

**Project #21-022
Duke's C-Store
Located at 1400 N 600 W**

REPORT SUMMARY...

Project Name: Duke's C-Store
Proponent / Owner: Lance Anderson / Duke's C-Store LLC
Project Address: 1400 N 600 W
Request: Design Review Permit
Current Zoning: Industrial Park (IP)
Type of Action: Quasi-Judicial
Hearing Date: May 13, 2021
Submitted By: Tanya Rice, Planner II

RECOMMENDATION

Staff recommends that the Planning Commission **conditionally approve** a Design Review Permit for Project #21-022, Duke's C-Store, for seven fuel dispensing units and convenience store located at 1400 N 600 W, TIN #04-081-0035.

Current Land use adjoining the subject property

<i>North:</i>	IP: Industrial Uses	<i>East:</i>	MR-12: Residential Uses
<i>South:</i>	PUB: Public Uses	<i>West:</i>	IP: Industrial Uses

DESIGN REVIEW PERMIT

The LDC 17.43 requires a Design Review Permit approval for new commercial developments to ensure high-quality design, layout and neighborhood compatibility. The Planning Commission may approve or conditionally approve a Design Review Permit upon substantiating findings in conformance with Title 17 of the LDC.

Project Proposal

This is a proposal for a new 8,108 SF commercial building to be used as a convenience store and gasoline filling station on a total site of 2.51 acres. The proposal also includes streetscape improvements, landscaping improvements, seven gasoline pumps and overhead canopy, and an outdoor patio area.



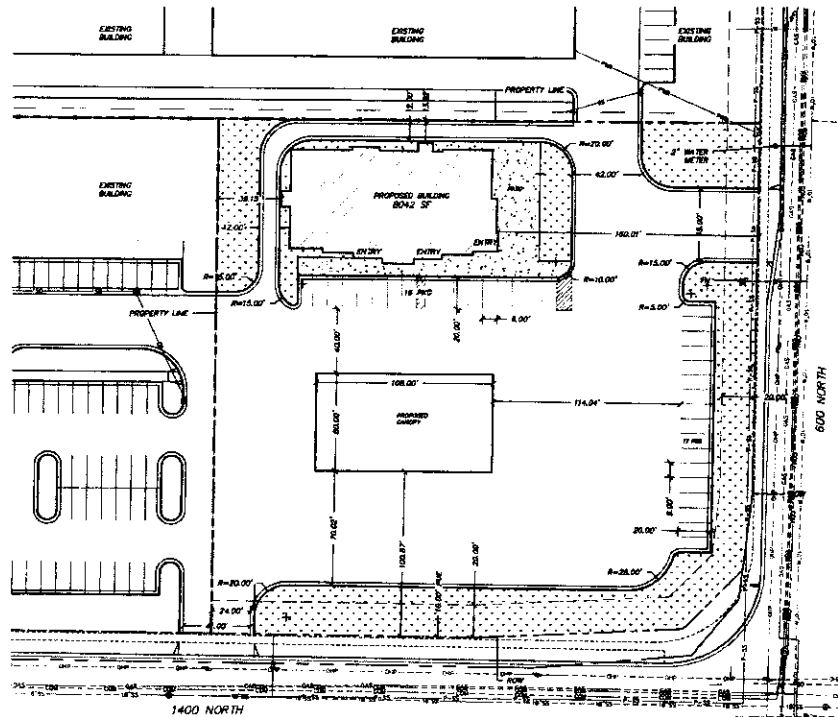
Site Location – 1400 N 600 W

Land Use

The Land Development Code (LDC) Table 17.11.030 permits both convenience markets and gasoline stations in the IP zoning district.

Lot Coverage

The LDC 17.10.130 limits lot coverage to a maximum of 50% (building footprint). The project site is approximately 2.51 acres in size and with an 8,108 SF convenience store (8%) and 6,500 SF overhead canopy (6%), the total lot coverage is 14%. As shown, the lot coverage complies with maximum allowances in the LDC.



Site Plan

Setbacks

The LDC requirements for setbacks in the IP zone are as follows:

Front (Bld. Height 0'-40'):	20'
Sides:	20'
Rear:	10'
Parking Front	20'
Parking Side/Rear	15'

The following setbacks are proposed (as measured from the exterior property lines of the project site, at closest points):

Front (South):	80'
Side (East)	53'
Side (West)	40'
Rear (North):	14'
Parking Side (East):	20'

As proposed, the project setbacks comply with the requirements in the LDC.

Access & Circulation

Vehicular driveway access is proposed at two access points: one shared access along 1400 North and the other on 600 West. These access points allow for fuel center traffic access to and from the south and east.

The LDC requires a pedestrian sidewalk connection between the building entrance and the adjacent street sidewalk to the east. The proposal does not include sidewalk connections from the building to street sidewalks. The new streetscape and landscaping improvements provides pedestrian circulation around the perimeter of the property. With the addition of a concrete pedestrian crossing from the building and to the street sidewalks along 600 West, the project complies with the requirements in the LDC.

Parking

The LDC 17.31.040 requires one parking stall per every 250 SF of convenience market and one (1) bike stall per ten (10) parking stalls. An 8,108 SF convenience store would require 33 stalls and a rack for a minimum of 4 bikes. The project is proposing 33 stalls but has not identified a bike parking location. With the addition of bike parking, the proposal meets the minimum parking requirements.

Building Orientation & Design

The LDC 17.12.060 promotes high-quality and aesthetically pleasing design and developments within the IP zone. There are no specific codes for fuel center architecture and orientation, so the building design standards for the IP zone will be used as they apply to the convenience store.

The proposed building and overhead canopy have clear varying articulation with changes in material, roofline heights, and the staggering of vertical walls. The façade design features include materials, textures, color and trim detailing are consistent on all elevations visible from 1400 N and 600 W. The primary building materials are proposed with stone veneer, chiseled block veneer and wood plank siding and incorporate compatible finishes and colors. The 30% fenestration requirement along the front of the store meets LDC requirements.

The LDC requires ground-floor entrances on the facades visible from the public streets to be easily discernable and utility doors, fire doors, and loading docks designed to blend with the building's architecture. The proposed convenience store entrances are covered with a canopy and delineated from the structure by being off-set with a light-colored material only used for entrances. This provides variation in architecture and easily discernable entrances. All utility doors and service features are designed to blend with the subtle colors of the building.

The LDC 17.10.030 limits base building height to 48' in the IP zone. The highest point of both the store and the canopy is 24'. As proposed, the project complies with the requirements in the LDC.



Front Façade

Open Space Area

The LDC requires 10% open space and an additional 10% useable outdoor space in the IP zone. The LDC generally describes open space as native vegetation or landscaped areas, while useable outdoor space could consist of additional landscaping, decks, patios and walkways, but shall not include parking, driveways and most storm-water facilities. Storm-water facilities may qualify as outdoor and open space if they are designed in a way that is incorporated into the landscape. The 2.51-acre project site would require 10,900 SF of both open space and usable outdoor space for a total of 21,000 SF. The project proposal includes conceptual open space and usable outdoor areas totaling approximately 24,000 SF (21%). The project complies with the open space requirements of the LDC as proposed.

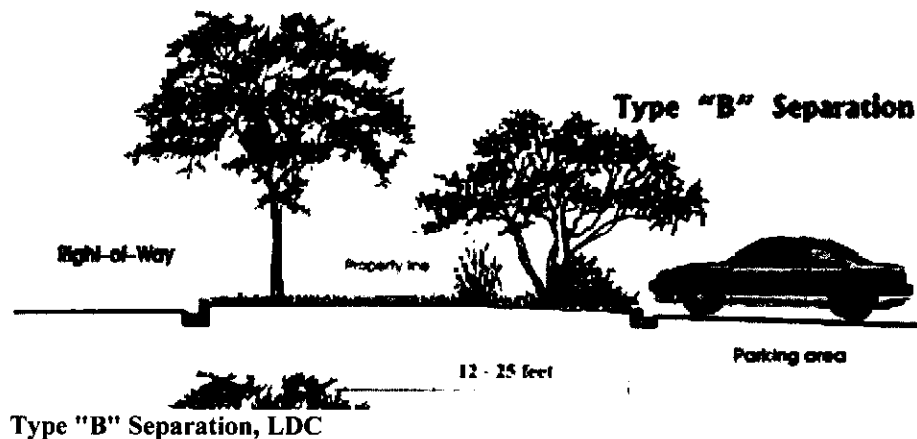
Landscaping

The LDC 17.32 requires minimum plant material for overall visual aesthetics, ecology, screening, and shading purposes. Park strip improvements, screening of trash enclosure and interior parking lot planting requirements apply.

The LDC requires a minimum of eighteen (18) SF of interior landscape planting area for each stall contained in the parking area. For the fuel center project area with thirty-three (33) parking stalls, a minimum of 594 SF of landscaping is required. As shown on the site plan, more than 594 SF of planting area is designated for this purpose.

The LDC requires a minimum of 20 trees and a combination of 50 shrubs, flowers and ornamental grasses per acre of land in the IP zone. For the 2.37-acre parcel, 48 trees and 119 shrubs, flowers and ornamental plants would be required as per the LDC.

Plant material is also required to be planted around the perimeter of the building where feasible. A variety of plants species are required, and 25% of the plant material is required to be evergreen species. Parking lots are required to have perimeter landscaping. For the 1400 N and 600 W frontages, perimeter landscaping that is consistent with LDC 17.32.070 Parking Lot Landscaping Type "B" shall be installed, and include shrubs and small trees. As conditioned, with a landscaping plan, the project complies with the requirements of the LDC.



Lighting

The LDC 17.30.090 requires adequate and appropriate site lighting that increases nighttime visibility, adds aesthetic quality, and improves safety while mitigating unnecessary glare, sky glow and light trespass. The LDC limits pole height to 32 feet and luminaire fixtures to be concealed source, down-cast and shielded from neighboring properties. Light measurements are required to range between 0.5 – 4.0 foot candles, so areas are sufficiently safe, but not excessively bright. Exterior lighting has not yet been submitted. As conditioned, the project meets the requirements of the LDC.

Staff Summary

The proposed project is compatible with the surrounding land use and architecture, and, as conditioned, meet the requirements for development in the IP zone.

AGENCY AND CITY DEPARTMENT COMMENTS

Comments were solicited from the following departments or agencies:

• Water	• Fire
• Environmental	

PUBLIC COMMENTS

Notices were mailed to property owners within 300 feet of the subject property. As of the time of this report, no comments have been received.

PUBLIC NOTIFICATION

Legal notices were published in the Herald Journal on 5/1/21 and the Utah Public Meeting website on 5/3/21. Public notices were mailed to all property owners within 300 feet of the project site on 4/26/21.

RECOMMENDED CONDITIONS OF APPROVAL – DESIGN REVIEW

This project is subject to the proponent or property owner agreeing to comply with the following conditions as written, or as may be amended by the Planning Commission.

1. All standard conditions of approval will be recorded with the Design Review and are available in the Community Development Department.
2. A minimum of 1 stacking space for self-serve bays shall be provided.
3. A performance landscaping plan, prepared in accordance with §17.32 of the LDC, shall be submitted for approval to the Community Development Department prior to the issuance of the building permit. The plan shall include the following:
 - 21,000 SF of both open space and usable outdoor space shall be provided.
 - A total number 48 trees and 119 shrubs, perennials and grasses shall be provided.
 - Minimum of 3 tree species are required.
 - A minimum of 25% of plant material shall be evergreen trees and shrubs.
 - Street trees shall be provided every thirty (30) feet on center and outside of site-distance triangles near intersections or driveway access points or otherwise determined by the City Forester.
 - Plant materials shall be placed around the perimeter of the buildings where feasible in a 3' minimum planting strip.
 - For the 1400 N and 600 W frontages, perimeter parking lot landscaping that is consistent with LDC 17.32.070 Parking Lot Landscaping Type "B" shall be installed.
 - Storm water detention area(s) shall be incorporated into the landscape plan as per LDC 17.29.170.
4. The trash enclosure location shall be identified per environmental department requirements and be buffered and screened per LDC 17.30.080.
5. A bike rack shall be provided to accommodate a minimum of 4 bikes.
6. Exterior lighting shall be concealed source, down-cast and reviewed and approved prior to the issuance of a building permit and shall comply with current LDC regulations.
7. No signs are approved with this Design Review Permit. All signage shall be approved and permitted by staff in accordance with the LDC.
8. No fences are approved with this Design Review Permit. All fences shall be approved and permitted by staff in accordance with the LDC.
9. Surface storm-water retention and detention facilities shall be located in areas away from public streets and buffered from view or incorporated into the landscape.

10. Prior to issuance of a Building Permit, the Director of Community Development shall receive a written memorandum from each of the following departments or agencies indicating that their requirements have been satisfied:

a. Water—contact 716-9622

- All commercial buildings water mains need to have their own RP (ASSE1013) installed and tested on the water main as it enters the building before any branch offs or possible connections.
- All landscape irrigation system's fed from Logan City water must have a high hazard rated backflow assembly installed and tested. All backflow assemblies must be tested within 10 days of turning in water to them and annually thereafter.
- Fire suppression systems that are connected to Logan City water (with no added chemicals) must have a minimum DC (ASSE1015) installed and tested. Fire risers and B/F assemblies must be installed as per Logan City standards.
- All points of use of water must comply with the 2018 IPC and State of Utah Amendments and the Utah Admin Code 309-305 during and after construction.
- Project shall comply with all current plumbing codes, Utah State Amendments, Utah Division of Drinking Water rules and regulations including, but not limited to, those pertaining to backflow protection and cross connection prevention.

b. Environmental — contact 716-9760

- Minimum 60 ft. straight on access required. Approach must be level, no down or uphill slopes.
- Minimum inside measurement for a double enclosure is 24 ft. wide by 10 ft. deep.
- Minimum inside measurement for a single enclosure is 12 ft. wide by 10 ft. deep.
- Place bollards in the back of enclosure to protect walls.
- Gates are not required, however if desired, they must be designed to stay open during the collection process.
- Barrel hinges are suggested for the gates. We need the full 12 ft. clearance so gates must be designed to open completely.

c. Engineering— contact 716-9153

- The three lot Minor Subdivision approved by Planning Commission on March 26, 2020 must be recorded prior to any development on this property. This includes the dedication of right of way and Public Utility Easements along 1400 North and 600 West as previously agreed between City and developer.
- Coordinate with Canal Company and ditch users regarding storm water discharges from the site.
- Storm Water design must comply with current City design standards. This includes the retention of the 90% storm event onsite utilizing Low Impact Design methods. If storm water system shares any infrastructure with adjacent lots, CC&R's must be developed to ensure proper maintenance and operation of those facilities.
- Provide water shares or In-Lieu Fee for all increased demand to City system.
- Provide Private Water Utility Agreement for all private fire lines located on private property.
- Provide a Storm Water Maintenance Agreement
- Finalize cost agreements and costs entered into during the recent City improvements to 1400 N and 600 W.

RECOMMENDED FINDINGS FOR APPROVAL FOR THE DESIGN REVIEW PERMIT

The Planning Commission bases its decisions on the following findings supported in the administrative record for this project:

1. The conditioned project is compatible with surrounding land uses and will not interfere with the use and enjoyment of adjacent properties because of the building design, materials, landscaping, and setbacks.
2. The Design Review Permit conforms to the requirements of Title 17 of the Logan

Municipal Code.

3. The conditioned project provides adequate landscaping and screening in conformance with Title 17.
4. The conditioned project provides adequate off-street parking.
5. 1400 N and 600 W provides access and are adequate in size and design to sufficiently handle automobile traffic related to the land use.
6. The project meets the goals and objectives of the IP designation within the Logan General Plan by providing services near high capacity roadways and is designed in way for easy circulation of both pedestrian and vehicles.
7. The project met the minimum public noticing requirements of the LDC and the Municipal Code.

This staff report is an analysis of the application based on adopted city documents, standard city development practices, and available information. The report is to be used to review and consider the merits of the application prior to and during the course of the Planning Commission meeting. Additional information may be revealed by participants at the Planning Commission meeting which may modify the staff report and become the Certificate of Decision. The Director of Community Development reserves the right to supplement the material in the report with additional information at the Planning Commission meeting.



APPLICATION FOR PROJECT REVIEW

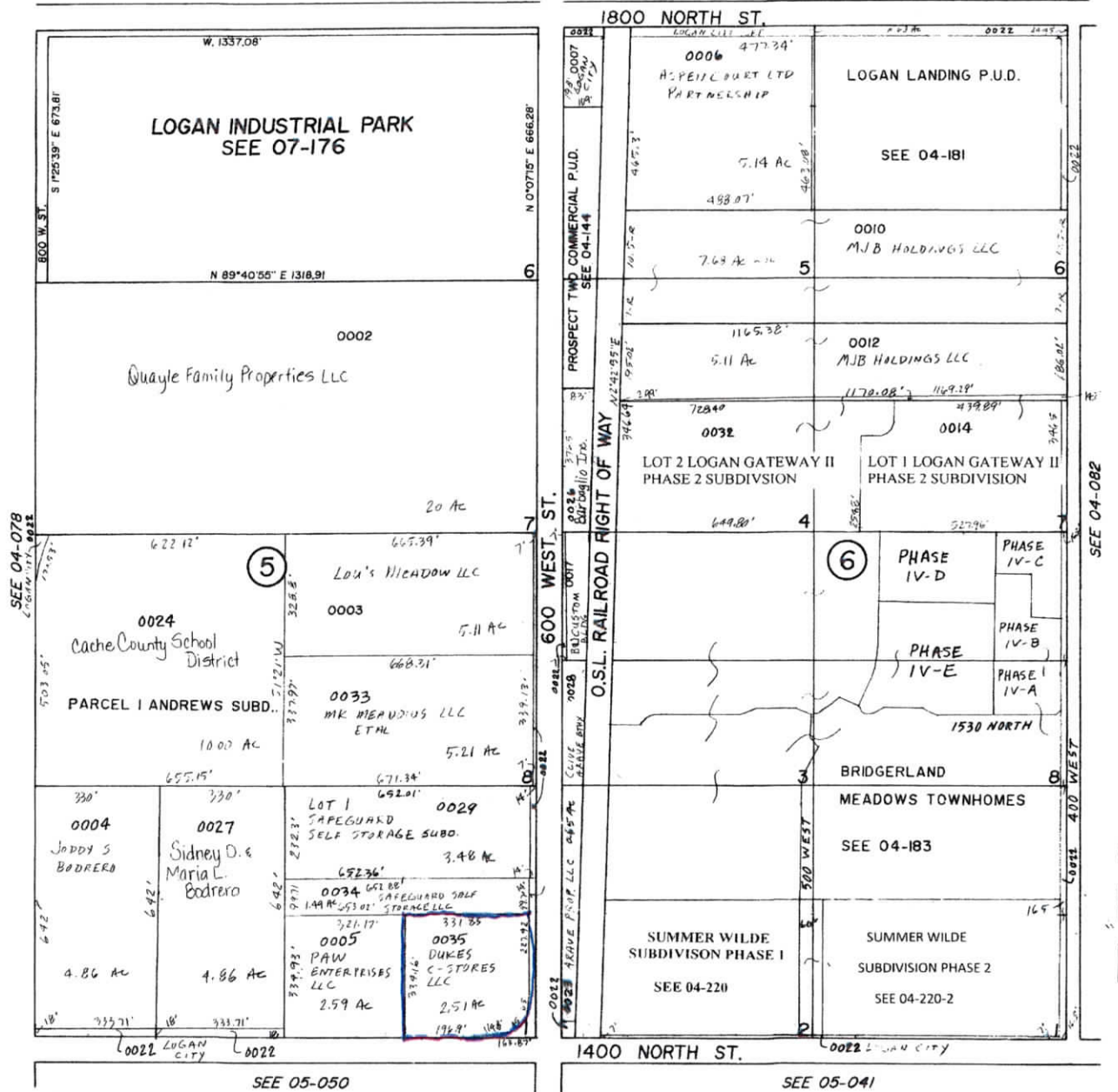
☒ Planning Commission ☐ Land Use Appeal Board ☐ Administrative Review

Date Received 4/12/21	Received By	Scheduled Meeting Date MAY 13	Zone IP	Application Number PC 21-022
Type of Application (Check all that apply):				
<input checked="" type="checkbox"/> Design Review <input type="checkbox"/> Conditional Use <input type="checkbox"/> Subdivision <input type="checkbox"/> Zone Change <input type="checkbox"/> Code Amendment <input type="checkbox"/> Appeal <input type="checkbox"/> Other <input type="checkbox"/> Administrative Design Review				
PROJECT NAME DUKE'S C-STORE				
PROJECT ADDRESS 1400 N 600 W			COUNTY PLAT TAX ID # 04-081-0035	
AUTHORIZED AGENT FOR PROPERTY OWNER (Must be accurate and complete) LANCE ANDERSON			MAIN PHONE # 435.760.1622	
MAILING ADDRESS		CITY	STATE	ZIP
95 W GOLF COURSE RD STE 101		LOGAN	UT	84321
EMAIL ADDRESS lance@cachelandmark.com				
PROPERTY OWNER OF RECORD (Must be listed) DUKE'S C STORES LLC			MAIN PHONE #	
MAILING ADDRESS		CITY	STATE	ZIP
165 E 1400 N STE 100		LOGAN	UT	84341
EMAIL ADDRESS Greg@maplespringsliving.com				
DESCRIBE THE PROPOSED PROJECT AS IT SHOULD BE PRESENTED (Include as much detail as possible - attach a separate sheet if needed) - CONVENIENT STORE WITH GAS PUMP STATION. SITE DEVELOPMENT ON CORNER LOT			Total Lot Size (acres) 2.91	
			Size of Proposed New Building (square feet) 8,108	
			Number of Proposed New Units/Lots —	
- NO SITE ACTIVITY MAY OCCUR UNTIL AFTER APPROPRIATE COMMITTEE APPROVAL -				
I certify that the information contained in this application and all supporting plans are correct and accurate. I also certify that I am authorized to sign all further legal documents and permit on behalf of the property owner.			Signature of Property Owner's Authorized Agent Lance Anderson	
I certify that I am the property owner on record of the subject property and that I consent to the submittal of this project. I understand that all further legal documents and permits will be sent to my authorized agent listed above.			Signature of Property Owner Greg Larson	

Scale 1 Inch = 200 Feet
PLAT "D" LOGAN FARM SURVEY

TAX UNIT 27

SEE 04-079



File No. 93831



SPECIAL WARRANTY DEED

PAW ENTERPRISES, LLC

a limited liability company organized and existing under the laws of the State of Utah, grantor(s), with its principal office at 399 North Main Street, STE 300, Logan, UT 84321, hereby CONVEYS and WARRANTS only as against all claiming by, through or under it to

DUKES C-STORES, LLC

grantees of 350 E 2200 N, North Logan, UT 84341, for the sum of TEN DOLLARS and other good and valuable consideration the following described tract of land in Cache County, State of Utah.

SEE ATTACHED LEGAL DESCRIPTION

*Deed being given to liquidate the asset of the defunct Limited Liability Company.

In witness whereof, the grantor(s) has caused its name and seal to be hereunto affixed by its duly authorized managing member, this August 22, 2019

PAW ENTERPRISES, LLC

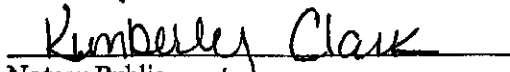
By: G&R DEVELOPMENT, LLC, Member of PAW ENTERPRISES, LLC

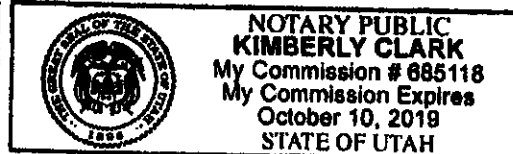
By: TAFT COMPANY, L.L.C., Member of G&R DEVELOPMENT, LLC


BY: ROBERT TAFT BENSON, Manager

STATE OF Utah)
 SS
County of Cache)

On this 24 day of August, 2019 personally appeared before me ROBERT TAFT BENSON, who being by me duly sworn did say, for himself, that he is Manager of TAFT COMPANY, L.L.C, a Utah limited liability company and that the within and foregoing instrument was signed on behalf of said limited liability company by authority of its Articles of Organization and duly acknowledged to me that said limited liability company executed the same, as a Member of G&R DEVELOPMENT, LLC, a Utah limited liability company and that the within and foregoing instrument was signed on behalf of said PAW ENTERPRISES, LLC, a Limited Liability Company by authority of its Articles of Organization and duly acknowledged to me that said limited liability company executed the same.


Notary Public
Commission expires: 10-10-19
Residing in: Logan, UT



File No. 93831

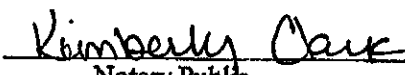
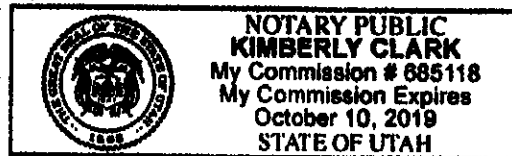
PAW ENTERPRISES, LLC

By: G&R DEVELOPMENT, LLC, Member of PAW ENTERPRISES, LLC


 BY: D. GARY ANDERSEN, Member

 STATE OF Utah)
 SS
 County of Cade)

On the 26 day of August A.D. 2019 personally appeared before me, D. GARY ANDERSEN, who being by me duly sworn did say that he is the Member of G&R DEVELOPMENT, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same as a Member of PAW ENTERPRISES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same.

 Commission expires: 10-10-19
 Residing in: Logan, Utah

 Notary Public


PAW ENTERPRISES, LLC

By: SPL PROPERTIES, LLC, Member of PAW ENTERPRISES, LLC

 N/A
 By: J. WESTON LUNSFORD, Manager


 By: SHAUN L. PECK, Manager

 N/A
 By: SHAYLIN L. PECK, Manager


 By: SHERIDAN L. PECK, Manager


 By: SHERIDAN L. PECK, Manager

RC

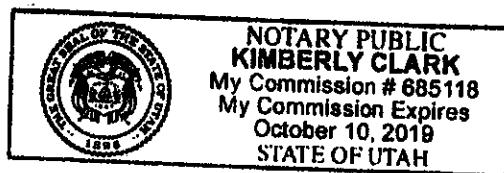
File No. 93831

STATE OF Utah)
) SS
 County of *Cache*)

On the *20* day of August A.D. 2019 personally appeared before me, J. WESTON LUNSFORD, who being by me duly sworn did say that he is a Manager of SPL PROPERTIES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same as a Member of PAW ENTERPRISES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same.

Commission expires: *10-10-19*
 Residing in: *Logan UT*

Kimberly Clark
 Notary Public

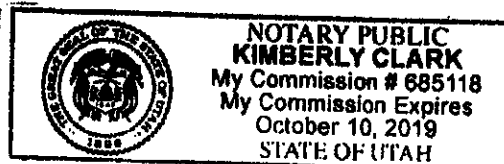


STATE OF Utah)
) SS
 County of *Cache*)

On the *20* day of August A.D. 2019 personally appeared before me, SHAUN L. PECK, who being by me duly sworn did say that he is a Manager of SPL PROPERTIES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same as a Member of PAW ENTERPRISES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same.

Commission expires: *10-10-19*
 Residing in: *Logan UT*

Kimberly Clark
 Notary Public



File No. 93831

STATE OF Utah)
 SS
County of)

On the day of August A.D. 2019 personally appeared before me, SHAYLIN L. PECK, who being by me duly sworn did say that he is a Manager of SPL PROPERTIES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same as a Member of PAW ENTERPRISES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same.

Commission expires:
Residing in:

Notary Public

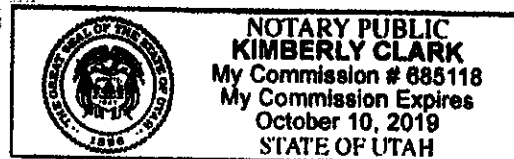
STATE OF Utah)
 SS
County of *Cache*)

On the *26* day of August A.D. 2019 personally appeared before me, SHELDON L. PECK, who being by me duly sworn did say that he is a Manager of SPL PROPERTIES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same as a Member of PAW ENTERPRISES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same.

Commission expires: *10-10-19*
Residing in: *Logan UT*

Kimberly Clark

Notary Public



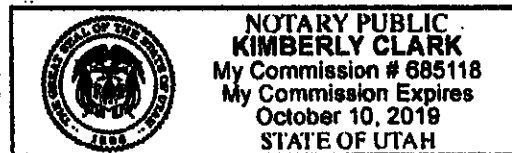
File No. 93831

STATE OF Utah)
 SS
 County of)

On the 26 day of August A.D. 2019 personally appeared before me, SHERIDAN L. PECK, who being by me duly sworn did say that he is a Manager of SPL PROPERTIES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same as a Member of PAW ENTERPRISES, LLC, a Utah Limited Liability Company and that the within and foregoing instrument was signed on behalf of said Limited Liability Company by authority of its Articles of Organization and each duly acknowledged to me that said Limited Liability Company executed the same.

Commission expires: 10-10-19
 Residing in: Logan, UT

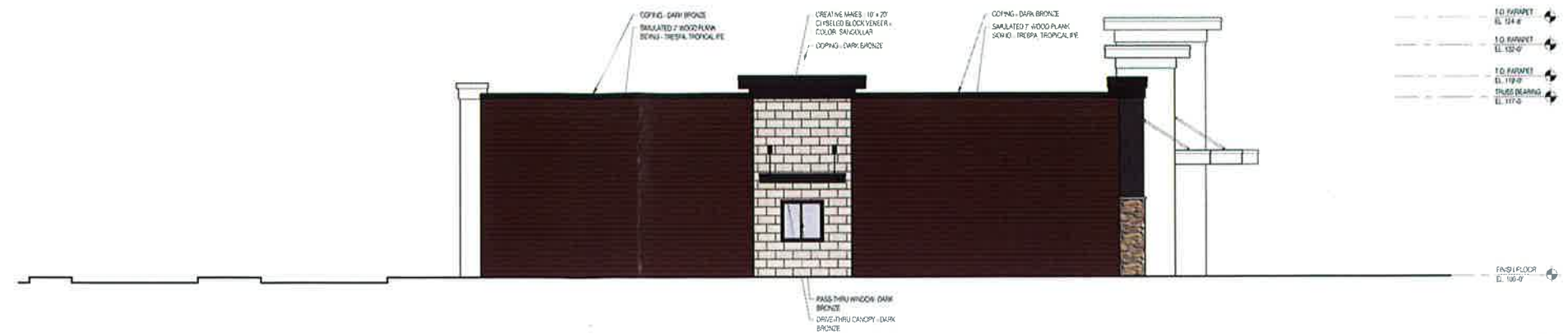
Kimberly Clark
 Notary Public



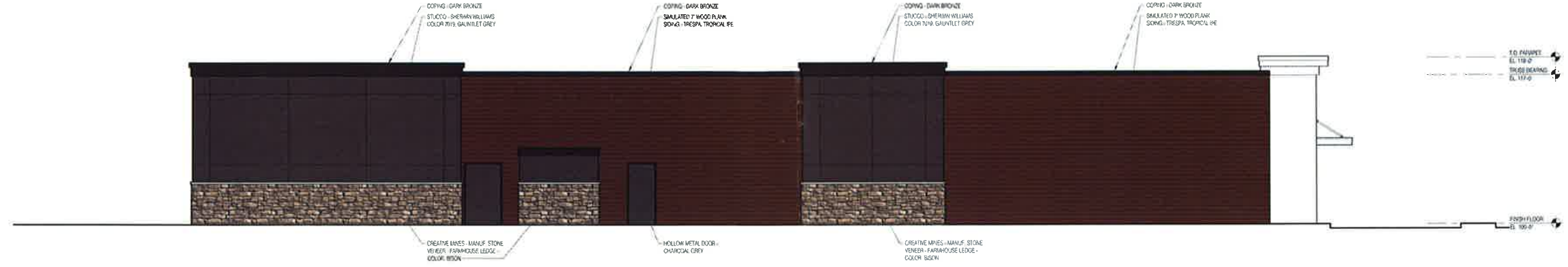
File No. 93831

PART OF THE SOUTHWEST QUARTER OF SECTION 21 AND PART OF THE NORTHWEST QUARTER OF SECTION 28, TOWNSHIP 12 NORTH, RANGE 1 EAST, SALT LAKE MERIDIAN, LOCATED IN LOGAN CITY, CACHE COUNTY, UTAH, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF LOT 1, BLOCK 5, PLAT "D", LOGAN FARM SURVEY; THENCE N88°54'29"W 146.06 FEET ALONG THE SOUTH LINE OF SAID LOT TO THE POINT OF BEGINNING; THENCE N88°54'29"W 196.90 FEET ALONG SAID SOUTH LINE; THENCE N0°34'41"E 334.16 FEET; THENCE S89°25'19"E 331.85 FEET TO THE WEST LINE OF 600 WEST STREET; THENCE ALONG THE WESTERLY LINE OF SAID STREET THE FOLLOWING FOUR COURSES: 1. S1°04'13"W 227.92 FEET; 2. S7°13'03"W 65.51 FEET; 3. S40°21'17"W 45.05 FEET; 4. S85°39'30"W 96.95 FEET TO THE POINT OF BEGINNING.

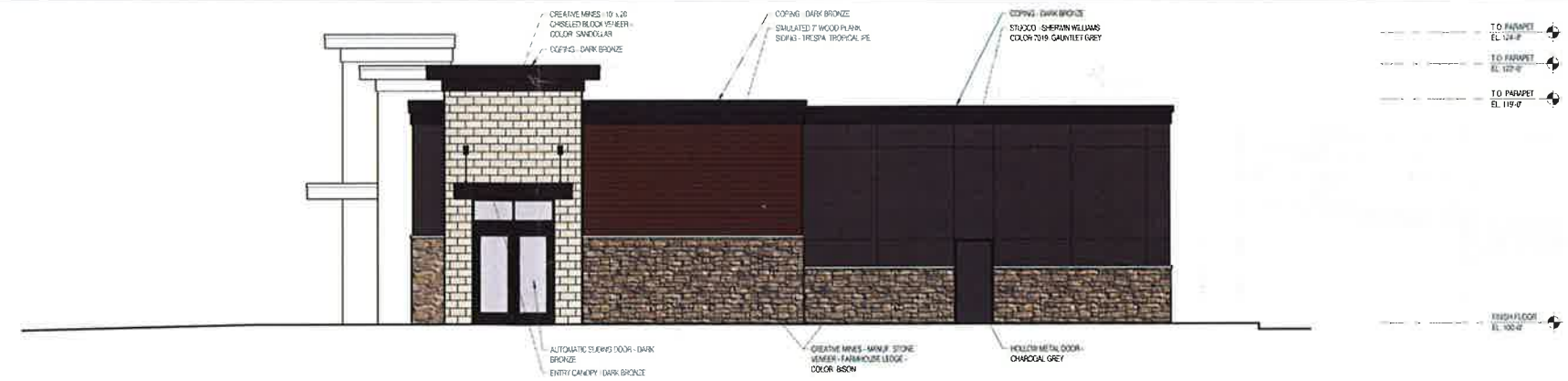
Tax Roll No. 04-081-0005 (Part)



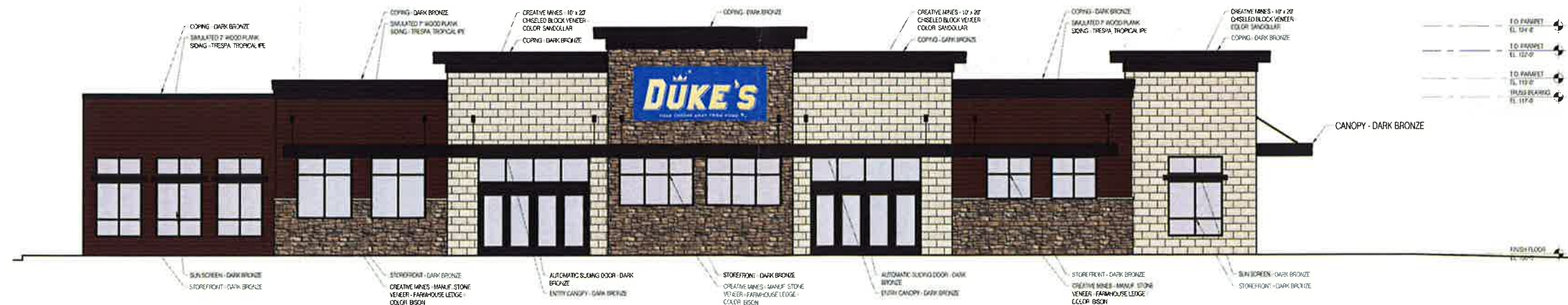
4 WEST EXTERIOR ELEVATION



3 NORTH EXTERIOR ELEVATION



2 EAST EXTERIOR ELEVATION



1 SOUTH EXTERIOR ELEVATION

Kazmaier & Associates, LLC
Architects

13795 S. Mar-Len Pkwy | Suite 207 | Olathe, Kansas 66062 | P 913 836 2610 | F 913 839 2519

Owner/Developer:
Maple Springs Management

Civil Engineer:
Big City Engineers
Structural Engineer

MEP Engineer:

Duke's Gas Station & Convenience Store
1400 North
North Logan, Utah

REVISION	DATE
△	
△	
△	
△	
△	
△	

PROJECT NO: SL-1603
DATE: March 18, 2021

Exterior Elevations

A2.1

PRELIMINARY DESIGN

