automation	No Automation

Insurance Company	Insurance Policy #	Towed By	Towed To
##########################	##########################	BUCKHORN SERVICE 248-693-9375	

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior
03	03	Disabling Damage	N	Private	Going Straight Ahead

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth
	● 17 - Motor Veh in Transport	03 - Ran Off Roadway-Left	21 - Other Non-Fixed Object	

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK / BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

WITNESS

Witness Information	Witness Information
########################## ########################## ##################################, ## #####-#### (###) ###-####	

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	09/04/2021 (15:54)	DEPUTY J.SAUVE (115)		No

Narrative

BOTH VEHICLE'S WERE TRAVELING NORTH BOUND ON BALDWIN RD. VEHICLE #2 WAS IN THE LEFT LANE HAD JUST ENTERED THE ROUND ABOUT. VEHICLE #1 WAS TRAVELING AT A HIGH RATE OF SPEED AND DROVE OFF ROADWAY (RIGHT) KNOCKING DOWN A PEDESTRIAN SIGN. VEHICLE #1 THEN CONTINUED AND SIDESWIPED VEHICLE #2, CAUSING VEHICLE #2 TO CONTINUE UP TWO TIERS OF STONE BRICKS WITHIN THE ROUND ABOUT. VEHICLE #1 THAT WAS HEAVY DAMAGED IN THE FRONT END, CONTINUED TO DRIVE NORTH BOUND ON BALDWIN RD, VEHICLE #1 THEN PULLED INTO A VACANT DIRT LOT AND THE DRIVER THEN FLED ON FOOT. \NDRIVER WAS CAUGHT MOMENTS LATER AND IDENTIFIED AS LISTED DRIVER.

Diagram

SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 11/2020)

External # 1200356 | Crash ID 2377745

File Class 9300-1

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 210183501

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: MCSPADIN (01225)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
09/04/2021	15:54	02	Sideswipe-Same	○ None ● Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	None	On the Road	Cloudy	INTR Roundabout

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	05	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
	BALDWIN	RD		N

Distance / Direction	Trafficway
10 Feet S	One-Way Traffic

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	JUDAH	RD		

UNIT / DRIVER

Unit Number	Unit Known	State Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
				○ Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation				

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
		○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ○ Not Offered	○ Pending Test Results:	

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
		○ Blood ○ Urine ○ Field ○ Refused ○ Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior

Sequence of Events (● indicates MOST harmful event): First | Second | Third | Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information

Damaged Property	Public	Owner & Phone
FLOOD LIGHT FICTURE	No	########################## (###) ###-####

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State Driver License Number	Date of Birth (Age)	License Type ○ Operator ○ Chauffeur ○ Moped	Endorsements ○ Cycle ○ Farm ○ Recreation	Sex	Race	Total Occupants	Hazardous Action

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint

Driver Condition at Time of Crash 1st 2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Alcohol Suspected	Contributing Factor	Alcohol Test Type ○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ○ Not Offered	Alcohol Test Results ○ Pending Test Results:	Interlock Device
Drug Suspected	Contributing Factor	Drug Test Type ○ Blood ○ Urine ○ Field ○ Refused ○ Not Offered	Drug Test Results ○ Pending Test Results:	Citation Issued ○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint
	Injury	Ejected	Trapped	Airbag Deployed	

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint
	Injury	Ejected	Trapped	Airbag Deployed	

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC
	Driver's CDL Type	Endorsements ○ H ○ P ○ T ○ N ○ S ○ X	CDL Exempt ○ Farm ○ Other

GVWR/GCWR ○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material ○ Placard ○ Cargo Spill	ID #	Class #

OWNERS

Owner Information	Owner Information

WITNESS

Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos

Narrative	Diagram

SANITIZED SANITIZED SANITIZED

Authority: 1949 PA 300, Sec.257.622
Compliance: Required MSP UD-10E
Penalty: $100 and/or 90 days (Rev 11/2020)

External # 1200356 | Crash ID 2377745

File Class 9300-1

STATE OF MICHIGAN TRAFFIC CRASH REPORT

Incident # 210183501

ORI: MI 6316300
Department Name: Oakland Co Sheriff's Office
Reviewer: MCSPADIN (01225)

Crash Date	Crash Time	No. of Units	Crash Type	Special Circumstances	Special Checks
09/04/2021	15:54	02	Sideswipe-Same	○ None ● Hit and Run ○ School Bus ○ Fleeing Police ○ Unknown ○ Animal	○ Fatal ○ Non-Traffic Area ○ ORV/Snowmobile

County	Traffic Control	Relation to Roadway	Weather	Area
63 - Oakland	None	On the Road	Cloudy	INTR Roundabout

City/Twsp	Contributing Circumstances 1st	2nd	Light	Road Surface Condition	Total Lanes	Speed Limit	Posted
15 - Orion Twp	None		Daylight	Dry	05	45	Yes

Work Zone (if applicable): Type | Workers Present | Activity | Location

LOCATION

Prefix	Primary Road Name	Road Type	Suffix	Divided Roadway
	BALDWIN	RD		N

Distance / Direction	Trafficway
10 Feet S	One-Way Traffic

Prefix	Intersecting Road Name	Road Type	Suffix	Divided Roadway
	JUDAH	RD		

UNIT / DRIVER

Unit Number	Unit Known	State Driver License Number	Date of Birth (Age)	License Type	Endorsements	Sex	Race	Total Occupants	Hazardous Action
				○ Operator ○ Chauffeur ○ Moped	○ Cycle ○ Farm ○ Recreation				

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint

Driver Condition at Time of Crash 1st	2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Alcohol Suspected	Contributing Factor	Alcohol Test Type	Alcohol Test Results	Interlock Device
		○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ○ Not Offered	○ Pending Test Results:	

Drug Suspected	Contributing Factor	Drug Test Type	Drug Test Results	Citation Issued
		○ Blood ○ Urine ○ Field ○ Refused ○ Not Offered	○ Pending Test Results:	○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior

Sequence of Events (● indicates MOST harmful event): First | Second | Third | Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements	CDL Exempt
	○ H ○ P ○ T ○ N ○ S ○ X	○ Farm ○ Other

GVWR/GCWR	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material	ID #	Class #
○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.				○ Placard ○ Cargo Spill		

OWNERS

Owner Information	Owner Information

Damaged Property	Public	Owner & Phone
STONE WALL IN ROUND ABOUT	No	################################ (###) ###-####

SANITIZED SANITIZED SANITIZED

UNIT/DRIVER

Unit Number	Unit Known	State Driver License Number	Date of Birth (Age)	License Type ○ Operator ○ Chauffeur ○ Moped	Endorsements ○ Cycle ○ Farm ○ Recreation	Sex	Race	Total Occupants	Hazardous Action

Unit Type	Driver Information	Driver is Owner	Injury	Position	Restraint

Driver Condition at Time of Crash 1st 2nd	Driver Distracted By	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Alcohol Suspected	Contributing Factor	Alcohol Test Type ○ Breath ○ Blood ○ Urine ○ Field ○ PBT ○ Refused ○ Not Offered	Alcohol Test Results ○ Pending Test Results:	Interlock Device

Drug Suspected	Contributing Factor	Drug Test Type ○ Blood ○ Urine ○ Field ○ Refused ○ Not Offered	Drug Test Results ○ Pending Test Results:	Citation Issued ○ Hazardous ○ Other

Vehicle Registration	State	Vehicle Description	Year	Make	Model	Color

VIN	Vehicle Type	Special Vehicles	Private Trailer Type	Vehicle Defect

Automation System(s) in Vehicle	Automation System Level in Vehicle	Automation System Level Engaged at Time of Crash

Insurance Company	Insurance Policy #	Towed By	Towed To

Location of Greatest Damage	First Impact	Extent of Damage (Power Unit and/or Trailers)	Vehicle Direction	Vehicle Use	Action Prior

Sequence of Events (● indicates MOST harmful event)	First	Second	Third	Fourth

PASSENGERS

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

Passenger Information	Date of Birth (Age)	Sex	Race	Position	Restraint

Injury	Ejected	Trapped	Airbag Deployed

Hospital	Ambulance

TRUCK/BUS

Carrier Information	USDOT	MC	MPSC

Driver's CDL Type	Endorsements ○ H ○ P ○ T ○ N ○ S ○ X	CDL Exempt ○ Farm ○ Other

GVWR/GCWR ○ 10,000 lbs. or Less ○ 10,001 - 26,000 lbs. ○ Greater than 26,000 lbs.	Vehicle Configuration	Cargo Body Type	Medical Card	Hazardous Material ○ Placard ○ Cargo Spill	ID #	Class #

OWNERS

Owner Information	Owner Information

WITNESS

Witness Information	Witness Information

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos

Narrative	Diagram

Crash Detail for 1/1/2017 - 12/31/2021

Criteria: WHERE A.AGENCY_ID = 14 AND A.GeoCoords.STIntersects (GEOMETRY::STGeomFromWKB(GEOGRAPHY::STPointFromText('POINT(-83.3072134910914 42.7111683974125)', 4326).STBuffer(30.48).STAsBinary(),4326)) = 1

#1 **Location:** S BALDWIN (1.824) 20 feet Sof MORGAN RD **Crash ID:** 1001497

Date: 03/23/2017 **Day:** Thu **Hour:** 5pm **Weather:** cloudy **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** transition **HBD:** N **Drugs:** N **Complaint #:** 170050828

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	carels driving	pickup	rtside
2	N	go straight	veh in transpt	none	none	none	none	car	lftside

UD10: 1001497

#2 **Location:** S BALDWIN (1.819) 50 feet Sof MORGAN RD **Crash ID:** 1034180

Date: 04/30/2017 **Day:** Sun **Hour:** 5pm **Weather:** rain **Roadway:** wet **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 7 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170075869

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	none	car	rtfront
2	N	change lanes	veh in transpt	none	none	none	failed to yield	car	lftrear

UD10: 1034180

#3 **Location:** S BALDWIN (1.838) 57 feet Nof MORGAN RD **Crash ID:** 1108019

Date: 05/28/2017 **Day:** Sun **Hour:** 6am **Weather:** unknown **Roadway:** unknown **LIght:** unknown

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** curved **HBD:** N **Drugs:** N **Complaint #:** 170094268

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	none	ran off road/r	none	none	none	unknown	car	multiple

UD10: 1108019

#4 **Location:** S BALDWIN (1.829) 10 feet Nof MORGAN RD **Crash ID:** 1081613

Date: 06/25/2017 **Day:** Sun **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170114663

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	other non-fixed obj	none	none	none	other	car	ctrfront

UD10: 1081613

#5 **Location:** BALDWIN RD. (1.839) 1200 feet Nof BROWN RD **Crash ID:** 1097641

Date: 07/11/2017 **Day:** Tue **Hour:** 9am **Weather:** cloudy **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 170125734

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	imprp lane use	car	lftfront
2	S	go straight	veh in transpt	none	none	none	none	pickup	rtside

UD10: 1097641

#6 **Location:** S BALDWIN (1.823) 20 feet Sof MORGAN RD **Crash ID:** 1115392

Date: 08/07/2017 **Day:** Mon **Hour:** 5pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** transition **HBD:** N **Drugs:** N **Complaint #:** 170144476

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	failed to yield	car	lftfront
2	N	go straight	veh in transpt	none	none	none	none	pickup	rtfront

UD10: 1115392

#7 **Location:** BALDWIN (1.846) 100 feet Nof MORGAN RD **Crash ID:** 1121763

Date: 08/15/2017 **Day:** Tue **Hour:** 5pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 170149888

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 1121763

#8 **Location:** S BALDWIN (1.818) 50 feet Sof MORGAN RD **Crash ID:** 1435414

Date: 07/05/2018 **Day:** Thu **Hour:** 10a **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180126331

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	equip fail	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1435414

#9 **Location:** S BALDWIN (1.825) 10 feet Sof MORGAN RD **Crash ID:** 1456104

Date: 08/06/2018 **Day:** Mon **Hour:** 8pm **Weather:** clear **Roadway:** wet **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 2 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180148262

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	enter rdwy	veh in transpt	none	none	none	failed to yield	car	lftfront
2	S	go straight	veh in transpt	none	none	none	none	car	ctrfront

UD10: 1456104

#10 **Location:** S BALDWIN (1.836) 50 feet Nof MORGAN RD **Crash ID:** 1535164

Date: 10/28/2018 **Day:** Sun **Hour:** 2pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180203385

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	rtfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	lftrear

UD10: 1535164

#11 **Location:** S BALDWIN (1.846) 100 feet Nof MORGAN RD **Crash ID:** 1550102

Date: 11/12/2018 **Day:** Mon **Hour:** 6am **Weather:** clear **Roadway:** dry **Llght:** dawn

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 180213711

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	animal	none	none	none	none	pickup	lftside

UD10: 1550102

#12 **Location:** SB BALDWIN (1.822) 30 feet Sof MORGAN RD **Crash ID:** 1584724

Date: 12/16/2018 **Day:** Sun **Hour:** 12p **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 180236838

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1584724

#13 **Location:** S BALDWIN (1.836) 50 feet Nof MORGAN RD **Crash ID:** 1875066

Date: 11/07/2019 **Day:** Thu **Hour:** 6am **Weather:** snow **Roadway:** ice **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190219473

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	veh in transpt	none	none	none	failed to yield	car	multiple
2	S	go straight	veh in transpt	none	none	none	none	pickup	ctrfront

UD10: 1875066

#14 **Location:** SB S BALDWIN (1.822) 30 feet Sof MORGAN RD **Crash ID:** 1881651

Date: 11/07/2019 **Day:** Thu **Hour:** 7am **Weather:** snow **Roadway:** snow **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 190219474

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	go straight	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1881651

#15 **Location:** NB S BALDWIN (1.846) 100 feet Nof MORGAN RD **Crash ID:** 1883515

Date: 11/14/2019 **Day:** Thu **Hour:** 9pm **Weather:** clear **Roadway:** dry **Light:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 190224930

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	animal	none	none	none	none	car	ctrfront

UD10: 1883515

#16 **Location:** SB BALDWIN (1.846) 243 feet Nof MORGAN RD **Crash ID:** 2268628

Date: 04/27/2021 **Day:** Tue **Hour:** 11a **Weather:** clear **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 210082315

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	animal	none	none	none	none	car	ctrfront

UD10: 2268628

#17 **Location:** E MORGAN (1.108) 0 feet Xof S BALDWIN RD **Crash ID:** 2487951

Date: 12/18/2021 **Day:** Sat **Hour:** 12p **Weather:** snow **Roadway:** ice **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end/rt

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210264145

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2487951

#18 **Location:** MORGAN (1.104) 20 feet Wof S BALDWIN RD **Crash ID:** 2489496

Date: 12/27/2021 **Day:** Mon **Hour:** 11a **Weather:** snow **Roadway:** snow **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-opp

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210269977

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	SW	right turn	veh in transpt	none	none	none	unable to stop	car	rtfront
2	E	stop on road	veh in transpt	none	none	none	none	car	lftfront

UD10: 2489496

Crash Type

Count	Type
0	uncoded
5	single
0	head-on
0	head-on/lt
2	angle
5	rr-end
0	rr-end/lt
1	rr-end/rt
4	ss-same
1	ss-opp
0	back
0	other
0	unknown
Totals	18

Lighting Conditions

Count	Type
0	uncoded
15	day
1	dawn
0	dusk
1	dark/ltd
0	dark/unltd
0	other
1	unknown
Totals	18

Weather Conditions

Count	Type
0	uncoded
8	clear
4	cloudy
0	fog
1	rain
4	snow
0	wind
0	sleet/hail
0	blowing snow
0	blowing sand
0	smoke
1	unknown
Totals	18

Road Condition

Count	Type
0	uncoded
11	dry
2	wet
2	ice
2	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
1	unknown
Totals	18

Crashes by Month

Count	Type
0	January
0	February
1	March
2	April
1	May
1	June
2	July
3	August
0	September
1	October
4	November
3	December
Totals	18

Hazardous Action

Count	Type
16	none
0	speeding
0	spd too slow
4	failed to yield
0	disrgd traffic cntrl
0	wrong way
0	left of center
0	imprp passing
1	imprp lane use
0	imprp turn
0	imprp/no signal
0	imprp backing
7	unable to stop
1	other
1	unknown
0	reckls driving
1	carels driving
Totals	31

Unit Type

Count	Type
0	Bicyclist
0	Engineer
31	Vehicle
0	Pedestrian
Totals	31

Crashes by Year

Count	Type
7	2017
5	2018
3	2019
3	2021
Totals	18

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	0	3	0	3
Crashes	0	0	0	2	16	18

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	0	0
Not Drinking	0	0	0	2	16	18
Totals	0	0	0	2	16	18

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	0	0	0	0	0
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	0	0	0	0	0	0
6a-7a	1	1	0	0	1	0	0	3
7a-8a	0	0	0	0	1	0	0	1
8a-9a	0	0	0	0	0	0	0	0
9a-10a	0	0	1	0	0	0	0	1
10a-11a	0	0	0	0	1	0	0	1
11a-12p	0	1	1	0	0	0	0	2
12p-1p	1	0	0	0	0	0	1	2
1p-2p	0	0	0	0	0	0	0	0
2p-3p	1	0	0	0	0	0	0	1
3p-4p	0	0	0	0	0	0	0	0
4p-5p	1	0	0	0	0	0	0	1
5p-6p	1	1	1	0	1	0	0	4
6p-7p	0	0	0	0	0	0	0	0
7p-8p	0	0	0	0	0	0	0	0
8p-9p	0	1	0	0	0	0	0	1
9p-10p	0	0	0	0	1	0	0	1
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	0	0	0
Totals	5	4	3	0	5	0	1	18

Supervisor Barnett pointed out that we have a great relationship with General Motors and their team. We will continue to work with them; he is confident that we will be able to get it done.

Roll call was as follows: Walker, yes; Brackon, yes; St. Henry, yes; Gross, yes; Urbanowski, yes; Gingell, yes; Reynolds, yes. **Motion carried 7-0.**

Moved by Commissioner Walker, seconded by Commissioner Gingell that the Planning Commission grants site plan **approval** for PC-22-28, GM Orion BET 2 Site Plan located at 4555 Giddings Road (parcel 09-34-200-006 and 09-34- 400-011) for plans date stamped received July 6, 2022 based on the following findings of facts. As mentioned earlier, this is a project unknown to Orion Township, or anywhere, and the board will move forward as quickly as possible, and the applicant has indicated that they would cooperate with the consultants on their reviews or anything that has not been addressed completely. This approval is based on the following conditions: The applicant will amend the plans to address any unresolved issues from the Township's engineer, planner, and fire department reviews and resubmit for rereview by the consultants to their satisfaction with no required return to the Planning Commission unless the applicant is unable to meet one of the consultants issues.

Roll call was as follows: St. Henry, yes; Urbanowski, yes; Brackon, yes; Walker, yes; Gross, yes; Gingell, yes; Reynolds, yes. **Motion carried 7-0.**

Chairman Reynolds recessed and opened the joint public hearing for PC-22-29, Baldwin Village Planned Unit Development (PUD) Concept and Eligibility Plan, located at 4410 & 4408 S. Baldwin Rd. (parcel 09-32-301-001), an unaddressed parcel 09-32-301-014 located at the NW corner of Morgan and S. Baldwin Roads, an unaddressed parcel 09-32-151-020 located north of 4408 S. Baldwin, and 4292 S. Baldwin (parcel 09-32-151-021). The applicant RED Equities, LLC, is proposing to rezone the properties from Single Family Residential-1 (R-1), Suburban Farms (SF), and Brown Road Innovation Zone (BIZ) to Planned Unit Development (PUD) to construct a mixed-use development containing both residential and commercial components on approximately 6 acres.

Chairman Reynolds closed the PC-22-29 Joint Public Hearing at 9:29 p.m. and reconvened the regular Planning Commission meeting at 9:30 p.m.

B. PC-22-29, Baldwin Village Planned Unit Development (PUD) Concept and Eligibility Plan, located at 4410 & 4408 S. Baldwin Rd. (parcel 09-32-301-001), an unaddressed parcel 09-32-301-014 located at the NW corner of Morgan and S. Baldwin Roads, an unaddressed parcel 09-32-151-020 located north of 4408 S. Baldwin, and 4292 S. Baldwin (parcel 09-32-151-021).

Chairman Reynolds asked the consultants to go through their reviews.

Planner Arroyo read through his review date stamped August 1, 2022.

Engineer Landis read through his review date stamped July 27, 2022.

Chairman Reynolds stated that they did have reviews from their Fire Marshal, there are some

items that can and need to be addressed during final engineering if the project is to proceed. The Water Resource Commissioner did have a review along with Public Services, which is an internal department. There was a site walk report completed by their Site Walk Committee.

Chairman Reynolds thanked the citizens for their respectful conversation and points of concern. They are listening, and they are citizens and residents just like them.

Chairman Reynolds stated that overall, this is a very large parcel and many people including himself are reluctant to see development in leu of keeping land, but private development and property owners have rights to develop. He did think, although large, it is a thoughtful development that has improved over time. He thought that the density proposed could be significantly higher in many proposals, as they have seen in the past, and he felt that a lot of the amenities have been rearranged to essentially keep open space and keep the pedestrian amenities provided. And to see not only baseline requirement that they frequently fight up here as a Planning Commission to be provided in a plan to just be brought forth as being proposed is appreciated.

Chairman Reynolds said he knew there was concern about some of the uses. He didn't question necessarily himself some of the uses, but he does question their implications as they relate to traffic. He knew the Baldwin corridor has plenty of capacity as currently designed but it is something to consider as to what uses are going in there.

Chairman Reynold stated the one piece about having this being a large parcel under unified control and development is that things like detention, they are seeing a lot of very nice planning ideas implemented here that would otherwise if singularly controlled or developed that they wouldn't normally see. He is an architect by nature, so there are a lot of these things on the buildings up by the Baldwin corridor with nice landscaping. A lot of times they are trying to squeeze every little bit of their engineering standards on a parcel versus understanding that they can be combined and pushed towards one location. He did think there were a lot of positives.

Chairman Reynolds said that he was in support of the residential varying uses. They have worked many, many, months, and many hours on their Master Plan this past year and a half and it does start to check some of those boxes of some other housing types that the Township does need. Now does he believe that the plan as proposed right here is perfect, no, he did not believe that. Although he did think that the project is eligible for a PUD and the density and uses proposed are reasonable. He thought that there needed to be further discussion and review based on the traffic, specifically some of those cross-access and ingress and egress of the site adjacent to some of these uses especially ones that they know will likely create some havoc if not done properly. He did have some concerns with some of the buffers. He understood that some of these retail developments are searching for certain parking requirements or circulation, but buffers are important to them. All of the comments here this evening speak to not just having the minimum buffer but an increased buffer. He knew there were measures being already proposed but he thought there were a number of potential waivers as the plan is presented here this evening that would affect some buffers and ordinances that they typically like to see.

Chairman Reynolds said with the minor wetland mitigation measures that are being proposed some understanding and forethought from the developer, the concern around the adjacent neighborhoods, they have a largely graded site with a lot of grading that is existing, to kind of prove, especially with their new stormwater management standards to show that that drainage is being withheld on the site and that it isn't going to negatively impact any of the neighbors because they don't want devaluation of properties or creating havoc on people adjacent.

Chairman Reynolds stated that he did think that the residential proposals have a nice aesthetic. It looks like they were well thought out, he did think that the commercial side needs a little help. Maybe that is intentional with maybe some of the tenants that are not able to be announced or know yet are being shown. For example, some of the flat roofs being proposed that is something that they stray away from in this district. Some of the blank facades, although he appreciates the buildings having all of these pedestrian amenities, he thought that there needs to be a little bit of further development towards the pedestrian scale. Although he was in support of kind of this neighborhood-scale grocer, and he understood it was an orientation on the site, he thought that there needed to be some deeper dive into what it looked like from the main entrance point and the Baldwin corridor.

Commissioner Walker said Mr. Moceri is a fine developer. His team, he was sure as they have heard from everybody around here today, is a great team. When he reviewed this initially, he thought, I don't like it, and he didn't know why. He analyzed it from the ordinance side of things, the PUD, what qualifies as a PUD. When you go through the application you can check off those boxes pretty easily, you can't. Normally when an applicant comes in it is his experts against our experts. Today, his experts and our experts are kind of right in lockstep. He is still not convinced, and he didn't know why he was not convinced. Part of it, he thought, doesn't fit, in his personal view, of his view of Orion Township. During the presentation they indicated that some of the buildings. They didn't want to look like a Royal Oak, and they wanted to be Scandinavian. To him it looks like, he doesn't know where it belongs, someplace he didn't want to say nicer than Orion Township, he has lived here 34 years he loves it here. It just doesn't fit in his concept of what he would like to see that area look like.

Vice-Chairman Gross said since he has been on the Planning Commission, he thought this was the first real Planning Unit Development project that they had come before them. It is a mixed-use development consisting of residential, retail, office, commercial, and open space on a single 60-acre parcel as opposed to 10 or 6 10-acre parcels individually unrelated to one another. He was excited about that. In addition, he thought the overlay district they have with Gingellville, he thought provides them with some additional opportunities to create something that is different from what would normally be expected on the site. They talk about this as part of the Master Plan embracing the 15-minute neighborhood. He thought that they needed to look at this as more than just a neighborhood of the apartments on the existing development that extends beyond the borders of this site and take that into account. He thought they had to take a look at what is happening or could happen across the street on Baldwin and how they get folks from the east side of Baldwin to the west side of Baldwin safely. That has to be done with some sort of traffic considerations and monitoring and the like. He was on the Site Walk Committee that visited the site and his first observation when he saw it was this is a heavily wooded site. With innovation and proper planning, there is an opportunity to take advantage of that landscaping, and the existing woods, especially around the borders of the property adjacent to the existing residential sites. He saw what they did with The Cottages to the north, and they took out all of the trees and put in some buildings. He thought there was an opportunity to save what is there and add to it so that there is a recognition of the existing amenities that are on the site.

Commissioner Gross said one other consideration that he thought needed to be taken into account is the nonmotorized activity that a 15-minute neighborhood is going to take into account, and whether it is minibikes, bikes, or pedestrians, and how is that accommodated relative to bike stands, and charging stations, and all of the things that make it friendly for the neighbors to actually utilize the site and not worry about concentrating it just for the folks that are going to be living there.

Trustee Urbanowski said when they think about the community benefit it doesn't necessarily just mean that community. She thought that was a wonderful idea with the charging stations and all of that. She said someone questioned why the kayak addition would be something that they would talk about, that is an additional community benefit and that is allowable. They are allowed to say whether or not they would accept something like that as a community benefit. It is not required, most of the time when they see PUDs it is that the benefit is that they are going to give them a nature preserve. That is arguable sometimes, but this is a solid thing that they want to do.

Trustee Urbanowski said going back to the schools, and she has mentioned this at another before, that she is very much concerned about public safety, their Fire Department, and infrastructure and all of that. She stays in contact with those departments, and she asks questions. She did reach out, as Supervisor Barnett did to Ben Kerby, and she asked him what the pain point is, when are they going to freak out on them, and say stop building places. She got the assurance from him that they are well aware of everything that is going on, everything that is coming, and that they are planning for that. She wanted to make sure that everyone knew that they also think about those things and asked in advance. She does have kids here as well; she has a middle schooler at Waldon. She lives off of Baldwin, so she totally understands it.

Trustee Urbanowski said they are considering all of those people that are surrounding. This truly is the first real kind of PUD that they have seen that is really true to what they were thinking of when they are thinking of these kinds of things. She believed that Baldwin was built for something like this. The use, the density, and the design concept fit right in with the PUD idea. She appreciates the two most western bits the closer to Peppermill and The Cottages intend to feel more like the adjacent properties, and the same towards Baldwin. They are putting the multi-family towards Baldwin, they are bringing it away from the single-family homes, and The Cottages. She thought that was well thought out and she appreciated the idea of that. That goes to in her eyes, the transition, it is not like they didn't throw all multi-family apartments in the back and felt that was really well thought out. She was concerned about the commercial part of it, especially because of the Chick-fil-A, that entrance there. She did think that that will be an issue. She also didn't like the idea of another car wash, there are too many. If people are going to be walking more, they don't need to wash their cars as much.

Trustee Urbanowski wanted to talk about transitional features, will the PUD place an unreasonable burden upon the subject and surrounding land or property owners and occupants potentially with the traffic from Chick-fil-A? With the Township Master Plan, they were talking about 15-minute neighborhoods, she wants to see kids and families still continue to use those safety paths, safely. She lives off of Baldwin and she would really like to continue to let her kids go down to Menchie's, so that is important. She likes the fact that there is more open space than they need to have. The density is right along the line of what it would be normally. Unified control, she understood that Moceri properties are well maintained and had an excellent reputation so she had no concerns with the idea that they would fall into disrepair.

Trustee Urbanowski they have been talking over and over about middle housing. When she thinks about middle housing she doesn't think in terms of price. What she is thinking about is that somebody in her neighborhood of Keatington, like maybe her because most of her children are grown and gone, she doesn't need a four-bedroom house anymore, but she might want to stay in Orion. This might be something that she can go to and now she has opened up her 2,300-sq. ft. home to someone else that wants to buy it. People are moving from large homes that they have raised their families in, but they want to say in Orion young professionals and empty nesters. She was happy to see this plan and did think there was a

lot of work, but she thought it was right where it needs to be.

Secretary St. Henry said during the applicant's presentation he talked about our Master Plan and some of the goals in the Master Plan. He helped write those goals and a big focus of their attention has always been balancing development with maintaining the historic character of their community and the rural nature of their community. All of them recognize that this piece of property has been primed for development for 20 years. For those that have lived here, it should be no surprise. There is no question in his mind that if this was built, whether here or wherever Moceri product is well thought out development, it would be topnotch and very appealing. It does address some of what he thought their housing options concerns are in their Township. He has a vision of middle-market housing as being also affordable housing for young families. He wasn't sure if this would meet that criterion or not of truly being affordable. They have looked at a number of townhouse apartment developments over the past year especially. They just looked at one not too far off of Lapeer Rd. within the last few months, another very nice development very appealing would probably fill up. They looked closely at the density, the infrastructure issues, and drainage concerns, most importantly they looked at the traffic issues. That being said when he looked at this plan and he saw the massive size of this plan and where it is being proposed and having lived here and watched Baldwin Rd. evolve over the last 40 years, he was very concerned about the traffic. Not just people going up and down Baldwin Rd. but also those that live in the neighborhoods, and trying to be respectful to the existing residents, some that have been there 2 years, 20 years, and 50 years. Traffic in that area is an issue. Development of this size with the possibility of up to 1,000 cars adding to the traffic is concerning. They have talked about this before; they are proponents of the right kind of development, and it has to be in the right locations in the Township. He was not convinced that this is in the right location in the Township. It is a very nice development but to Commissioner Walker's point, he felt exactly the same that he did. He is not sure this belongs in Orion Township. To him he envisions this being in a location like a Troy, or a Rochester, or perhaps a Northville or a Novi. It just doesn't seem to fit their character. He is not saying that changes couldn't be made but it just feels out of place. His biggest issue with this development is the footprint. They talked about 15-minute neighborhoods, and Planner Arroyo brought that concept to their attention when they were putting together the Master Plan, he enlightened 15-minute neighborhoods to hamlets. To him, 465-unit development is not a hamlet. He thought that the footprint is detrimental to that area from a traffic perspective but more so because he is concerned about the impact on the people that live there now, these different neighborhoods around there, and what kind of impact it will have on them. This proposal Mr. Moceri is presenting has merit. He would like to give them the opportunity to listen to what they have had to say, what the community has to say, and come back with some significant changes, if possible, to perhaps make that footprint not as drastic to this area. When he looks at this, this is almost like a new community within Orion Township. He always envisioned when a builder comes in, he wants to compliment what is around him and he thought that location is not compatible at this point. Perhaps it could be if it was configured differently, maybe a little smaller he would feel differently but right now the footprint is very problematic to him.

Commissioner Brackon said this in his opinion is a place he would want to live within Orion Township. He did see within Orion Township although there is nothing like it in Orion Township, he thought that it would bring the level of Orion Township up significantly. The concern that he does have is the traffic, a massive problem. Somehow the engineers have to figure that out and have to get dealt with in a way that it doesn't seem it has yet. His second concerns are the buffers and the setback to the existing housing that is there. Not as much so to the west and the Pulte subs that are new there but to the south to the north. Also, on the southwest corner there, there is a whole subdivision there that they can't see on that, that he was assuming was intentionally left off of that map where there are 50-ft. setbacks from those seven duplexes in that corner and its 50-ft. that doesn't include a patio or a pool. The

people living to the south there in their R-1 homes on three-quarters of an acre have enjoyed woods and now they are going to have a pool within 25-50-ft. of their house. He thought that the buffers and the setback have to be analyzed if this is going to move forward to reduce the impact on the existing property owners or there is going to be a huge problem.

Commissioner Gingell said she was concerned about a road coming from The Cottages into this development because she can picture people coming out of Gregory Meadows into The Cottages through there and creating a whole lot of traffic coming into those commercial buildings just to avoid Baldwin Rd. entirely. She thought the grocery store didn't have the feel of a neighborhood grocery store at 44,000-sq. ft., a Trader Joe's is 13,000-16,000-sq. ft. a Whole Foods is 40,000-sq. ft. that is a huge grocery store, not a local neighborhood grocer. Chick-fil-A is going to cause a huge amount of trouble. She has teenagers and she told them this was on here today and they are super excited because they are kids and they want to go there and they are all going to have to take them there, it is going to be busy. The one-way exits there and just the way the boulevards are she saw huge safety concerns there as well. She wished it had more of a village feel on the Baldwin Rd. side just to keep the character of the town down there. The only thing she sees as a village is a name, it is commercial with some residential behind in her opinion. When they get past the commercial, they see huge apartment buildings. She wished those were pushed back if they have to be there. Some more greenspace she opened it and saw a bunch of concrete right off of Baldwin Rd., so if they could push it back, build up the buffers, she thought it would make it a little better.

Chairman Reynolds said regarding OHM's letter one of their four concerns was the stub road from The Cottages of Gregory Meadows. His personal opinion is, that he has always likes vehicular connections, he is a big proponent of that. Obviously, the way this lays out and seeing it is under unified control the concern was more if that was always going to be a single development piece, so he at least appreciated the pedestrian access component. He thought where he sees some of this discussion going is he would like to get some thoughts on that specific comment because it is something specific in their engineer review. It sounds like if someone is willing to make a motion then there could be some constructive conditions being put forth on the recommendation that they make. Some of these concerns of buffers, drainage, aesthetics, and trees he thought were all good things to put within that motion to give some constructive feedback on why they feel the way they do that they may be in support, but they want to still see these things improved. He wanted to circle back to the road pedestrian access versus vehicular.

Commissioner Brackon said his understanding is that Peppermill Lane and The Cottages that there is a gate there now only assessable for emergency vehicles. There would not be an opportunity in the new development to go to The Cottages and then assess Morgan Rd. that way. Chairman Reynolds said as it is planned currently, no. What they see where all of the trees are in the current development, but that is where the stub road was originally proposed in The Cottages at Gregory Meadows. In what would be in the top right corner of this proposed plan there was the stub road with The Cottages at Gregory Meadows proposed that would potentially connect to future development. As of right now, it is only proposed as a pedestrian accessway between the two parcels versus vehicular access.

Vice-Chairman Gross stated that the carwash that was proposed doesn't seem to fit in this type of development.

Commissioner Brackon said if the carwash project was scrapped a mattress store also doesn't fit.

Secretary St. Henry said what he would like to see here in the commercial portion of this would be professional services like doctors, dentist offices, and medical facilities, if this is truly

a self-contained village. Something like that makes more sense to him than a carwash. He thought that the development of the mattress store he thought was purposely building designed that way so it can be a lot of different things. He would like to see professional buildings of some sort in this development.

Moved by Vice-Chairman Gross, seconded by Trustee Urbanowski, that the Planning Commission forwards a recommendation to the Township Board to approve PC-22-29 Baldwin Village PUD Concept and Eligibility Plan, located at 4410 & 4408 S. Baldwin Rd. (parcel 09-32-301-001), an unaddressed parcel 09-32-301-014 located at the NW corner of Morgan and S. Baldwin Roads, an unaddressed parcel 09-32-151-020 located north of 4408 S. Baldwin and 4292 S. Baldwin (parcel 09-32-151-021) for the preliminary plans date stamped received July 7, 2022. This recommendation to approve is based upon the fact: that this is for concept only; further plans would be detailed at a later date under final plan review. That the applicant has met the following eligibility criteria of Section 30.03(B) of the Township Zoning Ordinance and has met the intent of a PUD as stated in 30.03A of the Township Zoning Ordinance: a recognizable benefit; a PUD will result in a substantial benefit to the ultimate users of the project and the community, and embraces the Gingellville Overlay District and the 15-minute neighborhood plan with is addressed in their latest Master Plan; it provides for a single unified development on 60-acres of property versus several unrelated developments. The density impact will result in a material increase in the use of public service facilities and utilities in relation to what would be permitted if the property were developed without using the PUD; it is consistent and complies with the Gingellville Overlay District. The request is consistent with the Master Plan in the area as well as the Overlay District and the 15-minute neighborhood concept. The economic impact of the PUD will not result in an unreasonable negative economic impact upon surrounding properties in relation to the economic impact that would occur from more traditional development. The guaranteed open space contains open space which is required in the ordinance and will provide a nature preserve and park available for the community located within the project. This is a proposed unified PUD under single ownership, there is a single person or entity having responsibility for completing the project with this ordinance. This recommendation for approval is based upon the conditions: that the traffic is analyzed and detailed relative to the project both from a vehicular as well as pedestrian traffic circulation system; that there be a tree survey provided that will identify the border existing foliage that can be retained as a screen, setback, and border for the adjoining residential properties; that there be a phasing identified for the project which would identify which projects would be provided in the various phases; that the project looked at nonmotorized accommodation on the development for such things as bike paths, bike racks, charging stations, and the like.

Discussion on the motion:

> Chairman Reynolds said they would want to make sure that they are meeting the criteria of 2-4 of OHM's review, which referred to reviewing the traffic study, three was the infiltration measures, and four was the ingress of traffic for review. He was not adding in 1 because it was in reference to the vehicular access to The Cottages at Gregory Meadow.

Vice-Chairman Gross amended the motion, Trustee Urbanowski re-supported to include the July 22, 2022, report from OHM.

> Chairman Reynolds stated the discussion of avoiding future buffer waivers was one comment. He knew that they were discussing trees, but he thought was a point of clarification that there was some point of concern about the amount of buffers, especially to the north and south. The other comment was some of the commercial aesthetics make being aware of the Gingellville standards and their frontage along

Baldwin Rd. And then the concern of draining and flooding on the site. He thought that was somewhat addressed in item #3, but it is a point of condition he thought just from the Planning Commission. To be clear, in addition to the previous amendment it would be looking at the buffers adjacent to commercial properties specifically to the north and south sides. Addressing the commercial aesthetic and the flat roofs as it relates to the Gingellville Overlay Standards and their presents along the Baldwin corridor, and then the drainage and flooding concerns as the proposed property may or may not create.

Commissioner Brackon said even during the construction process the drainage and flooding because he thought that were a huge concern. Ultimately this may be perfect as far as drainage and flooding in the end but during the construction and the moving of the earth, there is going to be a problem potentially. The one person brought up the escrow, to put something in there to protect the people where if their whole basement gets flooding there is an escrow account or an insurance policy where they don't have to go through litigation to get
their basement fixed.

Chairman Reynolds ask Engineer Landis if he could elaborate on that. Do the new Oakland County Standards speak to groundwater or anything like that? How it might change with the proposed development and their concern is how it might influence outside this property borders. Engineer Landis replied that they recently adopted a county standard basically to promote some more infiltration trying to keep some of the stormwater runoff onsite as opposed to collecting it and then sending it downstream. There is a requirement for the developer to provide some infiltration tests to look at the soils to see if they are pervious. There are certain rates that they have to meet. If those are met, then they can do the infiltration if they aren't then there is a requirement to try to implement some other best management practices onsite. He can assure them that they will make sure that the development adheres to the new stormwater standards. With respect to construction just to make sure they understand, obviously the developer is responsible for the design of the project. The Township and its consultants would review it to make sure it is in compliance with those standards. It is up to the developer to manage his construction. They are not out there all of the time when they are grading the site. They have their own construction crews; they have their own stormwater operator responsible to control runoff from the site and maintain their soil erosion measures. The incident that happened at Peppermill was a result of the developer's failure to maintain their measures and it resulted in offsite impacts. As he understood it there was a settlement reached between the two parties. It is unfortunate but it has been resolved. As far as the escrow is concerned, that typically is not set aside for such damages. There are several guarantees that a developer has to post, one is a performance guarantee which is usually 50% of the engineer's estimate of site improvements for the development. That is in place for the Township use in the event that the economy crashes, developer walks, or other unforeseen issues. Where they have possibly residents in a half-developed site where the Township might have to hire contractors to come in button up underground utilities assess etc. The other escrow is set aside to cover site inspections some inspections are full time mostly for utilities that the Township is going to take over and maintain such as water and sewer. Other inspections are more part-time check-ins. They are not typically set aside for potential damages to offsite residences.

Commissioner Brackon was hoping that perhaps the applicants think about that as part of their next proposal and maybe include it as part of it in contemplation of that issue.

Chairman Reynolds said there was a suggested amendment regarding the buffers, the general discussion against drainage and flooding in essentially that would be met by

meeting their engineer standards as recently adopted, and then also the commercial aesthetic along Baldwin Rd. He asked if the motion maker was willing to make this amendment.

Vice-Chairman Gross amended his motion, Trustee Urbanowski re-supported, that there be compliance with the Gingellville architectural and design standards of the ordinance.

Chairman Reynolds thought that the buffers needed to be looked at. Trustee Urbanowski thought that he was being more specific. Chairman Reynolds said the buffers are included along with the commercial aesthetic.

Planning & Zoning Director Girling said the motion is to recommend approval and all these conditions are their conditions that will be in the plan when they come for final. Chairman Reynold replied correct. Planning & Zoning Girling said she just wanted to make sure that was the intent of the motion, that it did not need to be at concept. Chairman Reynolds replied correct.

Mr. Dominic Moceri 3215 Silverbell thanked them for their comments and concerns. He is going first address the perimeter there are concerns with the buffer. Their setback is their setback and their decks the way the buildings jog in and out are mostly recessed in along the west property line where the duets are those will all be at grade, there are no elevated decks there at all. There are no pool structures, invisible fences, jungle gyms, nothing like that. The buffers between the existing neighborhoods and what they are proposing with the North and South Village there is no additional structure. There is no clearing because of the slab on grade function the clearing limits would typically be no more than 12-ft. beyond the building envelope, they are not excavating basements. It is not to the same extreme as it would be a single-family with full basements.

Mr. Moceri said that Commissioner Walker brought something up about the look and feel. They are looking at a flat aerial plan so they took great consideration to reduce the bulk and the heaviness of the car pollution and parking pollution and so they split the building in half. These are garages and there is parking behind the garages. These buildings all have garages that are at the ends of them. If they pull their renderings up, they are seeing an aerial of a bird's eye view, because they are not a giraffe, and they are looking at something from a giraffe's perspective. They have to look at it from a human scale from where they are in their vehicle, which they are below the grade of the height of the road coming up. They are not seeing three floors of these apartment buildings. He was calling them apartment buildings because they are trying to provide housing types and options for different affordability levels and middle market. They can lighten some colors up in the next iteration and give options to this. The dark contrast is something new to them, his taste level is he likes French Nouvel architecture but that is Gingellville either. His children think his taste is an architecture stogie, they think this is fantastic and it is Icelandic and all these different terms. They are not looking at it from a human scale and that is the problem they need to do a better job. If they get to the human scale, they are only going to see one floor because they have the berm and landscaping, then they have a trellis that is going to block all of this parking. Right now, from a flat plan, it is hard to see that at first glance. With the fountains and the trees, they may only see one story of that building. The clubhouse what they tried to do is set the amenity reflecting upon the pond. They were very cognizant and to the delicate nature of reducing the bulk. They put all half buildings along the boulevard and along Baldwin Rd., it was very intentionally done. They need to better demonstrate this in the next iteration, and they do appreciate their comments.

He did understand that it is different and tried to balance that with the round-about and traffic flow and create the different village concepts. To create that hamlet, they all think of hamlets as something of smaller size, and a hamlet is usually 50-100 housing units max. They created these hamlets or neighborhoods within the greater neighborhood. They just need to do a better job demonstrating this because it seems harsh on a flat plan but when they get the human scale, and they have trees that are getting planted at 12-ft. tall and they mature to 18-ft. tall it softens everything. He cannot speak to the center itself his associates will speak to that aesthetics and those uses. The one thing they were very diligent on was connecting the entire frontage along Baldwin with this common trellis work and landscape so there is connectivity, then the unified control as far as the landscape architecture and architectural control. They think these buffers are rather significant. They appreciated that they concur that the vehicular traffic and the Fire Department does concur, and they have reviewed the plan and the public safety and health they are satisfied with the dynamics and the connectivity that they have. By Peppermill Ct. is the last location where they have a duet. Often times they try to bring an architectural flavor and difference and not be so monotonous, but they are open to colors, it might be that stark contrast and that dark roof, and they could lighten those types of things up in the next iteration and provide some choices.

Chairman Reynolds said one item to clarify is a lot of the buffers are the concerns of the property adjacent to existing uses. He thought some of the main comments are buffers are the potential for future waivers is some of the distances as they relate to commercial uses.

Ms. Erin Wolf 4453 Peppermill Lane wanted clarification when they were saying about the amendment of the buffers if it could be for all of them not just for the north and the south because there are just the 50-ft. for the other adjacent. She also said she is really glad that it is Moceri helping with this. After Mr. Moceri reassured her that some of those homes were going to be the colors of their natural habitat for the buffers as an addition to the buffers. She just wanted to make sure that amendment was a buffer all the way around.

Roll call vote was as follows: Urbanowski, yes; Gross, yes; St. Henry, no; Walker, yes; Brackon, yes; Gingell, yes; Reynolds, yes. **Motion carried 6-1**

8. UNFINISHED BUSINESS
None.

9. PUBLIC COMMENTS
None.

10. COMMUNICATIONS
A. Additional Correspondences Regarding Master Plan
Chairman Reynolds stated that they have received a couple additional letters regarding the Master Plan. One of those was similar comments of opposition that we have received in the past. Another one was in support of our work, thanking us for our thoughtfulness and 15 minutes neighborhoods.

11. PLANNERS REPORTS
None.

12. COMMITTEE REPORTS
None.