



THE CITY OF LAKE FOREST

SPECIFICATIONS

FOR

DEERPATH GOLF COURSE RESTORATION  
PROJECT

FEBRUARY 3, 2021

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## Section 00030

### ADVERTISEMENT FOR BIDS

### THE CITY OF LAKE FOREST

**PROJECT:** The City of Lake Forest is seeking qualified bidders for the **Deerpath Golf Course Restoration Project** in the City of Lake Forest. The scope of work entails the restoration of the Deerpath Golf Course following the construction of two detention basins, which are part of a larger IDOT-funded improvement project occurring on the golf course and along Deerpath Road. The work will include the restoration of golf course features on two holes and the installation of native plantings on both of the new detention basins.

**PROJECT DATES:** The project is scheduled to commence on **April 5, 2021** and must be substantially complete **June 18, 2021**. A mandatory pre-bid meeting will be held in the maintenance shop of the golf course (500 Deerpath, Lake Forest, IL) on **February 10, 2021, at 9:00 am**. **Only companies that attend the pre-bid conference will be allowed to bid on the project.**

**BID DEADLINE:** **10:00 AM LOCAL TIME, WEDNESDAY, FEBRUARY 24, 2021.**

The City reserves the right to extend the Bid Deadline from this date and time to accept Bids submitted after the Bid Deadline, as the City, in its sole discretion, determines is in the best interest of the City.

**NOTICE:** Proposals for the **Deerpath Golf Course Restoration Project** will be received by The City of Lake Forest, Illinois, until the Bid Deadline. Alternatively, proposals may be submitted electronically (.pdf format) before the time and date listed above to the following email address: [myersc@cityoflakeforest.com](mailto:myersc@cityoflakeforest.com). Immediately thereafter, the proposals will be publicly opened and read aloud. Each bid shall be sealed and plainly marked with "Deerpath Golf Course Restoration Project" and addressed to Chuck Myers, Superintendent of Parks, Forestry and Special Facilities, 800 North Field Drive, Lake Forest, Illinois 60045. Bidders who submit a Bid must be a Plan Holder of record at the Issuing Office. Bids from Bidders who are not on the Plan Holders List may be returned as not being responsive.

**BID SECURITY:** Bid Security in the amount of not less than ten (10) percent of the Bid shall accompany each Bid, payable to The City of Lake Forest.

**CONTRACT SECURITY:** The Bidder to whom a Contract is awarded shall be required to furnish either both a Performance Bond and a Payment Bond or an Irrevocable Letter of Credit acceptable to the City for 100 percent of the Contract Price, in accordance with the requirements of the Contract Documents.

**RIGHTS RESERVED:** The City reserves the right to reject any and all Bids or award each schedule individually, to waive any informalities or technicalities in bidding, and to accept the Bid which best serves the interests of the City. The City shall, in its sole discretion, determine what does or does not constitute an informality or technicality, and, in submitting a Bid, the Bidder agrees to be bound by that determination.

**WAGE RATES:** The CONTRACTOR shall be required to pay not less than the prevailing wage rates for Lake County Illinois on the project as established by the Illinois Department of Labor.

**CONTRACT DOCUMENTS:** Complete Project Bidding Documents will be available **February 3, 2021** for pick up at the Municipal Services Building, 800 North Field Drive, Lake Forest, Illinois 60045 or are available for download on the City's website at [https://www.cityoflakeforest.com/doing\\_business/bid\\_opportunities.php](https://www.cityoflakeforest.com/doing_business/bid_opportunities.php)

**PROJECT MANAGER:** The City of Lake Forest project manager is Chuck Myers, Superintendent of Parks, Forestry and Special Facilities and can be contacted at (847) 810-3565 or by email at [myersc@cityoflakeforest.com](mailto:myersc@cityoflakeforest.com) regarding the project.

**GOLF COURSE ARCHITECT:** The golf course architect is Todd Quitno, Lohmann Quitno Golf Course Architects, Inc. and can be contacted at (847) 951-3051 or by email at [tquitno@lohmman.com](mailto:tquitno@lohmman.com) regarding the project.

**PUBLISHED BY THE AUTHORITY OF THE CITY OF LAKE FOREST, ILLINOIS, LAKE COUNTY**

## Section 00200

### INSTRUCTIONS TO BIDDERS

#### Defined Terms

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. Issuing Office – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered. For this contract the Issuing Office is: The Office of the Superintendent of Parks, Forestry and Special Facilities, 800 N. Field Drive, Lake Forest, Illinois 60045.

#### Copies of Bidding Documents

- 2.01 *Complete sets of the Bidding Documents in the number and for the sum, if any, stated in the advertisement or invitation to bid may be obtained from the Issuing Office.*
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Superintendent assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Superintendent, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

#### Qualifications of Bidders

- 3.01 *To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with the bid documents written evidence such as financial data; previous experience, present commitments, and such other data as may be called for below.*
- A. Each Bid must contain evidence of Bidder's qualifications to do business in the State of Illinois or covenant to obtain such qualifications prior to award of the contract.
- B. The address and description of the Bidder's place of business.
- C. The Bidder, whether self-performing or sub-contracting, shall provide evidence of the number of years engaged in golf course construction work and native planting work of a similar nature to that proposed in this contract and under the present firm name(s), and the name of the state where incorporated.
- D. A financial statement of the Bidder showing that the Bidder has the financial resources to meet all obligations incidental to the Work.
- E. The Bidder's performance record giving the description, location, reference name and telephone numbers of the five most recently constructed projects of similar nature (within the last five years) by the Bidder (and/or Bidder's team), **specifically including: 1) Construction of golf features, golf irrigation, golf path installation, golf course turf restoration 2) Native plantings and maintenance.**
- F. A list of projects presently under Contract, the approximate Contract amount, and percent of completion of each.

- G. A list of Contracts which resulted in law suits or defaulted.
- H. A statement of the Bidder indicating whether or not the Bidder has ever filed bankruptcy while performing Work of like nature or magnitude. A list of officers of the firm who, while in the employ of the firm or the employ of previous firms, were associated with Contracts which resulted in lawsuits, Contracts defaulted, or filed for bankruptcy.
- I. The names and technical experience of personnel guaranteed to be employed in the responsible charge of the Work stating whether the personnel have or have not performed satisfactorily on other Contracts of like nature and magnitude or comparable difficulty at similar rate of progress.
- J. Such additional information as will assist Owner in determining whether the Bidder is adequately prepared to fulfill the Contract.
- K. A list of sub-contractors and related experience who will be used in completion of this contract **specifically including those tasks and qualifications listed in Item F above.**

3.02 *The object of the request for the qualification of Bidder is not to discourage bidding or make it difficult for qualified Bidders to file Bids. Neither is it intended to discourage beginning Contractors. It is intended to make it possible for Owner to have exact information on financial ability, equipment, and experience in order to reduce the hazards involved in awarding Contracts to parties who may not be qualified to perform the Work as specified*

3.03 *Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.*

3.04 *Owner's decision as to qualification of the Bidder shall be final.*

#### **Examination Of Bidding Documents, Other Related Data, And Site**

4.01 *Subsurface and Physical Conditions*

A. The General Conditions identify:

1. If undertaken, those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site which have been utilized by Superintendent in preparation of the Contract Documents. Bidder may rely upon the accuracy of the technical data contained in such reports but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purposes of bidding or construction.
2. Those drawings known to Owner of physical conditions in or relating to existing surface or subsurface conditions (except Underground Facilities) which are at or contiguous to the site which have been utilized by Superintendent in preparation of the Contract Documents. Bidder may rely upon the accuracy of the technical data contained in such drawings but not upon the completeness thereof for the purposes of bidding or construction.

B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions and has been identified and established in Paragraph 4.02 of the General Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

#### 4.02 *Underground Facilities*

- A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Superintendent by owners of such Underground Facilities, including Owner, or others. Owner does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the General Conditions.

#### 4.03 *Hazardous Environmental Condition*

- A. The General Conditions identify any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.
- B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions and has been identified and established in Paragraph 4.06 of the General Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
- C. All excavation and/or removal items being disposed of at an uncontaminated soil fill site shall meet the requirements of Public Act 96-1416. All costs associated with meeting these requirements shall be the responsibility of the Contractor and shall be included in the cost of the associated bid items in the contract. These costs shall include but are not limited to certification by a licensed engineer, all required testing and laboratory analysis, and any state and local dumping fees. Additionally, the contractor shall also be responsible for any rejected loads, the material shall not be returned to The City of Lake Forest

- 4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 4.06 of the General Conditions.

- 4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

- A. Reference is made to Article 7 of the General Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.

- B. Paragraph 6.13.C of the General Conditions indicates that if an Owner safety program exists, it will be noted in the General Conditions.

4.06 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;
- B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Paragraph 4.02 of the General Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 4.06 of the General Conditions as containing reliable "technical data";
- E. at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, sub-surface and Underground Facilities) at or contiguous to the Site or otherwise which may affect cost, progress, performance or furnishing of the work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Bidding Documents.
- F. consider the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs. Any additional examinations, investigations, explorations, tests and studies made or obtained by the Bidder shall be made or obtained at the Bidders expense;
- G. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- H. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- I. promptly give Superintendent written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Superintendent is acceptable to Bidder; and

J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

- 4.07 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Superintendent written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Superintendent are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

### **Pre-Bid Conference**

- 5.01 *A mandatory pre-bid conference will be held at the golf course on **FEBRUARY 10, 2021, 9:00 AM.** Only companies that attend the pre-bid conference will be allowed to submit a bid for the project.*
- 5.02 *The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.*

### **Interpretations and Addenda**

- 6.01 *All questions about the meaning or intent of the Bidding Documents are to be submitted to Superintendent in writing. Interpretations or clarifications considered necessary by Superintendent in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Superintendent as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.*
- 6.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Superintendent.

### **Bid Security**

- 7.01 *A Bid must be accompanied by Bid security made payable to Owner in an amount of **ten percent** of Bidder's maximum Bid price and in the form of a certified check, bank money order, or a Bid bond (on the form attached) payable to The City of Lake Forest and issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.*
- 7.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within ten days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date

of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

- 7.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

### **Contract Times**

- 8.01 *The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Bid Form and the Contract.*

### **Liquidated Damages**

- 9.01 *Provisions for liquidated damages, if any, are set forth in the General Conditions, Bid Form and Contract.*

### **Substitute and “Or-Equal” Items**

- 10.01 *The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or “or-equal” items. Whenever it is specified or described in the Bidding Documents that a substitute or “or-equal” item of material or equipment may be furnished or used by Contractor if acceptable to Superintendent, application for such acceptance will not be considered by Superintendent until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Superintendent is set forth in Paragraph 6.05 of the General Conditions and may be supplemented in the General Requirements. The burden of proof of the merit of the proposed item is upon Bidder. Superintendent’s decision of approval or disapproval of a proposed item will be final.*

### **Subcontractors, Suppliers and Others**

- 11.01 *If the General Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Superintendent, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner or Superintendent may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.*
- 11.02 *If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Superintendent makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Superintendent subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.*
- 11.03 *Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.*

- 11.04 In contracts where the Contract Price is on the basis of Cost-of-the-Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to Owner those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with Owner's written consent.

### **Preparation of Bid**

- 12.01 *The Bid Form is included with the Bidding Documents. Additional copies may be obtained from the Issuing Office.*
- 12.02 All blanks on the Bid Form shall be completed in ink or by typewriter and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each Bid item and unit price item listed therein. In the case of optional alternatives the words "No Bid," "No Change," or "Not Applicable" may be entered.
- 12.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.
- 12.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- 12.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 12.06 A Bid by an individual shall show the Bidder's name and official address.
- 12.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 12.08 All names shall be printed in ink below the signatures.
- 12.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 12.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

### **Basis of Bid; Comparison of Bids**

#### **13.01 Unit Price**

- A. Bidders shall submit a Lump Sum Bid for the entirety of the Work listed in the Bid schedule.

- B. Unit prices shall be provided only for the Owner-approved addition or deletion of work from the contract through change order.

## **ARTICLE 14 – SUBMITTAL OF BID**

### **Submittal of bid**

- 14.01 *A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in an opaque, plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation “BID ENCLOSED.” A mailed Bid shall be addressed to The Office of the Superintendent of Parks, Forestry and Special Facilities, 800 N. Field Drive, Lake Forest, IL 60045.*

### **Modification and Withdrawal of Bid**

- 15.01 *A Bid may be modified or withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Such notice shall be in writing over the signature of the Bidder or by telegram; if by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids, and it shall be so worded as not to reveal the amount of the original Bid.*
- 15.02 Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.
- 15.03 After the Bid opening, no Bid may be modified, withdrawn, or canceled by the Bidder during the time period noted in Article 18 without the consent of the Owner.
- 15.04 Bid Security shall be in an amount sufficient for the Bid as modified or resubmitted.
- 15.05 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is re-bid, that Bidder will be disqualified from further bidding on the Work.

### **Opening of Bids**

- 16.01 *Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.*

### **Bids to Remain Subject to Acceptance**

- 17.01 *All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.*

### **Evaluation of Bids and Award of Contract**

- 18.01 *Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be not responsible or is*

*unqualified or of doubtful financial ability or fails to meet any other pertinent standard of criteria established by the Owner. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.*

- 18.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 18.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 18.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the General Conditions. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation on the Work when such data is required to be submitted prior to the Notice of Award.
- 18.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 18.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.
- 18.07 If the contract is to be awarded, Owner will give the successful Bidder a Notice of Award within thirty days after the day of the Bid opening.
- 18.08 Owner reserves the right to reject any and all bids for the project.

### **Contract Security and Insurance**

- 19.01 *Article 5 of the General Conditions sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds or cash or certified check payable to The City of Lake Forest or an Irrevocable Letter of Credit for 100 percent of the Contract Price.*

### **Signing of Agreement**

- 19.02 *When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within ten days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds. Within ten days thereafter, Owner shall deliver one*

*fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.*

### **Wage Rates**

- 20.01 *Each Contractor or Subcontractor performing Work on this Project shall comply in all respects with all laws governing the employment of labor, Social Security, and Unemployment Insurance of both the State and Federal government. This contract calls for the construction of a "Public Work," within the meaning of the Illinois Prevailing Wage Act, 820 ILCS 130/01 et seq. ("The Act"). The Act requires contractors and subcontractors to pay laborers, workers and mechanics performing services on public works projects no less than the "prevailing rate of wages" (hourly cash wages plus fringe benefits) in the county where the work is performed. For information regarding current prevailing wage rates, please refer to the Illinois Department of labor's website at: <http://www.state.il.us/agency/idol/rates/rates.HTM>. All contractors and subcontractors rendering services under this contract must comply with all requirements of the Act, including but not limited to, all wage, notice and record keeping duties.*

### **Sales and Use Taxes**

- 21.01 *Owner is exempt from Illinois state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid. Refer to Paragraph 6.10 of the General Conditions for additional information.*

### **Equal Employment Opportunity Requirements**

- 22.01 *In connection with the performance of Work under this Contract Contractor agrees, and shall require his subcontractors to agree, not to discriminate against or intimidate any employee or applicant for employment because of race, color, creed, sex, religion, physical or mental handicap unrelated to ability.*
- 22.02 *In connection with the performance of Work under this Contract, Contractor agrees, and shall require his subcontractors to agree, to conform to the Rules and Regulations of the Illinois Fair Employment Practices Commission in effect on the date of Bid submission.*

### **Certification**

- 23.01 *Bidder shall, at the time of the submission of Bid, and as part of the Bid, provide a certification as required by Public Act 85-1295 to the fact that the Bidder is not barred from bidding on the contract as a result of a violation of either Section 33E-3 or Section 33E-4 of said Act.*

### **Miscellaneous**

- 24.01 *All persons, firms and corporation proposing to do business with The City of Lake Forest are required, as part of the bidding proposal, to furnish the following information to the City in writing (the term "applicant" as used herein shall mean any person, firm or corporation proposing to enter into a Contract or to do business with The City of Lake Forest):*
- A. *If the applicant is a corporation, the application must be accompanied by a resolution of the corporation authorizing the execution and submittal of the instant application. In addition, the application shall indicate on its face the names of all directors and corporate officers of the corporation and also the names of all shareholders who own individually or beneficially 10% or more of the outstanding stock of the corporation.*

- B. If the applicant is a general partnership, the application shall contain a list of all general partners who have a 10% or greater individual or beneficial interest in the partnership.
- C. If the applicant is a limited partnership, the application shall contain a list of all the names of general partners and names of all limited partners having a 10% or greater individual or beneficial interest in the partnership.
- D. If the applicant is a land trust or any other trust, the application shall contain the names and addresses of all beneficiaries of the trust together with their respective interests in the trusts. The application shall be further verified by the applicant in his capacity of trustee or by the beneficiary as a beneficial owner of an interest in the trust and the application shall be signed individually by as many beneficiaries as are necessary to constitute greater than 50% ownership of the beneficial interest of the trust.
- E. A statement setting forth the type and nature of any relationship or business between the applicant as hereinbefore defined and The City of Lake Forest or any of the boards, committees or commissions.

24.02 The forgoing information will become part of any Contract entered into with The City of Lake Forest.

## Section 00410

### BID FORM

#### PROJECT IDENTIFICATION: DEERPATH GOLF COURSE RESTORATION PROJECT

##### Bid Recipient

1.01 This Bid is submitted to:

The City of Lake Forest  
800 N. Field Drive  
Lake Forest, Illinois 60045

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

##### Bidder's Acknowledgements

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders. This Bid will remain subject to acceptance for 30 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

2.02 Bidder will sign and submit the Contract with the Bonds and other documents required by the Bidding Requirements within ten days after the date of the Owner's Notice of Award.

##### Bidder's Representations

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.

Addendum Date

_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

- E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Superintendent written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Superintendent is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

#### **Bidder's Certification**

##### **4.01 Bidder certifies that:**

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

**Basis of Bid**

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

**(See next page for Bid Schedule)**

## **BID SCHEDULE**

### **BASE BID**

Provide materials and labor for construction of the **Base Scope of Work** per plans and specifications. The bid shall be prepared as a total lump sum. For bid evaluation purposes and payment apps (continuation sheet), provide sub-totals for the following categories. These categories shall not be used individually or in any combination to segregate bid.

<u>Task</u>	<u>Sub-Total</u>
General Conditions, Mobilization and Supervision	_____
Topsoil Management, Mass Grading and Shaping	_____
Solid Drainage (4" and larger and associated structures)	_____
Feature Construction	_____
Irrigation Installation	_____
Asphalt Paths	_____
Golf Course Finish Preparation and Grassing	_____
Native Plantings and First Year Maintenance	_____

**BASE BID TOTAL LUMP SUM** \_\_\_\_\_

### **ALTERNATE OPTION #1**

On fairways, in lieu of weed-free 007 bentgrass sod, provide and install 007 bentgrass sod with poa annua contamination (approx. 20%) as provided by Green Source, Inc., contact: Pete Kiraly 847.404.4346. (If no longer available in this condition, indicate with N/A.)

**ADD or DEDUCT (choose one)** \_\_\_\_\_

### **ALTERNATE OPTION #2**

On green, provide and install Pure Distinction bentgrass **pre-cut to greens height**. (If not available in this condition, indicate with N/A.)

**ADD or DEDUCT (choose one)** \_\_\_\_\_

### **ALTERNATE OPTION #3**

Eliminate 6:3:1 mix, bentgrass sod and irrigation installation in the chipping green. Replace with 6" of topsoil and bluegrass sod.

**Indicate ADD or DEDUCT (choose one)** \_\_\_\_\_

### **ALTERNATE OPTION #4**

In lieu of Flexterra mulch on seeded roughs, furnish and install DS-75 erosion control blanket.

**Indicate ADD or DEDUCT (choose one)** \_\_\_\_\_

## UNIT COSTS

The above bids are lump sum and all work included with their described construction shall be treated as such. In the event individual work items are added or deleted at the direction of the Owner, which constitutes a distinct change in the work and does not exceed 10% of the total project sum, a change order shall be executed and the following unit prices shall apply. Should the change in scope amount to more than 10% of the project sum, Contractor and Owner shall have the right to negotiate a fair sum above and beyond the units provided below. **Each unit price shall include the cost of all installation labor, material, sales tax, general conditions, and all other incidentals required to cover the completion of the work.**

### GOLF COURSE

Roto-till existing turf	per sf	_____
Sod strip and dispose of existing turf	per sf	_____
Strip and stockpile on-site topsoil	per cy	_____
Excavate, haul and grade on-site fill material	per cy	_____
Replace on-site topsoil	per cy	_____
Feature shaping	per hour	_____
2" Turf flow pipe w/6:3:1 mix backfill in greens	per lf	_____
4" N-12 perforated draitile w/gravel backfill	per lf	_____
4" N-12 solid draitile with soil backfill	per lf	_____
6" N-12 solid draitile with soil backfill	per lf	_____
4" inspection Ts	each	_____
12" plastic catch basins with grate	each	_____
24" plastic catch basins with grate	each	_____
6:3:1 Rootzone mix, installed	per ton	_____
7:2:1 Rootzone mix, installed	per ton	_____
Better Billy Bunker liner	per sf	_____
Thelen S & G bunker sand, installed	per ton	_____
Prep and install Pure Distinction bentgrass sod (greens height)	per sf	_____
Prep and install Pure Distinction bentgrass sod (standard height)	per sf	_____
Prep and install 007 bentgrass sod (standard height)	per sf	_____
Prep and install bluegrass sod	per sf	_____
Prep and install bluegrass seed	per sf	_____
Flexterra mulch	per sf	_____
DS-75 erosion control blanket	per sf	_____
Furnish and install 4" gravel base for paths	per sf	_____
Furnish and install 2" asphalt layer for paths	per sf	_____

## IRRIGATION

Rain Bird 900-E full circle gear driven rotor 1 ½" body (incl. piping, fittings, 1 ½" swing joints, wiring, splice kits and other incidentals)	each	_____
Rain Bird 950-E part circle gear driven rotor 1 ½" body (incl. piping, fittings, 1 ½" swing joints, wiring, splice kits and other incidentals)	each	_____
Rain Bird 702-E part circle gear driven rotor 1 1/4" body (incl. piping, fittings, 1 ½" swing joints, wiring, splice kits and other incidentals)	each	_____
Rain Bird 752-E part circle gear driven rotor 1 1/4" body (incl. piping, fittings, 1 ½" swing joints, wiring, splice kits and other incidentals)	each	_____
Rain Bird (8) station output board (if required for additional stations)	each	_____
1" Quick coupler valve w/stabilizer and swing joint -complete	each	_____
3" line sized isolation valve with all associated equipment - complete	each	_____
2" Class 200 PVC Pipe	per lf	_____
2-1/2" Class 200 PVC Pipe	per lf	_____
3" Class 200 PVC Pipe	per lf	_____

## NATIVE PLANTINGS

Goose protection barrier		per sf	
Short prairie grass seed mix		per sf	
S75BN erosion control blanket		per sf	
<i>Carex emoryi</i>	Riverbank Sedge	each	
<i>Carex lacustris</i>	Lake Sedge	each	
<i>Carex vulpinoidea</i>	Fox Sedge	each	
<i>Carex pellita</i>	Fox Sedge	each	
<i>Carex comosa</i>	Riverbank Sedge	each	
<i>Scirpus atrovirens</i>	Dark Green Bulrush	each	
<i>Elymus virginicus</i>	Virginia Wild Rye	each	
<i>Spartina pectinata</i>	Prairie Cord Grass	each	
<i>Panicum virgatum</i>	Switch Grass	each	
<i>Acorus americanus</i>	Sweet Flag	each	
<i>Iris virginica</i>	Blue Flag	each	
<i>Juncus effusus</i>	Soft Rush	each	
<i>Sagittaria latifolia</i>	Common Arrowhead	each	
<i>Schoenoplectus acutus</i>	Hardstem bulrush	each	
<i>Schoenoplectus pungens</i>	Chairmaker's Rush	each	
<i>Schoenoplectus tabernaemontani</i>	Great Bulrush	each	
<i>Scirpus atrovirens</i>	Dark Green Rush	each	
<i>Sparganium eurycarpum</i>	Bur Reed	each	
<i>Pontederia cordata</i>	Pickereel Weed	each	
<i>Nymphaea cordata</i>	White Water Lily	each	

### **Time of Completion**

- 6.01 Bidder agrees that work shall have a start date of **APRIL 5, 2021** and will be substantially complete by **JUNE 18, 2021** as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions by **JULY 2, 2021**.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

### **Attachments to This Bid**

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security in the form of bid bond, cash, certified check, cashier's check or draft payable to The City of Lake Forest, in the amount of not less than ten (10) percent of the bid;
  - B. A tabulation of Proposed Subcontractors and other persons and organizations required to be identified in this Bid in accordance with state laws applicable where the Work is to be performed;
  - C. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
  - D. Owner reserves the right to reject any Bid in which all of the items in the Bid are not properly filled out.

### **Defined Terms**

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders and the General Conditions.

### **Bidders Contact Information**

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

E-mail \_\_\_\_\_

SUBMITTED on \_\_\_\_\_, 20\_\_\_\_.

State Contractor License No. \_\_\_\_\_.

**Eligibility to Bid**

\_\_\_\_\_, having submitted a bid on a contract for the  
\_\_\_\_\_, as generally described in the Advertisement for  
Bids, to the City of Lake Forest hereby certifies that said contractor is not barred from bidding on the  
aforementioned contract as a result of a violation of either Section 33E-3 or 33E-4 of Article 33E of  
Chapter 38 of the Illinois Revised Statutes.

BY: \_\_\_\_\_  
Authorized Agent of Contractor

Subscribed and sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

## **Bid submittal**

9.01 This Bid is submitted by:

If Bidder is:

### An Individual

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_  
(Individual's signature)

Doing business as: \_\_\_\_\_

### A Partnership

Partnership Name: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

### A Corporation

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability): \_\_\_\_\_

By: \_\_\_\_\_  
(Signature -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_  
(CORPORATE SEAL)

Attest \_\_\_\_\_

Date of Qualification to do business in the State of Illinois is \_\_\_\_/\_\_\_\_/\_\_\_\_.

A Joint Venture

Name of Joint Venture: \_\_\_\_\_

First Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Second Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Sworn and subscribed to before me this \_\_\_\_\_, day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary of other officer authorized to administer oaths

My commission expires: \_\_\_\_\_

## Bid bond

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

---

BIDDER (*Name and Address*):

SURETY (*Name and Address of Principal Place of Business*):

OWNER (*Name and Address*):

BID

Bid Due Date:

Description (*Project Name and Include Location*):

BOND

Bond Number:

Date (*Not earlier than Bid due date*):

Penal sum \_\_\_\_\_ \$ \_\_\_\_\_  
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

**BIDDER**

**SURETY**

\_\_\_\_\_  
Bidder's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.*

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
  - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2 All Bids are rejected by Owner, or
  - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

## Agreement

### BETWEEN THE CITY OF LAKE FOREST AND CONTRACTOR FOR CONSTRUCTION CONTRACT

THIS AGREEMENT is dated as of the \_\_\_\_ day of \_\_\_\_\_ in the year 20\_\_\_\_, (“Effective Date”) by and between The City of Lake Forest, Illinois (“Owner”) and \_\_\_\_\_ (“Contractor”).

Owner and Contractor hereby agree as follows:

#### Work

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: **The scope of work includes the restoration of the Deerpath Golf Course following the construction of two detention basins, which are part of a larger IDOT-funded improvement project occurring on the golf course and along Deerpath Road.**

#### The Project

- 2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows: **Deerpath Golf Course Restoration Project**

#### Designer/Engineer

- 3.01 The Project has been designed by Lohmann Golf Designs, Inc. and V3 Companies, which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

#### Contract Times

- 4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

- 4.02 *Days to Achieve Substantial Completion and Final Payment*

- 8.02 Bidder agrees that work shall have a start date of **APRIL 5, 2021** and will be substantially complete by **JUNE 18, 2021** as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions by **JULY 2, 2021**.

- 4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner Five Hundred Dollars (\$500.00) for each day that expires after the time specified in Paragraph 4.02 above for

Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner Two Hundred Dollars (\$200.00) for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

- B. The Contractor agrees to make no claim for damages for delay in the performance of the Contract occasioned by any act or omission to act of The City of Lake Forest or any of its representatives and agrees that any subject claim shall be fully compensated for by an extension of time to complete the performance of the work as provided herein.

### **Contract Price**

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraph 5.01.A below:

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

### **Payment Procedures**

- 6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Superintendent as provided in the General Conditions.

- 6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment and as recommended by Superintendent during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.
    - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the total amount of work completed and accepted by the Superintendent at the time the Application for Payment is submitted but, in each case, less the aggregate of payments previously made and less such amounts as Superintendent may determine, or Owner may withhold, including but not limited to 10% of total amount of work completed and liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
    - 2. Upon Substantial Completion, progress payments will be made in an amount equal to the total amount of work completed and accepted by the Superintendent at the time the Application for Payment is submitted but, in each case, less the aggregate of payments previously made and less such amounts as Superintendent may determine, or Owner may withhold, including but not limited to 5% of total amount of work completed and liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.

### 6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Superintendent as provided in said Paragraph 14.07.

#### **Contractor's Representations**

7.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph 4.02 of the General Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph 4.06 of the General Conditions as containing reliable "technical data."
- E. Contractor has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities.
- F. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
- G. Based on the information and observations referred to in Paragraph 7.01.F above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents including specifically the provisions of Paragraphs 4.02 and 4.04 of the General Conditions.
- H. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- I. Contractor has given Superintendent written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Superintendent is acceptable to Contractor.

- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **Contract Documents**

### **9.01 Contents**

A. The Contract Documents consist of the following:

1. This Agreement (Section 00520, inclusive).
2. Performance bond (Section 00610, inclusive). All bonds are to have the same effective date as the Agreement.
3. Payment bond (Section 00615, inclusive). All bonds are to have the same effective date as the Agreement.
4. General Conditions (Section 00700, inclusive).
5. Specifications as listed in the table of contents of the Project Manual.
6. Drawings consisting of 20 sheets with the Drawings listed on attached sheet index.
7. Addenda (numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive).
8. Wage Rates (Section 00830, inclusive).
9. Exhibits to this Agreement (enumerated as follows):
  - a. Contractor's Bid (Section 00410, inclusive).
  - b. Advertisement for Bids (Section 00030, inclusive).
  - c. Instructions to Bidders (Section 00200, inclusive).
  - d. Documentation submitted by Contractor prior to Notice of Award.
10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
  - a. Notice to Proceed.
  - b. Work Change Directives.
  - c. Change Orders.

B. The documents listed in Paragraph 8.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 8.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## **Miscellaneous**

### **9.01    *Terms***

- A. Terms used in this Agreement will have the meanings stated in the General Conditions.

### **9.02    *Assignment of Contract***

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### **9.03    *Successors and Assigns***

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

### **9.04    *Severability***

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

### **9.05    *Contractor's Certifications***

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 9.05:
  - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

9.06 *Eligibility to Execute Contract*

\_\_\_\_\_, having executed a contract for the  
\_\_\_\_\_, with the City of Lake Forest, hereby certifies that  
said contractor is not barred from executing said contract as a result of a violation of either Section 33E-3 or 33E-4 of Article 33E of Chapter 38 of the Illinois Revised Statutes.

BY: \_\_\_\_\_  
Authorized Agent of Contractor

Subscribed and sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner, Contractor, and Superintendent. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or by Superintendent on their behalf.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR

**THE CITY OF LAKE FOREST**

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Address for giving notices:

Address for giving notices:

800 N. FIELD DRIVE

LAKE FOREST, IL 60045

License No.: \_\_\_\_\_

(Where applicable)

Agent for service of process:

\_\_\_\_\_

## Performance bond

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

---

CONTRACTOR (*Name and Address*):                      SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

### CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

### BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

### CONTRACTOR AS PRINCIPAL

### SURETY

\_\_\_\_\_  
Contractor's Name and Corporate Seal

\_\_\_\_\_  
Surety's Name and Corporate Seal

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

12. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.

13. If there is no Owner Default, Surety's obligation under this Bond shall arise after:

- 13.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
- 13.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
- 13.3 Owner has agreed to pay the Balance of the Contract Price to:
  - 1. Surety in accordance with the terms of the Contract; or
  - 2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.

14. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:

- 14.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
- 14.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
- 14.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
- 14.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
  - 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
  - 2. Deny liability in whole or in part and notify Owner citing reasons therefor.

15. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

16. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 16.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;

- 16.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 16.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

17. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

18. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

19. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

20. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

21. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

22. Definitions.

- 22.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 22.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 22.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 22.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*

Surety Agency or Broker:

Owner's Representative *(Engineer or other party)*:

## Payment bond

**Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.**

CONTRACTOR (*Name and Address*): SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

### CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

### BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

### CONTRACTOR AS PRINCIPAL

### SURETY

\_\_\_\_\_  
Contractor's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

23. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

24. With respect to Owner, this obligation shall be null and void if Contractor:

24.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and

24.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

25. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

26. Surety shall have no obligation to Claimants under this Bond until:

26.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

26.2 Claimants who do not have a direct contract with Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

27. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

28. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:

28.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

28.2 Pay or arrange for payment of any undisputed amounts.

29. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

30. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

31. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this

Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

32. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

33. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

34. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

35. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

36. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

#### 37. Definitions

37.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

37.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

37.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner's Representative *(Engineer or other)*:

**STANDARD GENERAL CONDITIONS  
OF THE CONSTRUCTION CONTRACT**

**ARTICLE 1 - DEFINITIONS AND TERMINOLOGY**

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement (Contract)*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Superintendent which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Superintendent which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Superintendent's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Superintendent which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Superintendent* —The City Superintendent of The City of Lake Forest or his designee.
20. *Field Order*—A written order issued by Superintendent which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Superintendent who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Superintendent, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Superintendent ordering an addition, deletion, or revision in the Work, or responding to differing or

unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

### B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Superintendent. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Superintendent as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Superintendent any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

### C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

### D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents; or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - c. has been damaged prior to Superintendent’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

### E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 - PRELIMINARY MATTERS**

### **2.01 *Delivery of Bonds and Evidence of Insurance***

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
1. The Agreement, Bonds, and such other portions of the Contract Documents as may be required shall be executed and delivered by Contractor to Owner within 10 days after receipt of the Notice of Award. Owner shall determine the number of counterparts required. Owner will execute the counterparts. Owner, Contractor, and Superintendent shall each receive an executed counterpart of the Contract Documents and additional conformed copies distributed as required.
- B. *Evidence of Insurance:* Before any Work at the site is started, Contractor shall deliver to Owner certificates (and other evidence of insurance requested by Owner) which Contractor is required to purchase and maintain in accordance with the Contract Documents.

### **2.02 *Copies of Documents***

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### **2.03 *Commencement of Contract Times; Notice to Proceed***

- A. The Contract Time will commence on the date established in the Notice to Proceed issued by Owner to Contractor, but in no event shall the Contract Time commence to run later than the 30th day after the effective date of the Contract. A Notice to Proceed may be given at any time within the 30 days after the effective date of the Contract.

### **2.04 *Starting the Work***

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

## 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Superintendent for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

## 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. After delivery of the executed Contract to Owner, but before Contractor starts the Work at the site, a conference will be held to establish a working understanding among the parties as to the Work.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.
- C. The conference will be held at a location selected by Owner. The conference will be attended by:
  - 1. Contractor 's Office Representative.
  - 2. Contractor 's General Superintendent.
  - 3. Any Subcontractors' or Suppliers' representatives whom Contractor may desire to invite or Superintendent may request.
  - 4. Owner's Representatives.
  - 5. Local Utilities Representatives.
- D. A suggested format would include, but not be limited to, the following subjects:

1. Discuss proposed construction progress schedule to be submitted by Contractor in accordance with Section 01300 of the Specifications.
2. Check of required bonds and insurance certifications prior to Notice to Proceed.
3. Liquidated damages.
4. Shop drawing submittal and approval procedure.
5. Chain of command, direction of correspondence, and coordinating responsibility between Contractors.
6. Request for a weekly job meeting for all involved.
7. Equal opportunity requirements.
8. Laboratory testing of material requirements.
9. Inventory of material stored on-site provisions.
10. Progress estimate and payment procedure.

#### 2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Superintendent, and others as appropriate will be held to review for acceptability to Superintendent as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Superintendent.
  1. The Progress Schedule will be acceptable to Superintendent if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Superintendent responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  2. Contractor's Schedule of Submittals will be acceptable to Superintendent if it provides a workable arrangement for reviewing and processing the required submittals.
  3. Contractor's Schedule of Values will be acceptable to Superintendent as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### **ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

#### 3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Superintendent as provided in Article 9.

### 3.02 *Reference Standards*

#### A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Superintendent, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Superintendent, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Superintendent any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Superintendent before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Superintendent in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Superintendent for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

*B. Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

*3.04 Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Superintendent's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
  3. Superintendent's written interpretation or clarification.

*3.05 Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
  1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
  2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Superintendent and specific written verification or adaptation by Superintendent.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

*3.06 Electronic Data*

- A. Unless otherwise stated in the General Conditions, the data furnished by Owner or Superintendent to Contractor, or by Contractor to Owner or Superintendent, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

**ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

**4.01    *Availability of Lands***

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

**4.02    *Subsurface and Physical Conditions***

- A. *Reports and Drawings:* The General Conditions identify:
  - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the General Conditions. Except for such reliance on such “technical data,” Contractor may not rely upon or make any claim against Owner or Superintendent, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions, or information.

C. Soils Investigation Report – General

1. A soils investigation report has not been prepared for the site of this work.
2. Bidders should visit the site and acquaint themselves with existing conditions.
3. Prior to bidding, Bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Superintendent.
4. All excavation and/or removal items being disposed of at an uncontaminated soil fill site shall meet the requirements of Public Act 96-1416. All costs associated with meeting these requirements shall be the responsibility of the Contractor and included in the cost of the associated bid items in the contract. These costs shall include but are not limited to certification by a licensed engineer, all required testing and laboratory analysis, and any state and local dumping fees. Additionally, the Contractor shall also be responsible for any rejected loads, the material shall not be returned to The City of Lake Forest.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;
  - a. then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Superintendent in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.
- B. *Superintendent's Review:* After receipt of written notice as required by Paragraph 4.03.A, Superintendent will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Superintendent's findings and conclusions.
- C. *Possible Price and Times Adjustments:*
  1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
    - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
  2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
    - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
    - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
    - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
  3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Superintendent, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and

other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

- A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Superintendent by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the General Conditions:
1. Owner and Superintendent shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
  2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    - a. reviewing and checking all such information and data;
    - b. locating all Underground Facilities shown or indicated in the Contract Documents;
    - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
    - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.
- B. *Not Shown or Indicated:*
1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Superintendent. Superintendent will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
  2. If Superintendent concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Superintendent's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Superintendent whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The General Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

##### 1. Hazardous Environmental Conditions Report – General

- a. A hazardous environmental conditions report has not been prepared for the site of this work.
  - b. Bidders should visit the site and acquaint themselves with existing conditions.
  - c. Prior to bidding, Bidders may make their own site and subsurface investigations to satisfy themselves as to hazardous environmental conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Superintendent.
  - d. All excavation and/or removal items being disposed of at an uncontaminated soil fill site shall meet the requirements of Public Act 96-1416. All costs associated with meeting these requirements shall be the responsibility of the Contractor and included in the cost of the associated bid items in the contract. These costs shall include but are not limited to certification by a licensed engineer, all required testing and laboratory analysis, and any state and local dumping fees. Additionally, the Contractor shall also be responsible for any rejected loads, the material shall not be returned to The City of Lake Forest.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the General Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Superintendent, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
    - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Superintendent (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Superintendent concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Superintendent, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner’s own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Superintendent, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the

scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Superintendent, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 5 - BONDS AND INSURANCE**

### **5.01 *Performance, Payment, and Other Bonds***

- A. If the Contractor chooses to supply Performance and Payment Bonds they both must be in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02. In addition, no further progress payments under the Agreement will be made by Owner until Contractor complies with the provisions of this Article.

## 5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the General Conditions.

## 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the General Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the General Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

## 5.04 *Contractor's Insurance Requirements*

- A. Contractor shall procure and maintain for the duration of the Contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.
- B. Minimum Scope of Insurance
  - 1. Coverage shall be at least as broad as:
    - a. Insurance Services Office Commercial General Liability occurrence form CG 0001 (Ed. 11/85) / and/or Owner's and Contractor's Protective Liability policy with The City of Lake Forest stated as named insured; and
    - b. Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 "any auto" and endorsement AC 0019 (Ed. 12/88) changes in Business Auto and Truckers coverage forms - Insured Contract; and

- c. Workers' Compensation as required by the Labor Code of the State of Illinois and Employers' Liability insurance.

#### C. Minimum Limits of Insurance

##### 1. Contractor shall maintain limits no less than:

- a. Commercial General Liability: \$2,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. The general aggregate shall be twice the required occurrence limit. Minimum General Aggregate shall be no less than \$4,000,000.

##### 1) Coverages shall include:

1. Broad Form Property Damage Endorsement
2. Blanket Contractual Liability (must expressly cover the indemnity provisions of the contract)
3. Premises/Operations
4. Products/Completed Operations (to be maintained for two years following final payment)
5. Independent Contractors
6. Personal Injury (with Employment Exclusion deleted)
7. Broad Form Property Damage Endorsement
8. Bodily Injury and Property Damage

##### 2) "X", "C", and "U" exclusions shall be deleted.

##### 3) Railroad exclusions shall be deleted if Work Site is within 50 feet of any railroad track.

- b. Automobile Liability: \$2,000,000 combined single limit per accident for bodily injury and property damage for vehicles owned, not owned, or rented.
- c. Worker's Compensation and Employers' Liability: Workers' Compensation limits as required by the Labor Code of the State of Illinois and Employers' Liability limits of \$500,000 injury per - occurrence, \$500,000 disease - per employee, and \$500,000 disease – policy limit.
- d. Builder's Risk Insurance, written in completed value form, to protect the supplier or vendor and the City against "all risks" of direct physical loss to buildings, structures, equipment, and materials to be used in providing, performing, and completing the construction, including without limitation fire, extended coverage, vandalism and malicious mischief, sprinkler leakage, flood, earth movement, and collapse, and shall be designed for the circumstances that may affect the construction.

This insurance shall be written with limits not less than the insurable value of the project at completion. The insurable value shall include the aggregate value of City-furnished equipment and materials to be constructed or installed by the supplier or vendor.

This insurance shall include coverage while equipment or materials are in warehouses, during installation, during testing, and after the project is completed, but prior to final payment. This insurance shall include coverage while the City is occupying all or any part of the project prior to final payment without the need for the insurance company's consent.

#### D. Deductibles and Self-Insured Retentions

1. Any deductibles or self-insured retentions must be declared to and approved by The City of Lake Forest. At the option of The City of Lake Forest, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects The City of Lake Forest, its officials and employees; or the Contractor shall procure a bond guaranteeing payment of losses and related investigation, claim administration and defense expenses.

#### E. Other Insurance Provisions

1. The policies are to contain, or be endorsed to contain, the following provisions:
  - a. General Liability and Automobile Liability Coverages
    - 1) The City of Lake Forest, including its City Council Members and elected and appointed officials, its officers, employees, agents, attorneys, consultants, and representatives, are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, leased or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to The City of Lake Forest, its agents, employees or volunteers.
    - 2) The Contractor's insurance coverage shall be primary as respects The City of Lake Forest, including its City Council Members and elected and appointed officials, its officers, employees, agents, attorneys, consultants, and representatives. Any insurance or self-insurance maintained by The City of Lake Forest, its agents, employees or volunteers shall be excess of Contractor's insurance and shall not contribute with it.
    - 3) Any failure to comply with reporting provisions of the policies shall not affect coverage provided to The City of Lake Forest, including its City Council Members and elected and appointed officials, its officers, employees, agents, attorneys, consultants, and representatives.
    - 4) Coverage shall state that Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
    - 5) All Contractor's employees shall be included as insureds.

6) Workers' Compensation and Employers' Liability Coverages

The insurer shall agree to waive all rights of subrogation against The City of Lake Forest, its agents, employees and volunteers for losses arising from work performed by Contractor for The City of Lake Forest.

7) All Coverages

Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to The City of Lake Forest.

- b. *Owner's and Contractor's Protective Liability Insurance*, in the name of the City with a combined single limit for the bodily injury and property damage of not less the amount required by the City Manager. This requirement shall apply to construction projects.
- c. *Professional Liability Insurance*, with a limit of liability of not less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate and covering the supplier or vendor against all sums that supplier or vendor may be obligated to pay on account of any liability arising out of the contract. This requirement shall apply to design and consulting projects, as well as to contracts for professionals involved in construction projects.
- d. *Umbrella Policy*. The required coverages may be in any combination of primary, excess, and umbrella policies. Any excess or umbrella policy must provide excess coverage over underlying insurance on a following-form basis such that when any loss covered by the primary policy exceeds the limits under the primary policy, the excess or umbrella policy becomes effective to cover such loss.

F. Acceptability of Insurers

- 1. Insurance is to be placed with insurers with a Best's rating of no less than B+.

G. Verification of Coverage

- 1. Contractor shall furnish The City of Lake Forest with certificates of insurance naming The City of Lake Forest as an additional insured, and with original endorsements affecting coverage required by this clause. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements may be on forms provided by the City of Lake Forest and are to be received and approved by The City of Lake Forest before any work commences. The City of Lake Forest reserves the right to request full certified copies of the insurance policies.
- 2. Contractor shall furnish The City of Lake Forest with evidence that the Worker's Compensation and Employer's Liability Insurance provides coverage in the State of Illinois.

H. Subcontractors

1. Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

#### I. Indemnity Hold Harmless Provision

1. To the fullest extent permitted by law, the Contractor hereby agrees to defend, indemnify and hold harmless The City of Lake Forest, its officials, agents and employees, against all injuries, deaths, loss, damages, claims, patent claims, suits, liabilities, judgments, cost and expenses, which may in anywise accrue against The City of Lake Forest, its officials, agents and employees, a rising in whole or in part or in consequence of the performance of this work by the Contractor, its employees, or subcontractors, or which may in anywise result therefore, except that arising out of the sole legal cause of The City of Lake Forest, its agents or employees, the Contractor shall, at its own expense, appear, defend and pay all charges of attorneys and all costs and other expenses arising therefore or incurred in connections therewith, and, if any judgment shall be rendered against The City of Lake Forest, its officials, agents and employees, in any such action, the Contractor shall, at its own expense, satisfy and discharge the same.
2. Contractor expressly understands and agrees that any performance bond or insurance policies required by this Contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend The City of Lake Forest, its officials, agents and employees as herein provided.
3. The Contractor further agrees that to the extent that money is due the Contractor by virtue of this Contract as shall be considered necessary in the judgment of The City of Lake Forest, may be retained by The City of Lake Forest to protect itself against said loss until such claims, suits, or judgments shall have been settled or discharged and/or evidence to that effect shall have been furnished to the satisfaction of The City of Lake Forest.

5.05 *DELETED*

5.06 *DELETED*

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that any policies provided in response to this document shall protect all of the parties insured and provide primary coverage for all losses and damages caused by the perils covered thereby. Accordingly, all such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any of the parties named as insureds or additional insureds, and if the insurers require separate waiver forms to be signed by any Subcontractor, Contractor will obtain the same.
- B. Owner and Contractor waive all rights against each other for all losses and damages caused by any of the perils covered by the policies of insurance provided in response to paragraphs in this document and any other property insurance applicable to the work, and also waive all such rights against the Subcontractors, and all other parties named as insureds in such policies for losses and damages so caused. As required by paragraph 6.11., each subcontract between Contractor and a Subcontractor will contain similar waiver provisions by the Subcontractor in

favor of Owner, Contractor, and all other parties names as insureds. None of the above waivers shall extend to the rights that any of the insured parties may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Superintendent, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *DELETED*

5.09 *DELETED*

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

## **ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES**

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Superintendent in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Superintendent except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written

consent (which will not be unreasonably withheld) given after prior written notice to Superintendent.

#### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment permanently incorporated into the Work shall be new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Superintendent, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Superintendent for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

#### 6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Superintendent for review under the circumstances described below.
  - 1. *"Or-Equal" Items:* If in Superintendent's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Superintendent as an "or-equal" item, in which case review and approval of the proposed item may, in Superintendent's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this

Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

- a. in the exercise of reasonable judgment Superintendent determines that:
  - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
  - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
  - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
  - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
  - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Superintendent's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Superintendent to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Superintendent from anyone other than Contractor.
- c. The requirements for review by Superintendent will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Superintendent may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Superintendent for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
  - 1) shall certify that the proposed substitute item will:
    1. perform adequately the functions and achieve the results called for by the general design,
    2. be similar in substance to that specified, and
    3. be suited to the same use as that specified;
  - 2) will state:

1. the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
  2. whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
  3. whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
1. all variations of the proposed substitute item from that specified, and
  2. available engineering, sales, maintenance, repair, and replacement services; and
- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Superintendent. Contractor shall submit sufficient information to allow Superintendent, in Superintendent's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Superintendent will be similar to those provided in Paragraph 6.05.A.2.
- C. *Superintendent's Evaluation:* Superintendent will be allowed a reasonable time within which to evaluate each proposed substitute. Superintendent will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized with Superintendent's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute. When substitutes are proposed and accepted by Superintendent, and it is found that such substitutes alter the design or space requirements indicated on Drawings, Contractor shall be responsible for the costs involved to revise the design and construction, including the costs associated with the work of other contractors due to such variance in design or space requirements. Therefore, Contractor shall thoroughly investigate the design parameters, conditions, and space requirements, with respect to the Contract Drawings and Specifications prior to requesting substitutes.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Superintendent's Cost Reimbursement:* Superintendent will record Superintendent's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Superintendent approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Superintendent for

evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Superintendent for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor or other person or organization (including those who are to furnish the principal items of material or equipment), whether initially or as a substitute, against whom Owner may have reasonable objection. Acceptance of any Subcontractor, other person or organization by Owner shall not constitute a waiver of any right of Owner to reject defective Work or Work not in conformance with the Contract Documents. If Owner, after due investigation, has reasonable objection to any Subcontractor, other person or organization proposed by Contractor, Contractor shall submit an acceptable substitute. Contractor shall not be required to employ any Subcontractor, other person or organization against whom he has reasonable objection. Contractor shall not, without the consent of Owner, make substitution for any Subcontractor, other person or organization who has been accepted by Owner.
- B. DELETED
- C. Contractor shall be fully responsible to Owner and Superintendent for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Superintendent and any such Subcontractor, Supplier or other individual or entity; nor
  2. shall create any obligation on the part of Owner or Superintendent to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Superintendent through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor will be pursuant to an appropriate agreement between Contractor and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit

of the Owner and contains waiver provisions as required by Subparagraphs SC 5.07.A. and SC 5.07.B. Contractor shall pay each Subcontractor a just share of any insurance monies received by Contractor on account of losses under policies issued pursuant to Paragraph SC 5.04.A. through 5.04.C.

#### 6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Superintendent, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Superintendent, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 6.08 *Permits*

- A. Unless otherwise provided in the General Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work. Copies of all permits and licenses prepared or obtained by Contractor shall be submitted to Owner prior to the commencement of construction. Copies of all permits and licenses obtained by Owner shall be made available to Contractor and maintained by Contractor at the Project site.

#### 6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Superintendent shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.
- B. Owner is exempt from payment of sales and compensating use taxes of the State of Illinois on all materials to be incorporated into the Work.
  - 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
  - 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

#### 6.11 *Use of Site and Other Areas*

##### *A. Limitation on Use of Site and Other Areas:*

- 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
- 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Superintendent, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Superintendent, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

#### 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Superintendent for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Superintendent for Owner.

#### 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
  1. all persons on the Site or who may be affected by the Work;
  2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The General Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Superintendent of the specific requirements of Contractor's safety program with which Owner's and Superintendent's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Superintendent or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Superintendent has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Superintendent prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused

thereby or are required as a result thereof. If Superintendent determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Superintendent for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Superintendent may require.

##### 1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Superintendent the services, materials, and equipment Contractor proposes to provide and to enable Superintendent to review the information for the limited purposes required by Paragraph 6.17.D.

##### 2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Superintendent may require to enable Superintendent to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Superintendent's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

##### C. *Submittal Procedures:*

##### 1. Before submitting each Shop Drawing or Sample, Contractor shall have:

- a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Superintendent specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Superintendent for review and approval of each such variation.

*D. Superintendent's Review:*

1. Superintendent will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Superintendent. Superintendent's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Superintendent's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Superintendent's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Superintendent has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Superintendent's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

*E. Resubmittal Procedures:*

1. Contractor shall make corrections required by Superintendent and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Superintendent on previous submittals.

**6.18** *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

**6.19** *Contractor's General Warranty and Guarantee*

- A. Contractor warrants to Owner that all materials and equipment furnished under this Contract will be new, unless otherwise specified, and that all Work will be of good quality, free from faults and defects, in conformance with the Contract Documents. Superintendent and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  - 1. observations by Superintendent;
  - 2. recommendation by Superintendent or payment by Owner of any progress or final payment;
  - 3. the issuance of a certificate of Substantial Completion by Superintendent or any payment related thereto by Owner;
  - 4. use or occupancy of the Work or any part thereof by Owner;
  - 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Superintendent;
  - 6. any inspection, test, or approval by others; or
  - 7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Superintendent, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Superintendent or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Superintendent and Superintendent's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.
- D. The obligations of the Contractor under Paragraphs 6.20.A., 6.20.B., and 6.20.C. shall be construed to include, but not be limited to, injury or damage consequent upon any failure to use or misuse by Contractor, his agents and employees of any scaffold, hoist, crane, stay, ladder, support or other mechanical contrivance erected or constructed by any person or any or all other kinds of equipment whether or not owned or furnished by the Owner. It is understood that this excludes use by the Owner or his employees of scaffolding owned and furnished by the Owner.
  - 1. In the event that any party is requested but refused to honor the indemnity obligations hereunder, the party indemnifying shall, in addition to all other obligations, pay the cost of bringing any such action, including attorney's fees, to the party requesting indemnity.

#### 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Superintendent will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Superintendent.

- C. Owner and Superintendent shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Superintendent have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Superintendent's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Superintendent's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## **ARTICLE 7 - OTHER WORK AT THE SITE**

### **7.01    *Related Work at Site***

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
  - 3. If the performance of such additional Work was noted in the Contract Documents and Contractor believes that the performance thereof entitles him to an extension of Contract Time, he may make a claim therefore as provided in Paragraph 12.02.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Superintendent and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Superintendent in writing any delays, defects, or deficiencies in such other

work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in General Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the General Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

### **ARTICLE 8 - OWNER'S RESPONSIBILITIES**

#### 8.01 *Communications to Contractor*

- A. DELETED

#### 8.02 *Replacement of Superintendent*

- A. In case of termination of the employment of Superintendent, Owner shall appoint a Superintendent whose status under the Contract Documents shall be that of the former Superintendent.

#### 8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

#### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. DELETED

8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

## **ARTICLE 9 - SUPERINTENDENT'S STATUS DURING CONSTRUCTION**

### **9.01    *Owner's Representative***

- A. Superintendent will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Superintendent as Owner's representative during construction are set forth in the Contract Documents.

### **9.02    *Visits to Site***

- A. Superintendent will make visits to the Site at intervals appropriate to the various stages of construction as Superintendent deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Superintendent, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Superintendent will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Superintendent's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Superintendent will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Superintendent's visits and observations are subject to all the limitations on Superintendent's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Superintendent's visits or observations of Contractor's Work, Superintendent will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

### **9.03    *Project Representative***

- A. If Owner and Superintendent agree, Superintendent will furnish a Resident Project Representative to assist Superintendent in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the General Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Superintendent's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the General Conditions.

### **9.04    *Authorized Variations in Work***

- A. Superintendent may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to

or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Superintendent will have authority to reject Work which Superintendent believes to be defective, or that Superintendent believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Superintendent will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Superintendent's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Superintendent's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Superintendent's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Superintendent's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Superintendent will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Superintendent will review with Contractor the Superintendent's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Superintendent's written decision thereon will be final and binding (except as modified by Superintendent to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Superintendent will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Superintendent in writing within 30 days of the event giving rise to the question.
- B. Superintendent will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Superintendent's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

- C. Superintendent's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Superintendent will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Superintendent's Authority and Responsibilities*

- A. Neither Superintendent's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Superintendent in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Superintendent shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Superintendent to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Superintendent will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Superintendent will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Superintendent will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Superintendent's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Superintendent's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Superintendent has been informed pursuant to Paragraph 6.13.D.

**ARTICLE 10 - CHANGES IN THE WORK; CLAIMS**

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly

proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

#### 10.03 *Execution of Change Orders*

- A. Owner, after consideration and approval, may execute appropriate Change Orders with Contractor covering:
  - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Superintendent pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

#### 10.05 *Claims*

- A. *Superintendent's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Superintendent for decision. A decision by Superintendent shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Superintendent and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Superintendent and the other party to the Contract within 60 days after the start of such event (unless Superintendent allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Superintendent and the claimant within 30 days after receipt of the claimant's last submittal (unless Superintendent allows additional time).
- C. *Superintendent's Action:* Superintendent will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
  2. approve the Claim; or
  3. notify the parties that the Superintendent is unable to resolve the Claim if, in the Superintendent's sole discretion, it would be inappropriate for the Superintendent to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Superintendent does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Superintendent's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those

prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Superintendent, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Superintendent, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment,

machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.
- B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
  - 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  - 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  - 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Superintendent an itemized cost breakdown together with supporting data.

#### 11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Superintendent.
- B. *Cash Allowances:*
  1. Contractor agrees that:
    - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
    - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:*
  1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Superintendent to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

#### 11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the

actual quantities and classifications of Unit Price Work performed by Contractor will be made by Superintendent subject to the provisions of Paragraph 9.07.

- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
  - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
  - 2. there is no corresponding adjustment with respect to any other item of Work; and
  - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

## **ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

### **12.01 *Change of Contract Price***

- A. The Contract Price may only be changed by a Change Order. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered to Superintendent promptly (but in no event later than 10 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of claim with supporting data shall be delivered within 30 days after such occurrence (unless Superintendent allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
  - 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
  - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
  - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
  - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
  - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
  - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
  - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
  - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
  - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

## 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered to the Superintendent promptly (but in no event later than 10 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 30 days after such occurrence (unless Superintendent allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

## 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an

amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

- B. If Owner, Superintendent, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Superintendent, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## **ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### **13.01 *Notice of Defects***

- A. Prompt notice of all defective Work of which Owner or Superintendent has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### **13.02 *Access to Work***

- A. Owner's representatives, testing agencies, and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observations, inspecting and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### **13.03 *Tests and Inspections***

- A. Contractor shall give Superintendent timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents or as required by the Owner.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Superintendent the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Superintendent's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Superintendent.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Superintendent, Contractor shall, if requested by Superintendent, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Superintendent timely notice of Contractor's intention to cover the same and Superintendent has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Superintendent, it must, if requested by Superintendent, be uncovered for Superintendent's observation and replaced at Contractor's expense.
- B. If Superintendent considers it necessary or advisable that covered Work be observed by Superintendent or inspected or tested by others, Contractor, at Superintendent's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Superintendent may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others).
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such

uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *Owner May Stop the Work*

- A. If the Work is defective or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, fails to conform to the progress schedule required by Paragraph 2.07.A., or if Contractor fails to make prompt payments to subcontractors for labor, materials or equipment, Owner may order Contractor to stop the Work or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give to any duty on the part of Owner to exercise this right for the benefit of Contractor or any other party.

#### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Superintendent, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

#### 13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. repair such defective land or areas; or
  - 2. correct such defective Work; or
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All

claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor. The Owner's rights under Paragraphs 13.07.A and 13.07.B. shall be in addition to and not a limitation of, any other rights and remedies available at law.

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

#### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Superintendent's recommendation of final payment, Superintendent) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Superintendent as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Superintendent's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### 13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Superintendent to correct defective Work, or to remove and replace rejected Work as required by Superintendent in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials

and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Superintendent and Superintendent's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## **ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION**

### **14.01 *Schedule of Values***

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Superintendent. Progress payments on account of Unit Price Work will be based on the number of units completed.

### **14.02 *Progress Payments***

#### **A. *Applications for Payments:***

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Superintendent for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

- a. Retainage:

After each Application for Payment has been found acceptable by Owner, Owner will pay an amount equal to the value of the Work completed less any previous payments to Contractor. An amount will be retained on each payment in accordance with the following schedule:

- 1) Ten (10) percent until construction is 50 percent complete.
- 2) Five (5) percent after construction is 50 percent complete, provided that the Contractor is making satisfactory progress and there is no specific cause for greater withholding.
- 3) When the project is substantially complete (as determined by the Superintendent) the retained amount will be reduced to two (2) percent of the value of work which is substantially complete.

Contractor shall furnish with each application for payment a Contractor's sworn affidavit listing all parties to receive payments on that request.

B. *Review of Applications:*

1. Superintendent will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Superintendent's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Superintendent's recommendation of any payment requested in an Application for Payment will constitute a representation by Superintendent to Owner, based on Superintendent's observations of the executed Work as an experienced and qualified design professional, and on Superintendent's review of the Application for Payment and the accompanying data and schedules, that to the best of Superintendent's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Superintendent's responsibility to observe the Work.

3. By recommending any such payment Superintendent will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Superintendent in the Contract Documents; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Superintendent's review of Contractor's Work for the purposes of recommending payments nor Superintendent's recommendation of any payment, including final payment, will impose responsibility on Superintendent:
  - a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Superintendent may refuse to recommend the whole or any part of any payment if, in Superintendent's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Superintendent may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Superintendent's opinion to protect Owner from loss because:
  - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;
  - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
  - d. Superintendent has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.
  - e. Contractor's Failure to supply lien waivers for materials, equipment, and Subcontract Work completed to date.

- f. Of reasonable doubt that the Work can be completed for the unpaid balance of the Contractor Price.

*C. Payment Becomes Due:*

1. 30 days after presentation of the Application for Payment to Owner with Superintendent's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

*D. Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Superintendent because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Superintendent, Owner will give Contractor immediate written notice (with a copy to Superintendent) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

*14.03 Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

*14.04 Substantial Completion*

- A. When Contractor considers the entire Work, or a designated portion thereof, ready for its intended use, Contractor shall, in writing to Owner and Superintendent, certify that the entire Work, or a designated portion thereof, is substantially complete and request that Superintendent issue a Certificate of Substantial Completion. Within a reasonable time thereafter, Owner, Contractor and Superintendent shall make an inspection of the Work to determine the status of completion. If Superintendent does not consider the Work substantially

complete, Superintendent will notify Contractor in writing stating his reasons. If Superintendent considers the Work substantially complete, Superintendent will prepare and deliver to Contractor a definitive Certificate of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion of the Work unless otherwise provided in the definitive Certificate of Substantial Completion.

- B. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items required by the Contract Documents.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Superintendent, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
  - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Superintendent will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
  - 2. Contractor at any time may notify Owner and Superintendent in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Superintendent to issue a certificate of Substantial Completion for that part of the Work.
  - 3. Within a reasonable time after either such request, Owner, Contractor, and Superintendent shall make an inspection of that part of the Work to determine its status of completion. If Superintendent does not consider that part of the Work to be substantially complete, Superintendent will notify Owner and Contractor in writing giving the reasons therefor. If Superintendent considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Superintendent will promptly make a final inspection with Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *Final Payment*

- A. *Application for Payment:*

1. After Contractor has, in the opinion of Superintendent, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and
  - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

*B. Superintendent's Review of Application and Acceptance:*

1. If, on the basis of Superintendent's observation of the Work during construction and final inspection, and Superintendent's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Superintendent is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Superintendent will, within ten days after receipt of the final Application for Payment, indicate in writing Superintendent's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Superintendent will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Superintendent will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

*C. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Superintendent, less any sum

Owner is entitled to set off against Superintendent's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

#### 14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Superintendent so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Superintendent, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Superintendent with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
  - 1. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.
- B. Liquidated Damages:
  - 1. Should Contractor or Surety fail to complete the Work within the time set forth in the Contract Documents or within such extra time as may be allowed by extensions, there shall be deducted from any monies due or that may become due Contractor or Surety the sum set forth in the Contract Documents for each and every calendar day, including Sundays and holidays, that the Work shall remain uncompleted. This sum shall be considered and treated not as a penalty but as fixed, agreed, and liquidated damages due Owner from Contractor or Surety because of Owner's loss of income and other costs incurred resulting from the failure to complete the Work within the time specified. Permitting Contractor or Surety to continue and finish the Work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, shall in no way operate as a waiver on the part of Owner of its rights under the Contractor.

### **ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION**

#### 15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

## 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Superintendent; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
  2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Superintendent as to their reasonableness and, when so approved by Superintendent, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

#### 15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
  4. reasonable expenses directly attributable to termination.
- ii. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.
- b. *Contractor May Stop Work or Terminate*
- i. If through no act or fault of Contractor, the Work is suspended for a period of more than ninety days by Owner or under an order of court, or other public authority, the Contractor may, upon seven days' written notice to Owner, terminate the Agreement and recover from Owner payment for all Work executed and any expense sustained plus reasonable termination expenses.

### **ARTICLE 16 - DISPUTE RESOLUTION**

#### *a. Methods and Procedures*

- i. Either Owner or Contractor may request mediation of any Claim submitted to Superintendent for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

- ii. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- iii. If the Claim is not resolved by mediation, Superintendent's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
  - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
  - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
  - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 - MISCELLANEOUS**

### *a. Giving Notice*

- i. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  - 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
  - 2. delivered at or sent by registered or certified mail (return receipt), postage prepaid, to the last business address known to the giver of the notice.
  - 3. Whenever any provision of the Contract Documents requires the delivery of any Bond, Agreement, Certificate of Insurance or any other item, it shall be deemed to have been validly delivered if given in person to the individual, to a member of the firm or to an officer of the corporation for whom it is intended, or if given at or sent by registered or certified mail (return receipt), postage prepared, to the last business address known to him who delivers the article.

### *b. Computation of Times*

- i. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period.

### *c. Cumulative Remedies*

- i. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any

or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

*d. Survival of Obligations*

- i. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

*e. Controlling Law*

- i. This Contract is to be governed by the law of the state in which the Project is located.

*f. Headings*

- i. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

*g. Lien Waivers*

- i. Owner will require that Contractor furnish lien waivers for labor and materials used at any time during the Project as well as at completion of the Project.

## **Section 00830**

### **PREVAILING WAGE RATES**

#### **The City of Lake Forest**

#### **Prevailing Wage Advisory**

This contract calls for the construction of a “Public Work,” within the meaning of the Illinois Prevailing Wage Act, 820 ILCS 130/.01 *et seq.* (“The Act”). The Act requires contractors and subcontractors to pay laborers, workers and mechanics performing services on public works projects no less than the “prevailing rate of wages” (hourly cash wages plus fringe benefits) in the county where the work is performed. For information regarding current prevailing wage rates, please refer to the Illinois Department of labor’s website at: <http://www.state.il.us/agency/idol/rates/rates.HTM>. All contractors and subcontractors rendering services under this contract must comply with all requirements of the Act, *including but not limited to*, all wage, notice and record keeping duties.

# GOLF COURSE TECHNICAL SPECIFICATIONS

**Prepared by:**

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## DEFINITIONS

Whenever these words are used in the following Golf Course Technical Specifications, they shall have the meaning here given:

**Owner:** Shall mean the Deerpath Golf Course – City of Lake Forest and its legal representatives.

**Golf Course Architect:** Lohmann Quitno Golf Course Architects, Inc. and its legal representatives

**Contractor or Bidder:** Shall be considered one and the same, and shall mean the party entering into this contract for the performance of the work required by it, and the legal representative of said party of the agent appointed to act for said party in the performance of the work.

If any discrepancies are found between the City of Lake Forest front-end language and these Golf Course Specifications, then the City of Lake Forest language shall prevail.

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## DIVISION 1

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### SECTION 01010

#### SUMMARY OF WORK

The Contractor shall provide all labor, materials, and equipment necessary to complete all work as set forth by the drawings and specifications.

##### 1.01 DESCRIPTION

**A. Summary of Work.** Perform all work as shown and specified. The work is as follows, either wholly or in part.

1. Site Preparation
2. Grading and Earthwork
3. Drainage
4. Feature Construction
5. Irrigation System
6. Site Restoration
7. Asphalt and Concrete Paving

## 8. Stone Walls

### 1.02 QUALITY ASSURANCE

- A. Requirements. The Contractor shall be solely responsible to ensure that all work is in compliance with all applicable local, state, and federal requirements regarding materials, methods of work, public safety, and disposal of excess and waste materials.
- B. Inspections, Permits, and Fees. The Contractor shall investigate and obtain necessary local permits and/or licenses to perform work within the local municipal, county and/or state district(s). The Owner shall assist, where possible, to obtain a waiver of any fees for permits which might be assessed. The Contractor shall meet all pertinent local codes.
- C. Materials and Methods. The Contractor shall be responsible to ensure that materials and methods of construction shall comply with the following standards.

American Association of State Highway and Transportation Officials (AASHTO)

National Fire Protection Association (NFPA)

American Concrete Pipe Association (ACPA)

National Electrical Code (NEC)

National Sanitation Foundation (NSF)

The Irrigation Association (IA)

American Sod Producers Association (ASPA)

American Standard for Nursery Stock (ASNC)

Asphalt Institute (AI)

National Crushed Stone Association (NCSA)

American Concrete Institute (ACI)

- D. Installation of Manufactured Articles. Installation of all manufactured articles shall be in accordance with the recommendations of the manufacturer. Where necessary to the proper operation of the manufactured items, and in all cases where required by the Specifications, the manufacturers will furnish a factory trained service engineer to supervise the installation and start the operation of the article. Where factory supervision is a requirement for the furnishing of the required warranties, it will be provided whether stated in the Specifications or not.

### 1.03 SITE EXAMINATION

- A. Examination of Site. Bidders shall, with representative of Owner, visit site of proposed work and fully acquaint themselves with conditions as they exist, so that they may fully understand the facilities, difficulties, and restrictions attending the execution under the contract. Bidders shall also thoroughly examine and be familiar with the contract documents. The failure or omission of any bidder to receive or examine any form, instrument, or to visit the site (s) and acquaint himself with conditions there existing shall in no way relieve any bidder from any obligation with respect to his bid. By submitting a bid, the bidder agrees and warrants that they have examined the site(s) and contract documents, and where the contract documents require in any part of the work a given result to be produced, that the specifications and drawings are adequate and the required result can be produced under the specifications and drawings.

No plea of ignorance of conditions that exist or of conditions or difficulties that may be encountered in the execution of the work under this contract, as a result of failure to make the necessary investigations, will be accepted as an excuse for any failure or omission on the part of said contractor to fulfill in every detail all of the requirements of said contract, specifications, and plans, or will be accepted as basis for any claims

whatsoever, for extra compensation. Upon application, all available information in the possession of the Architects will be shown to the bidders, but the correctness of any such information is not guaranteed.

#### **1.04 PROJECT CONDITIONS**

- A. Existing Conditions.** Prior to and during the performance of the work, inspect and note surface and subsurface conditions on site and as presented by drawings and specifications, and notify Owner and/or the Golf Course Architect of conflicts or discrepancies prior to commencing or continuing site construction. Examine proposed construction areas and conditions of construction. Do not start or continue construction work until unsatisfactory conditions are corrected.
- B. Existing Utilities and Services.** Underground and surface utility lines and services are indicated on the drawings according to best available information. Contractor shall locate and identify existing underground and overhead services and utilities within contract limit work areas, and provide adequate means of protection for utilities, services, and on-site improvements designated to remain. Wherever possible, perform construction work near utilities and services by hand, and shall repair utilities, services, and site improvements damaged during construction at Contractor's expense.

#### **1.05 USE OF SITE**

- A. Protection of Site Facilities.** Protect existing building, paving, and other facilities on site and adjacent to site from damage caused by site construction work. Restore to original grade and condition, those areas adjacent to site having been disturbed or damaged during site construction. Cost of repair and restoration of disturbed or damaged areas to be at Contractor's expense.
- B. Existing Trees and Vegetation.** All existing trees and vegetation scheduled to remain, shall be protected against injury or damage resulting from construction in a manner approved by the Owner and/or Golf Course Architect. This shall include protection from injury or damage caused by cutting, breaking, or skinning of roots, trunks, or branches. Also included is the smothering or compaction of root zones caused by stockpiling construction materials or excavated materials, vehicular traffic, and the contamination of plant material or root zones with harmful materials or chemicals.
  - 1.** Repair trees or vegetation damaged by construction operations in a manner acceptable to the Owner and/or Golf Course Architect. Repair trees or vegetation promptly to prevent continued deterioration caused by damages.
  - 2.** Replace trees damaged beyond repair by construction operations, as determined by Owner and/or Golf Course Architect, with trees of similar size and species.
  - 3.** Repair and replacement of trees damaged by construction operations due to lack of adequate protection during construction operations shall be at Contractor's expense.
- C. Excavation and Structure Protection.** Protect excavations or adjacent structures including utility service lines by shoring, bracing, sheeting, underpinning, or other methods, as required to prevent cave-ins or loose dirt from entering excavation. Barricade open excavations and post warning lights at work being performed adjacent to public streets or walks.
- D. Protection of Work.** Protect all work, whether in progress or complete, from adjacent work, pedestrians, or vehicular traffic. Provide temporary barricades and warning lights as required for protection of project work and public safety.

#### **1.06 SITE ACCESS**

- A. Occupancy of Premises.** The Owner shall retain the right to occupy the premises and adjacent facilities during the entire period of construction. Construction operations shall permit Owner's use of the premises and performance of normal operations where feasible.
- B. Project Scheduling.** When portions of the work are to be performed by separate prime contractors, the Owner shall provide project coordination and scheduling at a pre-construction meeting (and subsequent progress meetings) with representatives from each party.
- C. Separate Contractors.** When required by concurrent scheduling of construction by separate contractors, the site shall be equally accessible to all parties. Access shall not be restricted by any contractor except as deemed necessary due to scope of work and agreed upon by the Owner and/or Golf Course Architect in advance.
- D. Temporary Services.** Provide all temporary services as listed below:
1. **Water -** The Contractor shall obtain and pay for all permits or other sanctions required to furnish temporary water on the job site.
  2. **Light and Power -** The Contractor shall install and pay for all such electrical materials as may be required for the temporary operation of equipment, temporary lighting purposes, and construction use during the entire construction period, and remove these items when no longer required. The Contractor shall pay for the cost of electric energy used by them and by all of their subcontractors including the cost of lamp replacements, meters, cables, panel boards, transformers, switches and all accessories and components required.
- E. Access Roads.** Construction and use of access roads must be approved by the Owner. The Contractor will be liable for any damage to property other than the designated access roads and working areas. The designated access roads will be the responsibility of the Contractor in that they will repair the damage caused by trucks, tractors, etc. and by storage of materials.
- F. Work Area.** The Contractor shall confine their apparatus, storage of materials, and operations of their personnel to the limits as indicated by the plans or as otherwise accepted by the Owner and/or Golf Course Architect, and shall not unreasonably encumber the premises with their material.
- G. Daily Cleanup.** Prior to the completion of each work day, or as otherwise requested by the Owner preceding outings or large events, paved parking and entry areas (utilized by the Contractor) shall be swept of all dirt and debris and visible storage areas shall be organized and cleared of trash.
- H. Field Engineering.** The Owner shall be responsible for the initial setting of benchmarks for vertical and horizontal control on the project site. Contractor to locate and protect survey control and reference points. Contractor shall be fully familiarized with the existing conditions and confirm survey control network prior to any work being performed.

**End of Section**

## SECTION 01300

### SUBMITTALS

The Contractor shall provide all labor, materials, and equipment necessary to provide submittals to Owner and/or Golf Course Architect or as set forth by the drawings, specifications and contract documents. The costs, fees, or expenses necessary for submittals or testing as required by the contract documents shall be the responsibility of the Contractor.

#### 1.01 PROJECT ADMINISTRATION

- A. Progress Schedule. Contractor shall submit, at regular intervals, schedule(s) illustrating the projected timing and work flow for the project. Submit schedule(s) as a horizontal bar chart with separate lines for each major section of work or operation, identifying first work day of each week. Schedule(s) shall be revised and resubmitted with each Application for Payment, or as otherwise required or requested by the Owner, identifying changes since previous version and estimated percentage of completion for each item of Work.
- B. Application for Payment. The Contractor may make application for progress payments contingent upon all conditions of the Contract Documents. The contract form shall be provided and prepared by the Owner. Refer to associated conditions and bidding instructions for information regarding payment applications.

#### 1.02 PRODUCTS

- A. Aggregates. All component materials required by the construction documents for the construction of greens, tees, and bunkers have been pre-determined by the Owner and Golf Course Architect and are listed in Section 01600. Contractor shall be required to ascertain current testing results, either as provided by the material supplier or by submitting samples to one of the certified testing labs listed below (at Contractor's expense), and shall provide those tests to the Owner for verification that they are current and meet the required analysis parameters, including the following:

1. Tee/Green Rootzone: Particle size analysis, moisture content, permeability, penetrometer values, crusting, color, pH, shape
2. Bunker Sand: Particle size analysis, moisture content, permeability, penetrometer values, crusting, color, pH, shape
3. Drainage Gravel: Size distribution, permeability, lateral flow, porosity, angle of repose
4. Bridging: Verify compatibility of drainage gravel and bunker sand and/or green rootzone to meet bridging requirements as set forth by bunker liner specifications (Better Billy Bunker)
5. Certified labs:

Turf and Soil Diagnostics  
Attn: Sam Ferro  
613 East 1<sup>st</sup> Street  
Linwood, KS 66052  
855.769.4231

Tifton Physical Soil Testing Laboratory, Inc.  
Attn: Powell Gaines  
1412 Murray Avenue  
Tifton, GA 31794  
229.382.7292

- B. Asphalt. At the Owner's request and expense, provide core samples to verify depth and quality of asphalt work and materials.

- C. Soil Amendments. At the Owner's request and expense, submit representative soil samples from throughout the golf course site for soil testing. These samples shall be submitted in a timely fashion so as to allow for determination of soil amendments and fertilizer. Any amendment recommendations beyond those listed in the materials Section 01600 shall be addressed through change order procedures. The submittal, evaluation, or receipt of these samples shall not interfere with the timely completion of work in this contract.
- D. Seed Vendor's Certification. Submit seed vendor's certification for required grass seed mixtures, indicating percentage by weight and percentage of purity, germination, and weed seed for each seed specified.
- E. Sod Grower Certification. Submit sod grower's certification of grass species. Identify source location.
- F. Fertilizer Certification. Submit a certification of fertilizer(s) analysis.

### **1.03 DRAWINGS OF RECORD**

- A. Layout. Provide layout diagrams of all new tees, greens, bunkers, fairways and cart paths, collected using a GPS system or equivalent, and submitted in both pdf and Autocad (v2018 or older) format.
- B. Drainage. Submit drainage system record drawings of all drainage components installed in greens, bunkers and fairways, collected using a GPS system or equivalent, and submitted in both pdf and Autocad (v2018 or older) format. Legibly mark drawings to document actual "as-built" construction of horizontal locations referenced to permanent surface components. Document field changes of dimension and detail; document changes made by change order. Document any existing drintile or structures which were encountered, altered or tied into during drainage installation.
- C. Irrigation. Provide irrigation as-built information per Irrigation Specifications.

**End of Section**

## **SECTION 01400 QUALITY CONTROL**

The Contractor shall provide all labor, materials and equipment necessary to complete all quality control requirements as set forth by the drawings, specifications, and contract documents. All work shall be subject to observation and final approval by the Golf Course Architect.

### **1.01 PERFORMANCE OF WORK**

- A. Experienced Workmen. All work performed under this contract shall be completed by experienced workmen familiar with all procedures necessary to complete the work as specified by the contract documents. All work shall be performed under the supervision of a qualified supervisor.
- B. Products. Comply with all submittals as specified in Section 01300.

### **1.02 EXECUTION, TESTING, AND OBSERVATION**

- A. Layout. All work limits, haul roads and staging areas shall be subject to review by the Golf Course Architect. Document any adjustments in the work limits or scope as requested by the Owner and/or Golf Course

Architect. Verify impacts on the project quantities and/or budget, if any, and review with Owner and/or Golf Course Architect prior to incorporating changes.

- B. Earthwork. All grades and materials furnished for rough grading operations shall be subject to observation by the Golf Course Architect. After establishment of proper elevations, the Contractor shall furnish all assistance necessary to verify grades. No placement of topsoil, sand, or pea gravel will be permitted until after subgrades are observed and approved.
- C. Drainage. Prior to tie-in, test all existing drainage basins and pipes being used as outlets for new drainage to ensure their functionality. Any non-functioning outlets must be reported to Owner. Prior to final backfilling and grading, test all drainage work to ensure a free flowing sub-drainage system. Remove obstructions, replace damaged components, and retest system as required. All work shall be subject to random observation by the Golf Course Architect. The Contractor shall furnish all assistance necessary to observe work.
- D. Irrigation. See Irrigation Specifications for all quality control requirements.
- E. Soil Preparation and Grassing. All finish grades, feature tie-ins and grassing preparations shall be subject to review by the Golf Course Architect. No seed or sod placement shall be permitted until final grassing lines have been determined and/or approved by the Golf Course Architect.
- F. Asphalt and Concrete. Refer to Submittals Section 01300 for quality control requirements.

### **End of Section**

## **SECTION 01600**

### **MATERIAL SPECIFICATIONS**

The Contractor shall provide all labor, materials, and equipment necessary to submit, furnish, and install materials as required by the drawings, specifications, and contract documents.

#### **1.01 DELIVERY AND STORAGE OF MATERIALS**

- A. Deliver, store, and handle all materials on site to prevent damage and deterioration.

#### **1.02 EROSION CONTROL PRODUCTS**

- A. Silt Fencing Already completed by the mass grading contractor under separate contract. (Restoration Contractor responsible for removal and restoration.)

#### **1.02 EARTHWORK PRODUCTS**

- A. Subgrade Fill Material used under green, tee, fairway and bunker features shall be inert subsoil (preferably in situ) and free of sod, brush, roots, stones larger than four (4) inches in diameter, trash, and other perishables or debris from construction operations.
- B. Backfill Material for Trenches (Solid Pipe), unless otherwise specified by drawings, shall be inert, in situ soil, free of clods or stones larger than 1" in diameter and containing no sod, brush, roots, trash or other perishable materials.

- C. Topsoil Material, whether in situ or imported, shall consist of a sandy loam silt, or loam with sufficient amounts of organic material to start and maintain plant growth as determined by the Golf Course Architect and/or Owner, and as supplied in stockpile by the mass grading contractor. Topsoil material shall be free of excess quantities of clay, hard lumps, roots, grass, stones, and other foreign materials.

### **1.03 AGGREGATE PRODUCTS**

- A. Testing and Substitutions. Provide current laboratory testing for all aggregates as required per Section 01300, Submittals. Any substitute materials or suppliers must be approved by the Owner and/or Golf Course Architect and submitted for proper testing and approval prior to bid date.
- B. Rootzone Mixture for Greens Construction, and Backfill Material for Perforated Green Drainage (2") shall be 6:3:1 Construction Mix as provided by Waupaca Sand and Solutions. Install in lifts and properly compact to ensure no trench settling.
- C. Drainage Gravel for Perforated Pipe (4" or larger) shall be clean, washed, crushed stone or pea gravel, 3/8" to 1/2" in size similar or equal to Bridging Gravel as provided by Waupaca Sand and Solutions.
- D. Drainage Gravel for Better Billy Bunker Liner shall be clean, washed, crushed stone or pea gravel, 3/8" to 1/2" in size similar or equal to Bridging Gravel as provided by Waupaca Sand and Solutions. Composition of this material shall be compatible with the specified bunker sand and/or greens rootzone mixture as it relates to USGA recommendations for bridging purposes.
- E. Sand for Bunkers shall be Thelen S&G, or Owner-approved equivalent that is consistent with material currently being used in the existing golf course bunkers. See construction details for depths.
- F. Soil Mixture for Tees shall be 7:2:1 Construction Mix as provided by Waupaca Sand and Solutions. Install in lifts and properly compact to ensure no trench settling.

### **1.04 DRAINAGE SYSTEM**

- A. Drainage Piping (4" and above, perforated and solid) shall be corrugated, double-wall polyethylene pipe and fittings similar or equal to N-12 pipe manufactured and distributed by Advanced Drainage Systems, Inc. (ADS), Columbus, Ohio. Sizes as specified on drawings.
- B. Slit Drainage Piping (2", perforated) shall be corrugated, single-wall polyethylene micro-slit drain tile pipe and fittings similar or equal to TurfFlow by Hancor, distributed by Advanced Drainage Systems, Inc. (ADS), Columbus, Ohio.
- C. Manholes, Catch Basins, and Inspections Risers shall conform to details as shown on plans, or as otherwise approved by Owner and/or Golf Course Architect.

### **1.05 SOIL AMENDMENTS AND FERTILIZER**

- A. Soil Amendments. Testing of the golf course soil, per the request and expense of the Owner, will indicate what amendments, if any, will be required in addition to this contract. These revisions will be reflected in the bid schedule or through a change order to the contract documents. Materials shall be delivered and stored in a manner to prevent wetting and deterioration. Rate of application shall be as recommended by soil analysis and as approved by Owner and/or Golf Course Architect.

**B. Fertilizer.** Fertilizer shall be uniform in composition, free flowing, and suitable for application with approved equipment. Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration. Fertilizer which has been exposed to high humidity and moisture, or has become caked or otherwise damaged making it unsuitable for use, will not be accepted. All amendments above shall be worked into sand/soil after being applied and watered in to settle prior to grassing.

- GREENS Pre-Plant (SOD)
  - 19-25-5 STARTER 4.0 LBS. PER 1,000 SF
  - 0-0-45 polymer coated potassium sulfate 4.4 lbs. per 1,000 sf
  - TEP Hi-Mag (micronutrients) 8.0 lbs. per 1,000 sf
  - 21-0-20 / 100% Poly-S 3.4 lbs. per 1,000 sf
- TEES/FAIRWAYS/ROUGHES Pre-plant (SEED AND SOD)
  - 16-25-12 / 70% Poly-S 225 lbs. per acre

## **1.06 GRASSING AND RESTORATION**

**A. Sod** shall be dense, well rooted, grown in mineral soil in the general locality where it is to be used and maintained at a height similar to the associated application (e.g. green, tee, fairway or rough heights). Sod shall be free of debris, weeds and other undesirable contaminants. Provide sod in rolls or panels convenient for handling with personnel or equipment available. Big roll sod will be acceptable, but must be approved by the Owner. Cut, deliver, and install all sod within a 24-hour period. Do not harvest or transport sod when moisture contact may adversely affect sod survival. Protect sod from sun, wind, and dehydration prior to installation. Do not tear, stretch, or drop sod during handling and installation.

1. Sod type for Greens: Pure Distinction (grown on sand, cut to fairway height)
2. Alternate sod type for Greens: Pure Distinction (grown on sand, pre-cut to greens height)
3. Sod type for Tees and Fairways: 007 (grown on sand or sandy loam, cut to fairway height)
4. Sod type for Primary Roughs: HGT Bluegrass

**B. Seed** shall be labeled in accordance with the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of invitation for bids. Deliver seed material in original unopened containers, showing weight, analysis, and name of manufacturer. Store in a manner to prevent wetting and deterioration. Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be accepted. All seed must be Certified Blue Tag sod quality and Oregon or Washington grown. The test date shown on the label must not exceed six (6) months prior to the seeding dates.

1. Seed type for Primary Roughs: HGT Bluegrass @ 3 lbs per 1,000 sf

**C. Hydraulic Mulch** shall be applied immediately following seeding per the manufacturer's installation instructions and recommendations. Deliver and store materials in a manner to protect from damage, weather, extreme temperatures and construction operations. Refer to plans for locations of various product usage:

1. Fairways and roughs: Flexterra HP-FGM by Profile Products at 3,000 lbs./acre, or approved equal

**D. Erosion Blanket** shall be applied immediately following seeding per the manufacturer's installation instructions and recommendations. Deliver and store materials in a manner to protect from damage, weather and construction operations.

1. Prairie seed areas: S75BN as manufactured by North American Green, or equal. See manufacturer's recommendations for installation [BioNet Biodegradable Erosion Control Blankets | North American Green \(nagreen.com\)](http://BioNet.BiodegradableErosionControlBlankets.com)
  2. Staples: 6" wire (standard staples)
- E. Bunker Liner shall be installed at the depths and/or per the procedures provided by the manufacturer.
1. Base bid: Better Billy Bunker liner. Contact Todd Jenkins 615.812.2874.

## 1.07 ASPHALT PAVING

- A. Cart/Maintenance Path Design Plans prepared by the Golf Course Architect may include shaping, features and/or alignment related to paths. The Owner shall, at its discretion, provide a qualified Engineer or other professional to prepare any required final documents covering the design, circulation and/or construction of any new or revised golf cart and maintenance paths consistent with the Owner's selection of the type of golf cart and equipment to be used at this Project. The Golf Course Architect will consult on matters pertaining to golf paths, but shall not be held liable for claims arising from the design or specification of golf paths, nor for any associated claims arising from the operation of golf carts or maintenance equipment, or for rules or regulations covering their use at this Project.
- B. Base Material shall be IDOT Aggregate Base Course, Type B, all crushed gravel or crushed limestone, CA6, or approved equal. Install to the thickness indicated (after compaction).
- C. Recycled concrete and/or asphalt shall be an acceptable substitute for gravel base under asphalt cartpaths and concrete pads. The product must be produced and shipped in compliance with the IDOT AGCS Program, and must be comparable in particle makeup to IDOT Aggregate Base Course, Type B.
- D. Asphalt Surface Course shall be in accordance with IDOT SSRBC: Hot Mix Asphalt Surface Course, Mix 'C', N50, AC type PG 64 -22, 4% voids at 50 Gyration, 15% maximum recycled content, or approved equal.

### End of Section

## SECTION 01700 PROJECT CLOSE OUT

The Contractor shall provide all labor, materials, and equipment necessary to complete all project close out requirements as set forth by the drawings and specifications.

### 1.01 WARRANTIES

- A. Guarantees. Except as otherwise specified in the contract documents, the Contractor shall guarantee workmanship and materials associated with the fulfillment of this contract for a period of one (1) year from date of final acceptance from the Owner. The work shall be left in perfect order at completion and acceptance. Neither the final payment nor termination of the guarantee period, nor any provision in the contract document shall relieve the Contractor of the responsibility for negligence, faulty materials, or workmanship within the extent and period provided by law, and upon written notice they shall remedy any defects due thereto, and shall pay all expenses for damage to other work resulting therefrom. If specifications provide for methods of construction, installation, materials, etc. for which the Contractor cannot guarantee for the indicated period, it shall be the responsibility of the Contractor to inform the Owner in writing before submitting their bid.

1. Earthwork. All in place earthwork shall be free from heaving or settling due to use of unsatisfactory material, methods of construction, or inadequate compaction. Where earthwork repairs are deemed necessary, the Contractor shall remove the sod, fill and/or regrade, and relay the salvaged sod. Where sod is not salvageable, new sod shall be installed at the Contractor's expense. This no settlement clause shall extend over the entire period of the Contractor's guarantee of the job.
2. Drainage. All in place drainage shall be free flowing and void of interruption from heaving, breaking or settling due to use of unsatisfactory material, methods of construction, or inadequate outlet. Where drainage repairs are deemed necessary, the Contractor shall remove the sod, install new drainage, replace and compact the backfill, and relay the salvaged sod. Where sod is not salvageable, new sod shall be installed at the Contractor's expense. This free flowing drainage clause shall extend over the entire period of the Contractor's guarantee of the job.
3. Grassing. All in place grassing operations shall guarantee the quality and viability of the materials per Section 01600, Material Specifications, and the workmanship as specified in Section 02485, Grassing Specifications, but shall not include grow-in or extended maintenance. This guarantee shall extend until each grassed area has been accepted by the Owner in writing. See Maintenance (1.02) for requirements prior to acceptance.
4. Irrigation. See irrigation specifications for all irrigation system warranties.

## **1.02 MAINTENANCE AND FINAL REVIEW**

- A. Maintain all completed work, installed materials, and other portions of the contract until completion and Owner's acceptance, in writing, of each stage of construction. This includes maintenance and re-establishment against the effects of erosion, wind, vandalism or acts of God.
- B. Field review to determine acceptance of completed construction shall be made by the Golf Course Architect and Owner and be subject to compliance with the contract documents.

## **1.03 PROJECT CLEAN-UP**

- A. Clean-up. Perform project cleaning during construction and upon completion of construction. Remove from site all excess material, trash, debris, and equipment, repair any damage resulting from construction operations, and complete all clean-up operations prior to final acceptance by the Golf Course Architect and Owner.
  - B. Waste Material Disposal. Stockpile, haul from site, and legally dispose of waste materials; including excess excavated materials, rock, trash, and debris. If permitted by Owner, waste materials may be transported to a designated disposal area on-site.
- 2 Disposal Routes. Maintain disposal routes clear, clean, and free of debris.
  - 3 Burning of Material. On-site burning is not permitted, dispose of material off-site or in Owner designated areas.

## **End of Section**

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## DIVISION TWO

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### SECTION 02100 SITE PREPARATION

The Contractor shall provide all labor, materials, and equipment necessary to complete all Site Preparation as set forth by the drawings and specifications.

#### 1.01 GENERAL

A. Site Preparation Work. Perform site preparation work as shown and specified. The work includes:

1. Protection of existing underground and overhead services and utilities.
2. Protection of existing trees to remain.
3. Installation of erosion control measures.
4. Stripping turf areas and removing existing sand.
5. Stripping and stockpiling topsoil.
6. Removing designated site improvements.
7. Removing designated vegetation.

A. Quality Assurance. Comply with Specifications Section 01010 and 01400.

B. Materials and Equipment. Comply with Specifications Section 01600.

#### 1.02 CLEARING

A. Trees or Improvements to Remain. Locate and identify trees and site improvements indicated to remain by drawings or specifications. Refer to 01010 Summary of Work, Section 1.05 for information on tree protection.

B. Clearing and Stump Removal (by Owner). Owner shall clear and grub all trees and brush indicated on the plans for removal, including grinding of all stumps to minimum 2' depth and disposal of debris. Contractor shall remove and dispose of roots (extending beyond stump excavations) as needed to properly grade and prepare soil for restoration.

#### 1.03 STRIPPING TURF, SAND AND TOPSOIL

A. Sod stripping, turf removal, and/or sand removal shall be completed by the mass grading contractor under separate contract.

B. Topsoil stripping and replacement shall be completed by the mass grading contractor under separate contract, except where indicated otherwise on the plans.

1. In those areas where the plans indicate grading adjustments following topsoil replacement, strip topsoil to minimum six (6) inches in depth, temporarily stockpile, and replace to 6" depth.
2. In those areas where no topsoil replacement is indicated by mass grading contractor (see Context Plan), haul topsoil from stockpile area and place to 6" depth following grading.

3. No topsoil shall be removed from the site without written approval of Owner or the Golf Course Architect.

#### **1.04 SITE IMPROVEMENTS**

- A. Existing Utilities or Services. Perform work and provide necessary materials to protect, disconnect or relocate existing utilities or services as indicated. Submit to Owner a record of existing termination points before disconnecting.
- B. Sidewalk, Cartpath, or Curb Removal. Remove existing sidewalks, paving, cartpaths, or curbing including base material, if present, as required to permit forming and installation of new work as shown by drawings. Cut existing sidewalks or paving in neat, straight lines at existing expansion or control joints to provide uniform, even transition from new to adjacent existing work. All removed material shall be disposed of off-site unless otherwise approved by Owner and/or Golf Course Architect.
- C. Drainage Structures. Revise existing catch basins, drain tile, or inlet manhole structures to complete work as specified by construction documents.

#### **1.05 FINAL CLEAN UP AND DISPOSAL OF WASTE MATERIALS** Comply with Specifications Section 01700.

### **End of Section**

## **SECTION 02200 EARTHWORK**

The Contractor shall provide all labor, materials, and equipment necessary to complete all Earthwork as required by the drawings and specifications.

#### **1.01 GENERAL**

- A. Earthwork. Perform earthwork as shown and specified. The work includes:
  1. Layout of work to be performed.
  2. Site grading and filling to elevations, profiles, and contours as shown by working drawings.
  3. Subgrade and granular base preparation for structure slabs, walks, and paving.
  4. Excavating for pond construction, including clay lining(s).
  5. Topsoil placement and finish grading.
  6. Provide and place stone rip-rap.
  7. Feature construction including greens, tees, and bunkers.
- B. Quality Assurance. Comply with Specifications Section 01010 and 01400.
- C. Materials and Equipment. Comply with Specifications Section 01600.
- D. Warranties. Comply with Specifications Section 01700.

#### **1.02 PREPARATION**

- A. Layout of Work. Prior to any grading operations, all excavation and fill areas shall be staked in the field showing slope stakes, boundary stakes, cut stakes, fill stakes, etc. as required to layout and control the work.

Layout shall be subject to review by the Golf Course Architect to check for any abnormalities or needed adjustments to maximize earth moving efficiency.

- B. Required Inspection, Tests, Approvals, and Location Recordings. Comply with Specifications Section 01400.
- C. Existing Utilities and Services. Comply with Specifications Section 01010.

### **1.03 SITE GRADING**

- A. Grading Requirements. Perform grading within contract limits, including adjacent transition areas, to new elevations, levels, profiles, and contours as shown by construction drawings. Provide subgrade surfaces parallel to finish surface grades. Provide uniform levels and slopes between new graded elevations and existing grades. Provide subgrade surface free from irregular surface changes and as follows:
  - 1. Rough grading: Plus or minus 0.10 feet subgrade tolerance. Required surface finish will be that ordinarily obtained from a blade-grader.
  - 2. Provide subgrade surface free of exposed boulders or stones exceeding 4" in greatest dimension in paved areas and 2" in turf and planting areas.
  - 3. Paved areas: Shape surface of subgrade areas to alignment, grade, and cross-section indicated by working drawings. Compact subgrade, as required, to receive paving base materials. Subgrade tolerance plus or minus .10 feet.
  - 4. Granular Base: Grade subgrade surface smooth and even, free of voids to the required subgrade elevation. Provide compacted subgrade suitable to receive granular base materials. Tolerance 1/2" in 10'-0".
- B. Drainage. Grade surface to provide drainage away from site structures and golf course features, and to prevent ponding and pockets in surface drainage. Provide necessary pumps and drainage lines to maintain excavated area free of water, ice, and snow during construction operations.

### **1.04 EXCAVATING**

- A. Excavation. All on-site excavation of materials encountered within the project area shall be performed to the subgrade lines and grades shown on the drawings. Proposed lines and grades shown on the drawings are to finish grade. The Contractor shall refer to the drawings and specifications for necessary information to calculate subgrade elevations throughout the site. The Owner reserves the right to review all excavated material for quality and declare first refusal of sub-standard soil in critical fill areas.
- B. Over-Excavating. In the event that excavations are made below the subgrade elevations, the Contractor shall replace the excavated material in horizontal lifts not to exceed eight (8) inches (loose measurement) as specified for embankments. Placed material shall be compacted to a degree consistent with surrounding undisturbed material.
- C. Extra Excavation. Excavate unsatisfactory soil materials extending below required elevations to depth as shown by working drawings. Replace with suitable backfill material per Specifications Section 01600 in horizontal lifts not to exceed eight (8) inches (loose measurement). Placed material shall be compacted to a degree consistent with surrounding undisturbed material.
- D. Excavation of Golf Course Features. Excavate greens, tees, and bunkers to elevations and dimension shown on working drawings.

- E. Excavation for Walks and Cartpaths. Excavate for curbs, walks, cartpaths, and paving to elevations and grades indicated on working drawings. If required by drawings and specifications, excavate to provide for placement of base material.

## **1.05 EMBANKMENT**

- A. Subgrade Embankments. Subgrade embankments shall be constructed, after plowing or scarifying the natural ground surface to a depth of 6", by depositing and compacting suitable backfill material per Specifications Section 01600. Construction to be in accordance with subgrade lines and grades on the drawings.
- B. Fill Material. All fill materials shall comply with Specifications Section 01600. All fills, especially those under fairway, tee, bunker or green features, must be built from suitable soils and using methods that minimize settling and allow for proper finish work. Any methods such as material segregation, drying and/or dewatering deemed necessary to ensure soil stability and workability are the responsibility of the Contractor, who will ultimately be responsible for working the soil to a finish grade and fixing any settling areas that occur during post construction warranty period. The Owner reserves the right to review all excavated material for quality and declare first refusal of sub-standard soil in critical fill areas.
1. Fill shall be loosely placed in horizontal lifts so that the successive lifts shall blend together. The maximum thickness per lift of compacted fill shall not exceed 8". Each layer of fill shall be compacted evenly and densely by distributing the movement of the construction equipment uniformly over the entire embankment area. The material in each layer shall have the proper moisture content to obtain compaction. When too dry, water shall be added; when too wet, the material shall be aerated. Materials placed by dumping in piles or windrows shall be spread uniformly to not more than 8" thickness before being compacted.
  2. Suspend fill operations when satisfactory results cannot be obtained because of environmental or other unsatisfactory site conditions. Do not use muddy or frozen fill materials. Do not place fill material on muddy or frozen subgrade surface. Maintain adequate drainage of rainwater and prevent ponding of surface water in pockets. When fill placement is interrupted by rain, remove wet surface materials or permit materials to dry before placement.
- C. Soil Stabilization. When exposed subgrade surfaces become spongy during construction operations and soil stabilization is required, stabilize subgrade materials as directed by a Soil Engineer. Soil stabilization will be paid for as a change in work. Obtain Owner and/or Golf Course Architect's written authorization before performing soil stabilization work.
- D. Settlement Areas. Fill and compact all areas of settlement to proper grade before subsequent construction operations are performed.
- E. Backfilling. Place backfill materials in uniform layers no greater than 8" loose thickness over entire backfill area. Use hand tamping or vibrating compactors at foundation walls, retaining walls, and similar locations. Do not use large rolling equipment adjacent to foundation walls and retaining walls. Do not backfill against foundation walls or retaining walls until walls for bearing surface have reached design strength or are properly braced, and backfilling operations approved by Owner or Architect. Provide suitable backfill materials compliant with Specifications Section 01600.
- F. Granular Base. Provide minimum 4-inch depth of granular base under structure concrete slab-on-grade and asphalt paths. Granular base material per Specifications Section 01600.

## **1.06 FINISH GRADING**

- A. Topsoil Replacement. Uniformly distribute and spread stockpiled topsoil to a minimum compacted depth of 6". Use loose, dry topsoil. Do not use frozen or muddy topsoil. Place during dry weather.
1. No spreading of topsoil will be permitted until subgrade is approved by Golf Course Architect.
  2. Fine grade topsoil to eliminate rough and low areas ensuring positive drainage. Maintain levels, profiles, and contours of subgrade as shown or specified on working drawings.
  3. Remove stones, roots, weeds, and debris while spreading topsoil materials. Rake surface clean of stones 2 inches or larger in any dimension and all other debris. Provide surface suitable for soil preparation as specified for seeding and sodding work.
  4. Soil compacted by construction equipment or soil on compacted slopes or grades shall be scarified to a minimum depth of 2 inches before applying topsoil to blend the topsoil in, eliminate a layering effect, and reduce erosion and sloughing away.
- B. Greens and Tees. All tees and putting surfaces shall be graded to conform to the lines, grades, and cross sections as shown on the drawings and shall be subject to review by the Golf Course Architect. Finish surfaces shall be compacted to the degree necessary to prevent future settling. A uniform layer of 6" suitable topsoil shall be placed on all banks. Unless otherwise required by the construction documents, the upper layer(s) of teeing and putting surface shall consist of a mixture of materials as specified in Specifications Section 01600 and as depicted by the drawings.
- C. Bunkers. All bunkers shall be graded to conform to the lines, grades, and cross sections as shown on the drawings and shall be subject to review by the Golf Course Architect. Finish surfaces shall be compacted to the degree necessary to prevent future settling. A minimum depth of 6" of suitable topsoil shall be placed over the subgrade around the entire bunker, after approval of the subgrade by the Golf Course Architect. Sand bunkers are to be vertically edged to a depth of 6" along their inside margin prior to final cleaning, unless otherwise depicted by the drawings. Bunker bottoms shall be excavated properly to account for bunker liner depths, cleaned by hand raking, and rolled firm and smooth preceding placement of draitile, liner and sand. Sand shall be installed to a 4" compacted depth along all bunker edges and flashed faces and 6" compacted depth along bunker bottoms, unless otherwise depicted by the drawings.

**1.07 FIELD QUALITY CONTROL** Comply with Specifications Section 01400.

**1.08 FINAL CLEAN UP AND DISPOSAL OF WASTE MATERIALS** Comply with Specifications Section 01700.

**End of Section**

## **SECTION 02400**

### **DRAINAGE**

The Contractor shall provide all labor, materials, and equipment necessary to furnish and install all the drainage systems as required by the drawings and specifications.

#### **1.01 GENERAL**

A. Drainage. Provide site drainage as shown and specified. The work includes:

1. Site drainage structures and piping.
2. Subdrainage systems.
3. Excavating and backfilling drainage work.

- B. Quality Assurance. Comply with Specifications Section 01010 and 01400..
- C. Materials and Equipment. Comply with Specifications Section 01600.
- D. Warranties. Comply with Specifications Section 01700.
- E. Earthwork Operations. Coordinate installation of the site drainage system with excavating and backfilling work performed under Specifications Section 02200, Earthwork.

## **1.02 PREPARATION AND INSPECTIONS**

- A. Project Layout. Layout drainage work and establish extent of excavation by area and elevation. Designate and identify datum elevation and project engineering reference points. Set required lines, levels, and elevations. Review all outlet locations to ensure adequate depths for proper tie-in.
- B. Site Examination. Comply with Specifications Section 01010.
- C. Existing Utilities. Comply with Specifications Section 01010.
- D. Inspections and Testing. Comply with Specifications Section 01400.
- E. Infiltration. It shall be the intention of these specifications to secure a subdrainage system with a minimum amount of infiltration. The joints shall be tight, and visible leakage in the joints shall be repaired at the Contractors expense by any means found to be necessary.

## **1.03 GENERAL INSTALLATION (4" PIPE AND LARGER)**

- A. Trenching and Excavation. No trenching will be allowed more than 300 feet in advance of pipe laying. All trenches shall be completed and backfilled each day. Provide trench wall support, bracing and pumping of surface or ground water as required to provide suitable conditions for performing the work. The width of the trench at the top of the pipe shall be sufficient to permit thorough tamping of the backfill under the haunches and around the pipe, but shall not exceed external diameter of the pipe by 8" on either side.
- B. Unsuitable Soil. Where a firm foundation is not encountered at required grade, due to soft, spongy, or unsuitable soil, all such unsuitable soil under the pipe and for the width of the trench shall be removed below grade and replace with a cushion of well compacted granular backfill having a thickness under the pipe of not less than 4".
- C. Trenching across Existing Turf. When new drainage pipe runs across existing turf, the sod shall be stripped and replaced with the same sod once the pipe is installed and backfilled. If existing sod is not salvageable it shall be replaced with new sod. Contractor shall notify Owner and/or Golf Course Architect of marginal turf quality prior to stripping.
- D. Location. Drintile shall be located true to line and grade in the places specified by the drawings. Where deviations exist between the plan and field locations, such deviations must be brought to the attention of the Owner and/or Golf Course Architect. Drintile shall be installed in features in accordance with plan details, or as otherwise approved by the Golf Course Architect.
- E. Staging and Delivery. All site drainage pipe, manholes, and appurtenances shall be laid true to line and grade in trenches and tunnels as specified. All pipe shall be staged as close to the ditch line as safety and operations permit. Pipe shall not be thrown or dropped from vehicles or equipment beds, all pipe must be

lowered into the trench with suitable apparatus for the purpose. Damaged material shall be replaced at Contractor's expense.

- F. Laying Solid Drainage Pipe. All pipe laying shall commence at the lower end of the line and proceed upgrade. Bell and spigot pattern pipe shall be laid with the bell end upgrade. Tongue and groove type pipe shall be placed with the groove end upgrade. Pipe shall be fitted, matched, and jointed to form a continuous sewer or drain with a smooth uniform invert. As each length of pipe is placed, the mouth of the pipe shall be protected to prevent the entrance of earth or bedding material. Do not place pipe in water, or place pipe when trench or weather is unsuitable for site drainage work. Install pipe joint gaskets in accordance with manufacturer's recommendations. Cut pipe ends entering structures flush with inner face of structures and secure with hydraulic cement or foam, unless otherwise specified by the plans. Obtain required inspections and perform testing prior to backfilling. Remove obstructions, replace damaged components, and retest as required. Provide a satisfactory free flowing site drainage system.
- G. Laying Perforated Drintile. Perforated tile drains shall be laid on a firm, undisturbed layer of bedding material (as indicated by plans and Specifications Section 01600) to reduce possible wash of subgrade soil up into tile line by fast water flow. If over-digging occurs, all loosened dirt must be removed and the trench bottom returned to grade with suitable backfill material. Lay drintile with joints closed, and firmly bedded in drainage fill material. Provide full bearing for each pipe section. Provide continuous slope in the direction of flow with minimum fall equal to 0.5%. Provide collars and couplings for all in-line joints and ell, elbow, or bend section for all corners and changes in direction. Provide imperforated run out pipe and extend to out fall connection or daylight as specified by drawings.
- H. Connections. The junction of two or more drintiles shall be made in strict conformance with the contract drawings and in accordance with manufacturer's recommendations. The cost of all connections shall be included in the contract price for new pipe unless otherwise specifically provided for in the contract. Prior to tie-in, test all existing drainage basins and pipes being used as outlets for new drainage to ensure their functionality. Any non-functioning outlets must be reported to Owner.
- I. Drainage Structure Construction. Construct catch basins, manholes, inspection risers and other drainage structures as shown on drawings.
- J. Backfilling. Backfill trenches with suitable backfill materials compliant with Section 01600, Material Specifications. For solid pipe, backfill trenches in 8" compacted layers to subgrade surface, ensuring a cover of not less than 18" over piping, unless otherwise indicated by the plans. Backfill evenly on both sides of piping for its full depth. Provide thorough compaction of fill under pipe haunches. All perforated tile drains, when placed, shall have the space between the pipe and the bottom and sides of the trench backfilled with aggregate material per Specifications Section 01600. Thoroughly tamp with a shovel, hoe, or light tamper as placed to a minimum of 2" over top of tile, or as otherwise specified by drawings.
- K. Restoration of Surfaces. Any settlement of the backfill below the original ground surface shall be remedied by the Contractor per Specifications Section 01700. Replace paving, turf and finishing surfaces disturbed to accommodate the subdrainage system as specified in applicable sections of these specifications, except where new surfaces are provided as part of the work.

#### **1.04 SLIT DRAINAGE INSTALLATION (2")**

- A. Greens. On new greens construction, all work as listed shall be completed in totality prior to placement of top mix. For existing greens being resurfaced, all work shall be completed prior to related re-grassing process. Otherwise, the process of installing subsurface slit drainage in greens shall be as follows:
  - 1. Laser survey each green site to determine surface drainage patterns and outlet points.

2. Layout drainage system on a 6' spacing ensuring minimum 1% positive grade on all mainlines and laterals. Confirm drainage layout with Owner and/or Golf Course Architect prior to starting installation.
3. Strip existing sod over proposed drain lines 7" wide and a minimum of ¾" depth. Stockpile stripped sod adjacent to trench in a manner allowing it to be easily replaced in the exact locations from where it was removed. Note: This shall not apply to new construction or re-surfacing projects.
4. Trench a minimum of 14" deep and 3"-4" wide with laser grade control. Trencher shall be rubber tired or rubber tracked and operated on plywood. Contain all excavated trench spoils on plywood (or equivalent), not allowing to touch green surface. Hand shovel all excavated material into small trailers for use or disposal on site, as directed by Owner and/or Golf Course Architect.
5. Install 2" drain tile including all connections, flushouts and observation risers. Backfill in lifts with specified sand mix and compact to ensure no trench settling (see Specifications Section 01600 for all materials).
6. Replace sod to exact locations where removed, leaving no gaps. Complete initial watering following install. Greens to be in playable golf condition upon completion.

**1.05 CLEAN UP AND DISPOSAL OF WASTE MATERIALS** Comply with Specifications Section 01700.

**End of Section**

**SECTION 02485**

**GRASSING**

The Contractor shall provide all labor, materials, and equipment necessary to furnish and install all grass as required by the drawings and specifications.

**1.01 GENERAL**

**A. Grassing.** Provide seeded and (or) sodded turf areas as shown and specified. The work includes:

1. Soil preparation
2. Seed and (or) sod fairways, rough, greens, tees, and other indicated areas
3. Mulch and blanket
4. Reconditioning existing turf areas

**B. Quality Assurance.** Comply with Specifications Section 01010 and 01400.

**C. Submittals.** Comply with Specifications Section 01300.

**D. Materials and Equipment.** Comply with Specifications Section 01600.

**E. Warranties.** Comply with Specifications Section 01700.

**1.02 PREPARATION**

**A. Timing.** Perform seed and (or) sodding work only after tree planting and all other work affecting ground surface has been completed.

**B. Irrigation System.** The irrigation system will be installed prior to grassing operations. Locate, protect, and maintain the irrigation system during grassing operations. Repair irrigation system components damaged during grassing operations at Contractor's expense.

- C. Layout and Preparation. All final feature layout shall be completed and/or approved by the Golf Course Architect prior to commencement of planting operations. Limit preparation to area which will be immediately grassed.
- D. Topsoil. Loosen topsoil to minimum depth of 4". Remove stones over 1" in any dimension and sticks, roots, rubbish, and extraneous matter. Dispose of all collected material in a manner approved by the Owner and/or Golf Course Architect.
- A. Fine Grade. Grade area to a smooth, free draining, even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.
- B. Basic Soil Amendments. Incorporate amendments, if needed per testing results (see Specifications Section 01300), into the soil as a part of the soil preparation process prior to seedbed preparation, fertilizing, and planting. Each amendment material shall be broadcast or spread evenly at the specified rate over the planting area. Then, all amendments are to be thoroughly incorporated at the same time into the top 3"-4" of soil until they are a pulverized and a homogenous layer of topsoil ready for planting. Incorporation and mixing shall be accomplished with roto-tiller or disc-harrow machinery.
- C. Starter Fertilizer. Apply starter fertilizer, as required, within two days prior to grassing, thoroughly and evenly incorporating into the top 1". Lightly rake until the finished grade is smooth, loose, and pulverized.
- D. Soil Preparation. Following applications of fertilizer, compact planting area by making two passes with a culti-packer, or approved similar equipment, weighing at least 90 pounds per linear ft of roller. Make the second pass with a culti-packer at right angles to the first pass. Following compaction, clear the surface of any remaining rock (1" or larger), roots, sticks or debris that might interfere with maintaining turf at anticipated playing heights of cut. Clean-up work area at any stage of construction as long as the final end result is produced.

### 1.03 INSTALLATION

- A. Sodding. Immediately prior to, but not in excess of 24 hours before placing the sod, work the soil surface until it is in a satisfactory condition per preparation requirements. Rework any prepared surfaces that become crusted to an acceptable condition for sodding. No sod shall be laid until final outlines have been approved by the Golf Course Architect.
  - 1. When the surface is dry enough to walk on, place the sod on the prepared surface with the edges in close contact and alternate courses staggered at least 12". On all slopes exceeding 5:1, the sod shall be secured with pegs. Plug any openings that may occur with sod, then thoroughly roll and water. Continue watering and general maintenance until work is accepted by the Owner and/or Golf Course Architect in writing, see Specifications Section 01700.
  - 2. Place sod only when the ground is in a workable condition, preferably in temperatures < 90-degrees F. Sod may only be laid in temperatures > 90-degrees F provided that irrigation is in working order and Owner is notified and approves of such. Sod shall not be placed when the sod or ground surface is frozen or during an extended drought.
  - 3. Protect all areas designated to be sodded against damage from the time work is started until the date of acceptance by the Owner, in writing. Move heavy equipment or materials over lawn areas on planks, and only if necessary. Repair any damage by heavy equipment or other movement over the planted area by preparing, grading, levelling and replanting.

- B. Seeding.** Seed immediately after preparation of bed. Perform seeding operations when the soil is dry and when winds do not exceed 10 miles per hour. Sow grass seed at the rate specified in Specifications Section 01600, and apply as follows:
1. Greens and Tees - Following soil preparation and fertilization, sow seed using a hopper type seeder as approved by the Golf Course Architect. Sow in two operations, with one-half of the seed for each area being sown in a direction at 90-degrees (or 45-degrees) to the other half. Following distribution, "dimple" the seed in using the knobbed tires of a sand pro machine, or approved similar equipment, by moving the wheel treads over the entire work area to press the seed into the surface. Do not use the rake implement during this operation and do not exceed 1/8" of soil cover over the seed.
  2. Roughs - In exposed soil areas, apply seed with a Brillion seeder or approved similar equipment. Install seed evenly by sowing equal half quantities in two directions, at 90-degree (or 45-degree) angles to each other. In existing areas where turf or thatch layer remains, apply seed with slit seeder implement sowing equal half quantities in two directions at 90-degree (or 45-degree) angles to each other.
  3. Protect all seeded areas against damage from the time work is started until the date of acceptance by the Owner, in writing. Avoid moving heavy equipment or materials over planted areas. Repair any damage by preparing, grading, levelling and replanting.
- C. Mulch.** On the same day and immediately following planting operations, cover all indicated slopes/areas with hydraulic mulch as determined in Specifications Section 01600. Mix mulch slurry utilizing a mechanically agitated hydraulic seeding machine, complying with equipment manufacturer's mixing instructions and recommendations. To achieve maximum and most uniform coverage use approved hydraulic seeding machines with fan-type nozzle (50-degree tip) and apply product from opposing directions to soil surface. Rough surfaces (rocky terrain, cat tracked and ripped soils) may require higher application rates to achieve maximum coverage. Unless otherwise approved, no chemical additives with the exception of fertilizer, soil neutralizers and biostimulant materials should be added to mulch products.
- D. Erosion Blanket.** On the same day and immediately following planting operations, cover all indicated slopes/areas with erosion blanket materials as determined in Specifications Section 01600. Refer to manufacturer's specifications for recommended installation methods. Generally speaking, start blanket on slopes three feet over crest and roll downhill keeping the edge butted against adjacent blanket. Do not stretch. Use 4 staples at the start of each roll. When the blankets are placed along side each other, staple so as to catch the edge of each roll.

#### **1.04 RECONDITIONING EXISTING LAWNS**

- A. Damaged Turf Areas.** Recondition existing turf areas damaged by construction operations, storage of materials or movement of equipment, per the following methods or as otherwise accepted by the Owner and/or Golf Course Architect:
1. Cultivate bare and compacted areas thoroughly and provide topsoil as needed to fill low areas and meet new finish grades.
  2. Remove diseased or unsatisfactory turf areas, do not bury under soil.
  3. Remove topsoil containing foreign materials resulting from construction operations, including oil drippings, stone, gravel, and other construction materials.
  4. Rake, aerate (if compacted), cultivate soil, fertilize and seed where substantial, but thin turf remains.
  5. Provide fertilizer, seed and/or sod as specified and as required to provide a satisfactory reconditioned turf where bare soil exists.
  6. Water and maintain newly restored areas until accepted in writing by Owner.

**1.05 GUARANTEE AND ACCEPTANCE** Comply with Specifications Section 01700.

**1.06 FINAL CLEAN UP AND DISPOSAL OF WASTE MATERIALS** Comply with Specifications Section 01700.

**End of Section**

## **SECTION 02513**

### **ASPHALTIC CONCRETE PAVING**

The Contractor shall provide all labor, materials, and equipment necessary to finish and install all Stone Walls as required by the drawings and specifications.

#### **1.01 GENERAL**

- A. Cart/Maintenance Path Design** Plans prepared by the Golf Course Architect may include shaping, features and/or alignment related to paths. The Owner shall, at its discretion, provide a qualified Engineer or other professional to prepare any required final documents covering the design, circulation and/or construction of any new or revised golf cart and maintenance paths consistent with the Owner's selection of the type of golf cart and equipment to be used at this Project. The Golf Course Architect will consult on matters pertaining to golf paths, but shall not be held liable for claims arising from the design or specification of golf paths, nor for any associated claims arising from the operation of golf carts or maintenance equipment, or for rules or regulations covering their use at this Project.
- B. The work includes:**
1. Final subgrade preparation and paving base
  2. Cartpath and walkway paving
  3. Repairing existing asphaltic concrete paving
- B. Tolerances.**
1. In-place compacted thickness:
    - (a) Base Course: Maximum 1/2" ±
    - (b) Surface Course: Maximum 1/4" ±
  2. Finished Surface Smoothness:
    - (a) Base Course: Maximum 3/8" in 10'-0"
    - (b) Surface Course: Maximum 1/4" in 10'-0" any direction
- C. Materials.** Comply with Specifications Section 01600. Provide material furnished by a bulk asphaltic concrete producer regularly engaged in the production of hot-mix, hot-laid asphaltic concrete paving materials.
- D. Paving Equipment.** Spreading self-propelled asphalt paving machine capable of maintaining line, grade, and thickness shown.
- E. Compacting Equipment.** Self-propelled rollers, minimum 10 ton weight.
- F. Hand Tools.** Rakes, shovels, tampers, and other miscellaneous equipment required to complete the work.

## 1.02 PREPARATION

- A. Excavation. Topsoil within the carpath areas, as shown on the plans, shall be stripped to a depth of six (6") inches. All paths shall follow existing contour of land as closely as possible.
- B. Preparation of Subgrade. Following the removal of all topsoil, the subgrade shall be brought to correct line and grade. Where fill is required, it shall be placed in lifts not exceeding eight (8") inches in loose thickness and compacted to a minimum of 95% of the maximum density obtained in accordance with AASHTO T99 (Method A or C). Fill material shall be proof rolled to confirm suitability as pavement subgrades. The proof rolling shall be carried out with a heavy piece of equipment with a gross weight of 25 tons or more. Any areas or pockets of soft or loose material found during this operation shall be removed and replaced with suitable material.

## 1.03 INSTALLATION

- A. Weather Limitations. Do not install base course materials over wet or frozen subgrade surfaces. Do not apply prime and tack coat materials when temperature is 50 degrees F., or below. Do not apply to wet base surfaces. Install asphalt surface materials only when base is dry and air temperature is 40 degrees F., or above.
- B. Requirements. Comply with industry standards for material storage, control and mixing, and for plant equipment and operations. Transport asphaltic concrete mixtures from the mixing plant to the project site in trucks with tight, clean compartments.
- C. Slopes. All paths shall follow the existing contours of the land as closely as possible. Paths shall be crowned or cross-sloped as required for proper drainage. Crown or cross slope shall be a minimum of 1% and a maximum of 3%. Longitudinal slope shall not exceed 8%.
- D. Base Course Material and Installation. Base course materials shall be free of foreign materials and compacted on prepared subgrade to a thickness after compaction of four (4") inches, unless otherwise indicated on drawings. Base course shall be compacted by rolling with a three-wheeled power roller weighing not less than five (5) tons. Rolling shall commence at outside edges of carpath and progress toward the center. Surface base course shall conform to required grade and cross-section, as shown on the plans and/or otherwise designed by the Architect; and any depressions which may develop due to rolling, handling, or for any other reason shall be refilled and rerolled.
- E. Surface Course Installation. Asphalt shall conform to Federal Specifications for the type specified. The surface course (2" thick) shall be rolled until it is fully compacted and does not wave or crack ahead of the roller. Rolling shall commence at the outside edges of the carpath and progress toward the center. Construction procedures for all paving work shall conform to specifications recommended by the Asphaltic Institute or generally accepted practice of the paving construction trade.
- F. Topsoil Replacement. Topsoil shall be placed along edges of carpaths to a depth of six (6) inches.

**1.04 PROTECTION** Comply with Specifications Section 01010.

**1.05 FINAL CLEAN UP** Comply with Specifications Section 01700.

**End of Section**

# SPECIFICATIONS FOR THE AUTOMATIC IRRIGATION IMPROVEMENT PROJECT

AT

DEERPATH GOLF COURSE  
LAKE FOREST, IL

*IRRIGATION CONSULTANT*



ERIK CHRISTIANSEN DESIGN GROUP, LTD.



## I. General Conditions

The installation of the Irrigation System will have an Owner's Representative.

### **Owner's Representative:**

Chuck Myers – City of Lake Forest  
Deerpath Golf Course  
500 West Deerpath Road  
Lake Forest, IL 60045  
Phone: 847-810-3888  
Email: kweibenga@kempersports.com

### **Irrigation Consultant:**

Erik Christiansen  
EC Design Group, Ltd.  
400 - 5<sup>th</sup> Street  
West Des Moines, IA 50265  
Phone: 515-225-6365  
Email: erik@ecdesigngroup.com

The objective of these specifications is to cut, cap and remove existing irrigation as noted in area of disruption – architect section. **However it will be the responsibility of the Contractor(s) as to the final area of disruption and impact of the system. Contractor shall return the system back to fully operational based on their construction methods at no additional cost to the Owner.** Provide an assembled and installed, renovated sprinklers, PVC mains and laterals, tie into existing satellite controller(s) with all associated equipment for the proper operation of an automatic sprinkler system. This system, when finished, will efficiently and effectively operate. Said system shall prove to be satisfactory in all aspects to the Owner and Owner's Representative and Irrigation Consultant. These specifications are to be followed with due perseverance in all respects.

The diagrammatic Plans and Specifications contain a design build element and are intended to include everything obviously requested and necessary to do the proper installation of the work, whether each necessary item is mentioned herein or not, unless otherwise specified the contractor is expected to provide for the same.

Irrigation Plans with Specifications are intended to work together and any item or feature called for in one and not the other shall be as binding as if called for in both. If a discrepancy exists between an item called for in the

Plan and the Specifications, the Plan takes precedence or the contractor can assume the more stringent as it applies to the best method of operation and installation.

All work specified herein or called for on the drawings shall comply in accordance with all governing ordinances, laws and regulations that apply to the project. If the contractor performs any work contrary to such codes, laws or regulations, they shall assume full responsibility and bear all costs necessary to correct the work, at no additional cost to the Owner or the Owner's Representative.

Bidders must study and compare the Drawings and Project Documents and shall be responsible for discovering and reporting to the Irrigation Consultant any error, omission, inconsistency or other defect that should be apparent to a reasonable prudent Contractor. The Irrigation Consultant will interpret, correct or otherwise clarify the Project Documents as necessary, and will make any interpretation, correction or clarification in writing and issue it an addendum to all Bidders.

Any work undertaken by the Contractor containing possible errors or conflict without or before a written interpretation or instruction by the Owner's Representative and Irrigation Consultant is done so at the Bidders own risk.

The successful Contractor will be required to install the irrigation system under the following requirements:

1. All open trenches and excavations must be marked and protected on a daily basis. Protection will include barriers and plywood covers over excavations and other necessary procedures to protect the public and other Contractors from the danger of construction activities.
2. The entire site must be left in a clean and safe condition at the end of each workday. "Clean and safe" will be at the discretion of the Owner's Representative and the Irrigation Consultant. The Contractor shall appoint a supervisor who shall be responsible for all safety measures, as well as for compliance with all applicable governmental laws, ordinances, rules and regulations such as, for example, "OSHA" and "Right to Know" legislation and all city, county and state codes.
3. The order of work will be as agreed upon with the Irrigation Consultant and Owner's Representative. The resulting agreement shall become the basis for the irrigation part of the master project schedule.
4. Contractor shall keep the existing system up and operating each night to water the entire golf course (as required by Owner) and Contractor shall coordinate with Owner each day as to the status of the existing irrigation system. Furthermore, Contractor shall water all new and replaced turf until time of irrigation system acceptance by Owner and Irrigation Consultant.

The omission of any material from this Specification is not to be interpreted to the effect that omitted material will not be furnished by the Contractor. All material and labor, unless specifically indicated as being furnished by others, must be furnished and installed by the Contractor under the signed agreement.

The Irrigation Consultant shall stake or mark out the location of satellites, any mainline and wire paths in the immediate area to be worked on prior to starting installation. In the event there are any discrepancies from the work shown in the plan, the Contractor shall verify the dimensions with the Irrigation Consultant before work may begin in that area. **The Contractor shall have available a minimum of four persons, staking flags, four (4) 100 ft. tapes and shall produce "as staked" drawings, all for use during all staking visits by the Irrigation Consultant. Notice of 10 days or more for staking visits.**

Routing of the pipe and wire are diagrammatic and the Contractor will be expected to make field adjustments. The Owner reserves the right to make pipe and/or wire routing changes from those shown in the plans in cases, but not limited to; where ledge, boulders or other obstacles impede the path. Minor changes of this nature shall not affect the cost or time limits of the work.

It is the intent of the drawings to keep all primary power and communication cables for all satellites and/or pump station outside of all high traffic playing areas (i.e.: fairways, tees, greens etc.). Valve boxes should be as indicated on the drawings. Wire shall not be run through bunkers or tees. No valve boxes shall be located within the fairway cut and shall not be installed in the walking path to or from the green.

Ledge rock, shale, stones, organic matter or trash not suitable for use as backfill shall be dug and hauled to an accessible dumpsite on the property. The Contractor shall be responsible for calling in all locates and will be responsible for all damage to underground utilities of which they are aware, including, but not limited to; gas, water, electricity, cable, telephone, under-drains and drain tiles. Coordinate with the Owner's Representative and responsible utility marking firms the locations of existing underground utilities, irrigation and drains.

The Contractor shall not assign or subcontract any part of the work without the expressed written approval of the Owner prior to the start of said work to be subcontracted. Acceptance of a subcontractor does not relieve the Contractor of his responsibilities under the agreement.

The Contractor shall maintain a minimum of one 40-foot storage trailer on site for storage of materials other than piping. Location of trailer(s) shall be at the staging area. The Contractor shall be solely responsible for meeting deliveries and they're off-loading. The Owner shall not be responsible for inventorying or off-loading any materials to be used in the irrigation system.

## **II. Bidding Instructions**

### **1.1 QUALIFICATIONS AND INTERPRETATIONS**

#### **A. Construction schedules must be approved by Owner's Consultant and Owner's Representative:**

1. All proposals must meet the requirements in the Quality Assurance Section IV item 1.30-A.
2. Irrigation said improvements must be completed in the time frame designated by the Owner and Owners Representative.
3. List all, if any, sub-contractors to be employed by the contractor on irrigation project.
4. Acknowledgment of receipt of addenda.
5. Completion of unit pricing.
6. Owner reserves the right to reject any and all bids when such rejection is in the interest of Owner; to reject a bid or a Bidder who has previously failed to perform properly or complete on time contracts of similar nature; to reject bid or a Bidder who is not, in the opinion of the Irrigation Consultant or Owner, in a position to satisfactorily perform the contract. Owner also reserves the right to waive any informalities and technicalities in bidding. Owner may also accept or reject any alternatives.
7. All contractors must visit job site before submitting a bid.
8. Contractor must declare the he has been regularly engaged in irrigation installation work for at least ten (10) years and has installed at least five (5) significant golf course irrigation systems on golf courses in the last five (5) years of same size and difficulty utilizing PVC lateral piping.
9. Bidder must declare that he has examined the Drawings, Specifications and Contract Documents attached hereto, the location of the proposed work to be done, the conditions affecting the work, and is fully advised as to the extent and character of the work hazards, labor, transportation and all other factors which apply.

### **1.2 CONTRACT SPECIFICATIONS**

- A. The detailed specifications, which follow, shall govern the materials furnished and work performed in the construction of the work covered by this contract.
- B. No attempt has been made in the specifications to segregate work to be performed by and trade, subcontract or proposal item, under any one section of the specifications. Any segregation between trade or craft jurisdiction limits, and the establishment of subcontract limits, will be solely a matter of agreement

between the Contractor and his employees and his Sub-contractors. The specifications will govern the construction of the entire work and the provisions thereof all govern each item and unit of work to which such provisions apply.

### **1.3 APPLICATIONS FOR PAYMENT**

See the General Conditions and Supplementary Conditions of the contract for all information regarding payment applications.

### **1.4 TERMINATION OF CONTRACT**

See the General Conditions and Supplementary Conditions of the contract for all information regarding contract termination.

### **1.5 LIQUIDATED DAMAGES**

See the General Conditions and Supplementary Conditions of the contract for all information regarding liquidated damages (if applicable).

### **1.6 CONTRACTOR'S LIABILITY INSURANCE**

See the General Conditions and Supplementary Conditions of the contract for all information regarding insurance requirements.

## **III. Project Close-out**

### **1.1 SUBSTANTIAL COMPLETION**

**A. Preliminary Procedures:** Before requesting inspection for certification of Substantial Completion, complete the following:

1. Remove temporary facilities from the site.
2. Complete final cleaning requirements as described below in this Section.
3. If 100 percent (100%) completion cannot be shown, prepare a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

**B. Inspection Procedures:** On receipt of a request for inspection, the Irrigation Consultant will either proceed with inspection or advise the Contractor of unfulfilled requirements. The Irrigation Consultant will either prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of work that must be completed or corrected before the certificate will be issued.

1. If Irrigation Consultant indicates items to be completed before the Certificate of Substantial Completion can be issued, then the Irrigation Consultant will repeat inspection when requested and assured that the Work has been substantially completed. Total cost of re-inspections will be borne by the Contractor.
2. Results of the completed inspection will form the basis of requirements for final acceptance.

**C.** In accordance with any pertinent section under separate cover.

### **1.2 FINAL ACCEPTANCE**

**A. Re-inspection Procedure:** The Irrigation Consultant will re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed.

- B. Upon completion of re-inspection, the Irrigation Consultant will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance. If necessary, re-inspection will be repeated. Total cost of re-inspection will be borne by the Contractor.
- C. In accordance with any pertinent section under separate cover.

### 1.3 FINAL PAYMENT REQUEST

- A. Submit the final payment request with supporting documentation for final payment.
- B. Submit an updated final statement accounting for final additional changes to the Contract Sum.
- C. Final payment will be made after Owner approval.
- D. In accordance with any pertinent section under separate cover.

## **IV. Irrigation System**

### Part 1 - General

#### 1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including Bidding Requirements apply to work specified in this Section.

#### 1.2 DESCRIPTION

- A. Provide all labor, materials, equipment and supervision required to repair and construct an underground irrigation system as shown and specified. The following work includes; but not limited to:
  - 1. Irrigation Contractor to bring wiring up to existing and/or new satellite controllers and coordinate sequencing with Owner's staff.
  - 2. Central Controller, Radio System w/base and antenna – existing.
  - 3. Sprinkler & QCV installation and testing.
  - 4. Excavation and backfilling irrigation system work.
  - 5. Associated plumbing and accessories to complete the system.
  - 6. Wire sleeves (as required).

#### 1.3 QUALITY ASSURANCE

- A. Installer's qualifications: See Qualification of Contractors (page 3) for requirements. Golf Course irrigation installer shall submit qualifications to the General Contractor, who shall include them as part of their overall submittal.
- B. Materials, equipment, and methods of installation shall comply with, but not limited to, the following codes and standards:
  - 1. All local and state laws and ordinances, and with all the established codes applicable thereto.
  - 2. American Society of Irrigation Consultants (ASIC)
  - 3. National Fire Protection Association (NFPA); National Electrical Code (NEC).
  - 4. American Society for Testing and Materials (ASTM).
  - 5. National Sanitation Foundation (NSF).
  - 6. The Irrigation Association (IA).

- C. The Contractor shall take out all required permits, arrange for all necessary inspections and shall pay any fees and expenses in conjunction with the same as a part of the work under this Section.
- D. Excavating, backfilling, and compacting operations: Comply with execution requirements and as specified.
- E. Supply Irrigation Consultant with min. of (4) people for all staking visits, flags and (4) 100' tapes. Visits must be scheduled with ample time prior to proposed visit and have 3 or more holes prepared for staking.
- F. Obtain Irrigation Consultant's acceptance of installed and tested irrigation system prior to installing backfill materials.

#### 1.4 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions for each of the system components.
- B. Submit the following material samples:
  - 1. Wire, wire connectors and sealer.
- C. Submit the following equipment samples to Owner:
  - 1. Valves and valve access boxes.
  - 2. Controller.
- D. Approved equipment samples will be returned to Contractor and may be used in the work.
- E. Upon irrigation system acceptance, submit written operating and maintenance instructions. Provide format and contents as directed by the Irrigation Consultant.
- F. Provide irrigation system record drawings:
  - 1. The record as-built drawings shall be the original plan of the irrigation system as constructed. The final as-built drawings shall be prepared electronically on AutoCAD or .dwg version 2017 or newer at a scale of 1" = 100'. The drawings shall consist of a piping plan, a schedule plan, and a wiring plan, indicating the location, type and size of all wires, valves and other fittings. The drawing shall show all electronic controls, connections and wire splices. Measurements shall be indicated on the plan between sprinklers and valves. All pertinent materials shall be dimensioned from three fixed objects (i.e., drain valves, lateral isolation valves, mainline isolation valves, and wire splice connections). Station numbers shall be indicated on the drawings.
  - 2. The as-built drawings shall be made by an agent of the Contractor who shall utilize engineering skills and procedures in a manner satisfactory to the Owner's Representative in accomplishing his work. The record drawings shall be kept clean, dry and safe from damage at all times. The drawings shall be brought up-to-date at the close of each working day, and shall accurately indicate the location of all equipment placed to that time. In addition, a copy of the as-built drawing shall be mailed or delivered to the Owner's Representative every two weeks during the construction period. No monthly pay requests will be approved without a current copy of the as-built drawings. No final approval will be given until the Owner approves the as-built drawings. Final contractor "as-builts" shall be delivered electronically in both .pdf and .dwg (2017 AutoCAD or newer).
  - 3. Identify field changes of dimension and detail and changes made by Change Order.
  - 4. GPS irrigation collection by the Irrigation Consultant does not remove the obligation of the Contractor to produce all "as-built" drawings as stated above

#### 1.5 DELIVERY, LANDS FOR STORAGE AND HANDLING

- A. Deliver irrigation system components in manufacturer's original undamaged and unopened containers with labels intact and legible.
- B. Deliver plastic piping in bundles, packaged to provide adequate protection of pipe ends.
- C. Store and handle materials to prevent damage and deterioration. Store materials in locations designated and approved by the Owner.
- D. Provide secure, locked storage for wire, pump station and similar components that cannot be immediately replaced, to prevent theft and therefore avoid installation delays.
- E. Contractor has the right to a temporary construction facility for storage and protection of materials.

#### 1.6 PROJECT CONDITIONS

- A. Prior to any excavation at the site, contractor shall examine any applicable drawings, if any available from the Owner and/or Irrigation Consultant and consult with Owner's personnel and utility company's representatives to determine possible utility locations and depths. No compensation will be allowed for damage to existing utilities and systems.
- B. Take precautions to insure that equipment and vehicles do not disturb or damage existing site grading, walks, curbs, pavements, utilities, plants, and other existing items and elements on public and private property.
- C. Promptly repair damages to adjacent facilities caused by irrigation system work operations. Cost of repairs at Contractor's expense.
- D. Promptly notify the Irrigation Consultant of unexpected sub-surface conditions.
- E. **Irrigation system layout is diagrammatic.** Exact locations of piping, valves, wire and other components shall be established by Irrigation Consultant in the field at time of installation, and approved by the Owner or the Owners Representative before installation.
  - 1. Minor adjustments in system layout will be permitted to clear existing fixed obstructions.
  - 2. All electrical pumps, satellites, weather station and the like shall be located above the 100-year flood plain.
- F. Cutting and patching (walks, drives, walls etc):
  - 1. Cut through concrete and masonry with core drills. Jackhammers not permitted.
  - 2. Materials and finishes for patching shall match existing cut surface materials and finish. Exercise special care to provide patching at openings in exterior wall watertight.
  - 3. Methods and materials used for cutting and patching shall be acceptable to the Irrigation Consultant.
- G. Protection of Persons and Property:
  - 1. Barricade open excavations occurring as part of this work and post warning lights.
  - 2. Operate warning lights as recommended by authorities having jurisdiction.
  - 3. Protect structures, utilities, sidewalks, pavements, curbs and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by this work.

#### 1.7 GUARANTEE

- A. For a period of one (1) year from date of **final acceptance** of work performed under this Section, the Contractor shall promptly furnish and install any and all parts and equipment which prove defective in material, workmanship or install at no additional cost to the Owner **except any pipe/fitting failures will be guaranteed for (2) years.**

## Part 2 - Products

### 2.1 ACCEPTABLE MANUFACTURERS-OR PRE-APPROVED EQUAL

- A. RAIN BIRD SALES, GOLF IRRIGATION DIVISION, ASUZA, CA

### 2.2 MATERIALS

#### A. General:

1. Provide only new materials, without flaws or defects and of the highest quality of their specified class and kind.
  2. Comply with pipe sizes indicated. No substitution of smaller pipes will be permitted. Larger sizes may be used subject to acceptance of the Irrigation Consultant. Remove damaged and defective pipe.
  3. Provide pipe continuously and permanently marked with manufacturer's name or trademark, size, schedule and type of pipe, working pressure at 73 ° F. and National Sanitation Foundation (NSF) approval.
  4. **All pipe, fittings (HDPE/PVC) and ductile iron fittings shall be supplied from the same manufacturer throughout the entire job.**
  5. Contractor to review the existing irrigation plans supplied in bed set (LI-5) and described in Project Manual to replace pipe to match existing main and lateral piping. Furthermore, as described in the plan set and specifications, fairways and tees to be replaced with PVC sized to match existing piping and all greens loops and taps to be HDPE from isolation valve to sprinkler loops – complete.
1. PVC Plastic pipe, fittings and connections:
    - a. Polyvinyl chloride pipe: ASTM D2241 NSF-PW, rigid, un-plasticized PVC, extruded from virgin parent material. Provide pipe homogeneous throughout and free from visible cracks, holes, foreign materials, blisters, wrinkles and dents.
    - b. Gasketed pipe shall be used for 3" and larger diameter pipe. Gasketed pipe or bell end pipe to be used for 2-½" through 3" diameter pipe – **as per type of installation.**
    - c. All pipe 2 1/2" diameter and over, shall be SDR 21, Class 200 unless noted on plan.
    - d. Glued PVC pipe fittings: ASTM D2241 schedule 80 PVC molded fitting suitable for solvent weld, slip joint ring tight seal. Screwed connections shall be Sch 80 PVC with no male adapters. Fittings made of other materials are not permitted.
    - e. Size slip fitting socket taper to permit a dry un-softened pipe-end to be inserted no more than halfway into the socket. Saddle and cross fittings are not permitted.
    - f. All threaded PVC connections shall be made using Sch. 80 toe nipples and Sch. 80 couplers or socket fittings (where applicable). No threaded Sch. 80 fittings or male adapters.
    - g. PVC solvent shall conform to ASTM D2564 and is NSF approved for potable applications. Proper solvent shall be used for diameter of piping being glued. All solvent weld joints must set for 24 hours before being installed and be done in accordance with all manufacturer recommendations.
  2. Golf Grade Ductile Iron fittings:
    - a. Ductile Iron Deep Bell fittings for golf application.
    - b. Fittings shall be manufactured of ductile iron, Grade 65-45-12 in accordance with ASTM A-536. Fittings shall have deep bell push-on joints with gaskets meeting ASTM F-477.

c. D.I. Deep Bell fittings shall be used on all PVC mainlines and lateral piping 2 ½" in diameter and larger.

3. Swing Joints:

a. Rain Bird (or equal) 360° swing joint assembly. Contractor is responsible for proper installation of swing joints due to actual lateral depths lay lengths (and HDPE connection as per manufacturer recommendations).

4. Service Tees:

a. HARCO fusion or compression service tee as manufactured by The Harrington Corporation of Lynchburg, VA or Sch. 80 SxSxACME. **Note – all fittings must be approved in the submittal process as well as style of lateral installation.**

b. Shall be located under all sprinkler heads and quick coupler valves **with appropriate restraint to eliminate movement** (see detail).

5. "Air Release Valves":

a. Air release valves shall be installed at high points on golf course and/or where diagrammatically noted on irrigation plan. Irrigation plan locations are diagrammatic; Contractor will be responsible for proper location as approved by Irrigation Consultant. Air release valves shall be installed in a Jumbo valve box and plumbed with a ball valve and wye strainer to isolate for maintenance (see detail).

B. Sprinklers, valves and associated equipment:

1. Refer to the drawings for the quantity and diagrammatic locations of the following:

2. 1" body sprinkler heads shall utilize 1 ¼" swing joint assemblies; 1 ½" body sprinkler heads shall utilize 1 ½" swing joints:

a. RAIN BIRD                      Full Circle 900E Acme series (see drawings)  
    Part Circle 950E Acme series (see drawings)  
    Part Circle 751E Acme series (see drawings)

b. Spacing of heads shall not exceed manufacturer's maximum recommendations. Conform to manufacturer's specifications concerning diameter of throw and gallonage at given pressures.

3. Electric & Manual Isolation Valves:

a. Clow RT/RW "resilient wedge" (or equal) – see plan

b. Electric Block PR & Scrubber valve -see plan

c. AquaFuse PE lateral swivel with EF saddle, based on PVC or HDPE application (or equal)-see plan

d. Size isolation valves to match line size-Manual Valves only.

e. Installed in specified valve access box.

f. Each style of isolation valve shall have (2) 4'-0" tee handle keys supplied by Irrigation Contractor.

4. Quick Coupler Valves:

a. Rain Bird 5RC 1" QCV with stabilizer and swing joint assembly.

b. Provide matching quick coupler keys.

c. Installed as specified on detail plan.

d. All Q.C.V.'s shall be plumbed with a **1" brass insert swing joint with stabilizer (see detail).**

C. Satellite controllers and associated equipment are to be provided by only one manufacturer for the complete project. Refer to the Appendix for the quantity and locations of the following:

1. Satellite Controllers and/or (8) Station Output Boards (as required):

a. RAIN BIRD Par+ ES Links XX-L-S satellite with plastic pedestal with switches and terminals for all stations. Contractor to provide new satellites with all associated equipment at designated locations – see appendix for current count and replacement controller and/or additional (8) station board, tuned to proper frequency and verified with Owner and Irrigation Consultant prior to purchase – see plan.

- b. Frequency modules will be supplied by Contractor at time of installation after manufacturer approved frequency site survey.
- c. See Section V (Electrical) 2.7 on 120 VAC surge protection for satellites.
- d. See Section IV (Irrigation System) 3.3-C.7 and Section V (Electrical) 2.3-2.5; Grounding, Bonding and Shielding.

**D. Primary Electrical Wire:**

- 1. Type "UF", 600 volt, solid copper, single conductor wire with PVC insulation and bear "UL" approval for direct underground burial feeder cable with ground.
- 2. Size #00 Gauge - #12 Gauge. - (See Plan and Section V, 2.1)
- 3. IC cable provided around each green shall have the leading end left in the green valve box with the valve and the terminating end left at the last sprinkler on the green loop. Water proof splice kits shall be provided on both open ends. An 18" loop shall be tied up at each sprinkler to allow play in the wire for future splicing.

**E. Secondary Control Wire:**

- 1. Electrical control and ground wire: Type "PE", 600 volt, solid copper, single conductor wire with polyethylene insulation "UL" approved for direct underground burial feeder cable. 12 Gauge white common neutral and 14 Gauge red control wire.
- 2. Wire color code: Provide control or "hot" wires red in color. Provide "common" wires white in color (one hot wire per head wired back to satellite).
- 3. No aluminum wire allowed.

**F. Controller Communication Wire: Existing R.F.**

**2.3 ADDITIONAL MATERIALS**

**A. Primary Electric wire connectors:**

- 1. 3M COMPANY DBR-6 splice kits Socket seal type wire connectors or scotchcast and waterproof sealer, or Large 3M #4 Resin Bag UL listed for 600 volts and underground splice. All electrical connections shall apply to NEC standards and all local, state and federal codes whether listed or not.

**B. Secondary Control Wire connectors:**

- 1. 3M COMPANY Socket seal type wire connectors and waterproof sealer. DBY or DBR splice kits. All electrical connections shall apply to NEC standards and all local, state and federal codes whether listed or not.
- 2. **One hot wire per head** to be wired back to satellite. -See Plan

**C. Valve Access Boxes: Jumbo Box with extension kit-or equal; for air relief valves and isolation valves.-See Plan**

**D. Thrust Blocking:**

- 1. Thrust blocks are anchors placed between pipe or fittings and the solid/virgin trench wall. Specified blocking of concrete which is calculated to have a compression strength of 2,000 pounds per square inch. The mixture is one part cement, two parts washed sand and five parts gravel. Thrust blocks must be constructed so the bearing surface is in direct line with the major force created by the pipe or fitting. See diagram. The earth bearing surface should be undisturbed (virgin wall).
- 2. Thrust blocking is to prevent the line from moving when the pressure load is applied, transferring the load from the pipe to a wide load bearing surface. Thrust blocks are required where fittings are used to change direction (i.e. the following but not limited to: all tees, elbows, wyes, caps, valves and reducers etc.) of the pipe line. The thrust blocking must be formed against a solid trench wall (virgin wall) and

these fitting areas must be excavated by hand, mechanical equipment will damage the bearing surface of the trench wall.

3. The size and type of thrust depends on pipe size, line pressure, type of fitting, degree of bend and type of soil. Thrust block size may be calculated by the example procedures shown below.
4. **It will be the responsibility of the Contractor for all change of direction thrust blocks on all size piping.**

*Step 1 – Multiply the pressure level desired for testing by the appropriate value shown in the following table:*

Pipe Size	Dead End or Tee	90 deg Elbow	45 deg Elbow	22 ½ deg Elbow
1 ½"	2.94	4.16	2.25	1.15
2"	4.56	6.45	3.50	1.78
2 ½"	6.65	9.40	5.10	2.60
3"	9.80	13.90	7.51	3.82
3 ½"	12.80	18.10	9.81	4.99
4"	16.20	23.00	12.40	6.31
5"	24.70	35.00	18.90	9.63
6"	34.80	49.20	26.70	13.60
8"	59.00	83.50	45.20	23.00
10"	91.50	130.00	70.00	35.80
12"	129.00	182.00	98.50	50.30

Based on pounds per psi working pressure.

*Step 2 – Determine the bearing strength of the soil from the table below:*

#### ***Bearing Strength of Soils***

##### **Soils and Safe Bearing Loads Lbs. Sq. Ft.**

Sound Shale	10,000
Cemented Gravel and Sand-difficult to pick	4,000
Coarse & Fine Compact Sand	3,000
Medium Clay - Can be spaded	2,000
Soft Clay	1,000
Muck	0

*Step 3 – Divide the total thrust obtained in Step 1 by the bearing strength of the soil; this gives the square feet of area needed.*

Side Thrust on Curves – An outward pressure exists on all deflections from a straight line. Good soil, properly tamped, can be sufficient to hold side thrust – unless soil conditions are unstable. In that case, to anchor against this side thrust, the blocking should be placed against the pipe on each side of the coupling. Do not thrust block the coupling itself.

#### ***Side Thrust***

<b><i>Pipe Size Inches</i></b>	<b><i>Side Thrust Pounds per Degree</i></b>
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1 ½"	5.1
2"	7.9
2 ½"	11.6
3"	17.1
3 ½"	22.4
4"	28.3
5"	43.1
6"	60.8
8"	103.0
10"	160.0
12"	225.0

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Based on side thrust per 100 lb./in<sup>2</sup> pressure per degree of deflection.

*Note: Multiply side thrust pounds by degrees of deflection times pounds of pressure divided by 100 to obtain total side thrust in pounds.*

5. 2,000-psi test minimum on thrust block meeting all ASTM specifications C-33 and C-150 or C-175 standards. **Note: Thrust blocks can differ depending on the type of fittings and soils. Contractor must review all conditions for adequate thrust. Furthermore, a joint restraint may be required to obtain and secure a fitting from movement.**

**E. Golf Grade Ductile Iron Fittings & Joint Restraints:**

1. Fittings for bell and gasket pipelines shall be ductile iron, slant-bell design, and deep bell type. Fittings shall be manufactured of ductile iron, grade 65-45-12 in accordance with ASTM A-536. Fitting gaskets shall be in accordance with ASTM F-477. All ductile iron fittings shall be equipped with four 90-degree apart, outwardly extending radial lugs to accommodate for appropriate method of mechanical restraints.
2. Fittings made from more than one piece shall utilize securely fastened bolt-on style spigot-bell links. Slip-on rings or loose rings as the method of attachment are not permissible.
3. All tee fittings used to connect remote control valve and quick coupling assemblies to the mainline shall be ductile iron, deep bell service tees.
4. All ductile iron bends; reducers, tees and gate valves shall be mechanically restrained. All bell and gasket joints adjacent to restrained joints shall be restrained in accordance to the manufactures recommended design criteria and guides. **Note: Sites where ductile iron fittings without joint restraints and thrust blocks are acceptable in lieu of joint restraints and/or joint restraints that are used in cases of non-bearing soils or where joint restraints are used exclusively. See plans and details for actual site by site applications.**
5. The mechanical joint restraint shall be capable of securing the PVC pipe directly to the ductile iron fitting without the use of bolts, links and adapters. The joint restraint shall be capable of securing PVC gasket pipe joints and gate valves without use of threaded rods. Joint restraints made for iron or steel pipe are not permissible.
6. The joint restraint shall be manufactured from ductile iron, grade 65-45-12 in accordance with ASTM A-536. Bolts and nuts used on joint restraints shall be provided as part of the restraint assembly.
7. All joint restraints shall be installed using methods recommended by the manufacturer. All bolts and nuts must be tightened as per manufacturer's recommended torque ratings.
8. All tees, bends, reducers and end caps should be restrained using LH Series clamp sets. Additionally, a certain number of bell-spigot joints before and after a restrained fitting require LB Series joint restraints. There are also LG series clamp kits for restraining slip-on gate valves.
9. The following table lists values for the minimum restrained length of pipe ("L"). Every joint within the distance "L" should be restrained. Bends require that all joints be restrained on both sides of the bend for the specified length. The most critical are capped pipe and gate valves installed at terminating points for future connections; these should be treated as Dead End applications.

Table values are based on 100 psi test pressure, 2 feet cover, sand-clay type soil and safety factor of 2. For pressures other than 100 psi, multiply the “L” values by the actual pressure and divide by 100.

**MATERIAL SPECIFICATIONS:**

Clamps and Tie Rods: Ductile Iron ASTM A-536

Bolts and Nuts: Low Alloy Steel standard 304 Stainless Steel (Optional)

Pipe Size (in)	Minimum Restrained Length (L), feet				Reductions (sizes down)		
	Bends (degrees)				1D	2D	DE
	11	22	45	90			
2	1	1	2	5	NA	NA	15
2.5	1	2	3	7	3	NA	18
3	1	2	4	9	6	8	24
4	2	3	7	16	11	16	36
6	2	5	10	23	24	32	50
8	3	6	12	30	26	44	66
10	4	7	15	36	26	45	80
12	4	8	17	42	36	45	94

Notes: 1D reduction denotes one size down (such as 4x3, 12x10)

2D reduction denotes two sized down (i.e. 4x2.5, 12x8)

DE is a dead end (for a cap, plug or a gate valve.)

More detailed tables are available upon request.

10. Ductile iron joint restraints shall be installed on all fittings and gate valves for all IPS-Size, ring joint PVC pipe. The joint restraint shall be capable of securing the PVC pipe directly to the lugs on the Leemco deep bell ductile iron fittings without the use of bolts, links and adapters. The joint restraint shall be capable of securing PVC pipe to PVC pipe and PVC pipe to ring joint gate valves without the use of threaded linkages.
11. All ductile iron fittings shall be secured to full-length pipes and on all bends and tee branches, the next joint of the pipe shall be secured. At least two full lengths of pipe must be secured when attached to bends and tee branched 8” and larger, and at least three full lengths of pipe must be secured to dead end pipe. Pipe joints that occur in less than full-length when attached to a fitting shall also be secured.
12. All fittings shall be deep bell, manufactured specifically for IPS-Size pipe and made of Grade 65-45-12 ductile iron. Fittings 4” and larger shall have slanted bells to allow deflection of pipe in all planes. Fittings shall have four lugs at each push-on joint with ribbed and cupped gasket design, made from EDPM elastomer.
13. All quick coupling valves shall be fitted with Leemco Stabilizers. Quick coupling Stabilizers shall be manufactured in Grade 65-45-12 ductile iron; shall attach to the hex portion of the valve and be secured with a single bolt. Stabilizer shall have 12” span and be capable of resisting rotational and vertical motions.
14. Butt Fusion Fittings - Fittings shall be PE 4710 with a minimum cell classification of PE 445474C. Butt Fusion molded Fittings shall have a manufacturing standard of ASTM D3261. Molded & fabricated fittings shall have the same minimum pressure rating as the pipe unless otherwise specified on the plans. Fabricated fittings are to be manufactured to meet the FM (Factory Mutual) performance standards. Fabricated fittings are to be manufactured using a Data Logger. Reference to the Data Logger quality control records should be referenced from an indented stamp in each fusion bead of each fitting. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the quality control records.
15. Flanged and Mechanical Joint Adapters - Flanged and Mechanical Joint Adapters shall be PE 4710 resin with a minimum cell classification of PE 445474C. Flange adapters and Mechanical Joint Adapters shall have the same pressure rating as the pipe unless otherwise specified on the plans.

## Part 3 - Execution

### 3.1 INSPECTION

- A. Examine final grades and installation conditions. Do not start irrigation system work until unsatisfactory conditions are corrected and approved by Owner or Irrigation Consultant.

### 3.2 PREPARATION

- A. Layout and stake the location of each pipe run and all sprinkler heads and sprinkler valves. Obtain Irrigation Consultant's acceptance of layout prior to excavating.
- B. Strip sod for pipe trenches with a mechanical sod stripper uniformly 1" to 1-½" thick with clean-cut edges (for existing turf only).
- C. Remove existing paving for sleeve installation. Saw cut existing paving to provide uniform straight transition at new to existing paving.
- D. Place sleeves as indicated for installation of piping and control wire.

### 3.3 INSTALLATION

- A. Excavating and backfilling:
  - 1. Excavation shall include all materials encountered, except materials that cannot be excavated by normal mechanical means.
  - 2. Excavate trenches of sufficient depth and width to permit proper handling and installation of pipe and fittings.
  - 3. If the pulling method is used, the pipe "plow" shall be vibratory type. Starting and finishing holes for pipe pulling shall not exceed a 1'-0" by 3'-0" opening.
  - 4. Excavate to depths required to provide 4" minimum depth of amended earth fill or sand bedding, free of all rock, and debris, for piping on all sides and bottom of pipe when rock or other unsuitable bearing material is encountered.
  - 5. Fill to match adjacent grade elevations with approved earth fill material. Place and compact fill in layers not greater than 8" depth.
    - a. Provide approved earth fill or sand to a point 4" above the top of pipe - free of rock and debris
    - b. Fill to within 6" of final grade with approved excavated or borrows fill materials free of lumps or rocks larger than 2" in any dimension.
    - c. Provide clean topsoil fill free of rocks and debris for top 6" of fill.
  - 6. Except as indicated, install irrigation main lines with a minimum cover of 24" based on finished grades with a minimum depth of 30". Install irrigation lateral lines with a minimum cover of 18" based on finished grades with a minimum depth of 24". No sweeping of lateral lines.
  - 7. Excavate trenches and install piping and fill during the same working day. Do not leave open trenches or partially filled trenches open overnight.
  - 8. Replace stripped sod in sufficient time to allow for satisfactory sod recovery and growth. Water stripped and reinstalled sod until irrigation system is placed in operation (irrigation contractor to return turf to original condition or better). Existing turf conditions only.
  - 9. Replace paving of same materials, using joints and patterns to match existing adjoining paving surfaces.
  - 10. Backfill shall be compacted to 95% standard proctor density. Contractor will be responsible for the restoration of all settlement for period of (2) years from acceptance.
  - 11. **Vibratory pulling method to be employed on all greens, tees and fairways where 2" PVC piping is shown on plans.**

**B. Plastic pipe:**

1. Install plastic pipe in accordance with manufacturer's installation instructions. Provide for thermal expansion and contraction.
2. Saw cut plastic pipe. Use a square-in-sawing vice, to ensure a square cut. Remove burrs and shavings at cut ends prior to installation.
3. Make plastic to plastic joints with solvent weld joints or slip seal joints. Use only solvent and purple cleaner recommended by the pipe manufacturer's instructions. Contractor shall make arrangements with pipe manufacturer for all necessary field assistance.
4. Make plastic to metal joints with Sch. 80 piping.
5. Make solvent weld joints in accordance with manufacturer's recommendations.
6. Allow joints to set at least 24 hours before pressure is applied to the system.
7. Maintain pipe interiors free of dirt and debris. Close open ends of pipe by acceptable methods when pipe installation is not in progress.
8. All gasketed PVC pipe shall be installed per manufacturer's recommendation using appropriate gasket lube.
9. Pulled pipe shall be solvent welded 36 hours in advance of pulling.
10. Contractor shall not drag PVC pipe before installation.
11. No substitution of smaller pipe, only larger sized pipe will be permitted.
12. All piping must be installed as per manufacturer recommendations including piping velocity rates.

**C. Controllers, fittings, valves and accessories:**

1. Install fittings, valves, sprinkler heads, swing joints and accessories in accordance with manufacturer's instructions.
  - a. Provide concrete thrust blocks, at all change of directions, bends, reducers, plugs, and opposite side of tees and any other unstable point of piping network (see detail). 2,000-psi test on thrust block meeting all ASTM specifications C-33 and C-150 or C-175 standards – see section on fittings with tables.
2. Set sprinkler heads perpendicular to finished grades, except as otherwise indicated.
3. Obtain Irrigation Consultant's review and acceptance of height for proposed sprinkler heads and valves prior to installation.
4. Locate sprinkler heads to assure proper coverage of indicated areas. Do not exceed sprinkler head spacing distances indicated (as per manufacturer recommendations).
5. Install pop-up gear driven sprinklers on specified swing joint assemblies. (See Detail)
6. Install quick coupling valves on specified swing joint assemblies. (See Detail)
7. Install controllers as detailed.
  - a. Pedestal mounted in locations shown on drawings.
  - b. Waterproof wire conduit to provide a complete, waterproof, permanent and neat job. All 120 VAC wiring, including inside of control box – as per local codes.
  - c. Ground controller in accordance with manufacturer's recommendations. (10 OHMS or less). A single, DELTA or Paige plate configuration may be acceptable to get to 10 OHMS or less; measure by a meager device. It will be the responsibility of the contractor to prove such measurement before getting released from the said system installation. (See Plan)

**D. Control wiring:**

1. Install electric control cable in the piping trenches wherever possible. Place wire in trench adjacent to pipe. Install wire with slack to allow for thermal expansion and contraction. Expansion joints in wire may be provided at 200-foot intervals by making 5-6 turns of the wire around a piece of ½" pipe instead of slack. Where necessary to run wire in a separate trench, provide a minimum cover of 18" or as per local codes.

2. Provide sufficient slack at site connections at remote control valves in control boxes, and at all wire splices to allow raising the valve bonnet or splice to the surface without disconnecting the wires when repair is required.
3. Connect each remote control valve or sprinkler head to one station of a controller except as otherwise indicated.
4. Connect remote control valves or sprinkler heads to a common ground wire system independent of all other controllers.
5. Make secondary wire connections to sprinkler heads, remote control electric valves and splices of wire in the field; using PE listed burial splice connectors (i.e.: 3M DBY or 3M DBR), in accordance with manufacturer's recommendations.
6. Provide tight joints to prevent leakage of water and corrosion build-up on the joint.
7. Provide new sleeves for all locations where existing sleeves are not indicated. Install new sleeves prior to paving installation wherever possible.
8. Install pipe sleeves under existing concrete or asphalt surface by jacking, boring, or hydraulic driving of the sleeve. Remove and replace existing concrete and asphalt surfaces where cutting is necessary. Obtain Owner's permission before setting existing concrete and asphalt surfaces. Where piping is shown under paved areas that are adjacent to turf areas, install the piping in the turf areas.
9. One approved manufacturer shall be used for the entire project, no multiple manufacturers will be allowed for all wire, pipe, cement and primer etc.

**E. Flushing, testing and adjustment:**

1. After sprinkler piping and swing joints are installed and before sprinkler heads are installed, open control valves and flush out the system with full head of water. Swing joints should be extended above grade by 2-3 feet above grade by a section of PVC. This will help prevent contaminate piping during flushing.
2. Perform system testing upon completion of each section. Make necessary repairs and re-test repaired sections as required.
3. Adjust sprinklers after installation for proper and adequate distribution of the water over the coverage pattern. Adjust for the proper arc of coverage.
4. Test and demonstrate the controller by operating appropriate day, hour, and station selection features as required to automatically start and shut down irrigation cycles to accommodate plant requirements and weather conditions.

**F. Service:**

1. When requested, return to the site during the subsequent fall season and winterize the system. Drain all water from the system or blow out the system with compressed air – (blow out climates only).
2. When requested, return to the site during the subsequent spring season and demonstrate to the Owner the proper procedures for the system start-up, operations, and maintenance (blow out climates only).

### 3.4 SPARE PARTS

**A. Provide the following:**

1. Two extra sprinkler head (s) of each size and type.
2. Two extra valve access box(s) of each size and type.
3. Four quick coupler valve keys and swivel elbows.
4. Two repair coupling for each size and type of pipe.
5. Two tee handles for both style isolation valves 4' in length.

### 3.5 DISPOSAL OF WASTE MATERIAL

- A. Transport unsuitable excavated material, including rock or lava to designated disposal areas on Owner's property. Stockpile or spread as directed. Remove from site and legally dispose of trash and debris.
- B. Maintain disposal routes clear, clean, and free of debris.

### 3.6 ACCEPTANCE

- A. Test and demonstrate to the Irrigation Consultant and Owner the satisfactory operation of the system free of leaks.
- B. Instruct the Owner's designated personnel in the operation of the system, including adjustment of sprinklers, controller (s) and central, valves and pump station(s).
- C. Upon acceptance the Owner will assume operation of the system.-See application for payment

### 3.7 CLEANING

- A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Repair damage resulting from irrigation system installation.

## **V. Electrical**

### Part 1 - General

#### 1.1 APPLICABLE STANDARDS

- A. All apparatus, materials and work, shall be in accordance with standards, practices and codes of the electrical industry. Particular attention is directed to requirements of ANSI/NFPA 70 and Underwriters Laboratories, Inc. as suitable for purposes specified and shown.
- B. The completed irrigation installation shall conform to all local and special laws, codes or ordinances of all Federal, State and municipal authorities with due jurisdiction.

#### 1.2 PROJECT CONDITIONS

- A. Locations of all controllers, heads and other elements of the system are to be approved by Owner or Owner's Representative before wiring is installed.
- B. Conductor sizes are based on copper.
- C. Wire and cable routing shown on the drawings are approximate. Route wire as required meeting project conditions.-See plan
- D. Take precautions to avoid damage to existing site elements and features, including wiring and piping for existing underground irrigation system. Promptly repair damage to such features, cost at Contractor's expense.

### Part 2 - Products

#### 2.1 PRIMARY CABLE – as required from A.O.D.

- A. All power cables are type Tray Cable (or approved equal); shall be UL listed for direct burial, and rated at 600 volts. The cable shall include three conductors, which are to be colored per wire industry standard or numbered as 1, 2, and 3. The size of the "hot" and "common" conductors are to be as shown on the irrigation plans, and the size of the "equipment ground" conductor as required by the National Electrical Code, or

larger. The inner copper conductors are to be covered with high dielectric PVC and Nylon. The outer jacket will be black PVC and is to be sunlight resistant. (Paige Electric Co., (or approved equal) LP specification number P7266D for 10 AWG and smaller and specification number P7267D for 8 AWG and larger.)

- B. Conduit: All branch circuit wires, for 120 volts and higher, shall be installed in electrical conduit. The wires shall be type THWN and sized according to the irrigation system plans. Paige Electric Co., LP specification number P7316. Installation shall meet all local codes and regulations as well as NEC requirements for burial conduit piping. The total cross-sectional area of the wires sleeved through the electrical conduit shall be no more than 40% of the internal cross-sectional area of the conduit.

## 2.2 SECONDARY CABLE

- A. Wires connecting the remote control valves to the irrigation controller are single conductors, type PE. Its construction incorporates a solid copper conductor and polyethylene (PE) insulation with a minimum thickness of 0.045 inches. The wires shall be UL listed for direct burial in irrigation systems and be rated at a minimum of 30 VAC. Wire sizes and colors are defined in the irrigation plans and other specifications. (Paige Electric Co., (or approved equal) LP specification number P7079D.)

## 2.3 EARTH GROUNDING

- A. It is the responsibility of the installer to connect all electronic equipment for which they are responsible to earth ground in accordance with Article 250 of the National Electrical Code (NEC). Grounding components will include the items described in the following paragraphs, at a minimum.

Use grounding electrodes that are UL listed or manufactured to meet the minimum requirements of Article 250 of the NEC. At the very minimum, the grounding circuit will include a copper clad steel ground rod, a solid copper ground plate and 100 pounds of PowerSet® earth contact material, as defined. See detail. Ground rods are to have a minimum diameter of 5/8" and a minimum length of 10 feet. These are to be driven into the ground in a vertical position or an oblique angle not to exceed 45 degrees at a location 10 feet from the electronic equipment, the ground plate, or the wires and cables connected to said equipment. See detail.

The rod is to be stamped with the UL logo (Paige Electric part number 182007.) A 6 AWG solid bare copper wire (about 12 feet long) shall be connected to the ground rod by the installer using a Cadweld GR1161G "One-Shot" welding kit (Paige Electric part number 1820037.) This wire shall be connected to the electronic equipment ground lug. See detail.

The copper grounding plate assemblies (Paige Electric part number 182199L) will have minimum dimensions of 4" x 96" x 0.0625". A 25-foot continuous length (no splices allowed unless using exothermic welding process) of 6 AWG solid bare copper wire is to be attached to the plate by the manufacturer using an approved welding process. This wire is to be connected to the electronic equipment ground lug as shown in the detail of page 1. The ground plate is to be installed to a minimum depth of 30", or below the frost line if it is lower than 30", at a location 8 feet from the electronic equipment and underground wires and cables. Two 50-pound bags of PowerSet® with a neutral PH value (Paige Electric part number 1820058) earth contact material must be spread so that it surrounds the copper plate evenly along its length within a 6" wide trench. Salts, fertilizers, bentonite clay, cement, coke, carbon, and other chemicals are not to be used to improve soil conductivity because these materials are corrosive and will cause the copper electrodes to erode and become less effective with time.

Install all grounding circuit components in straight lines. When necessary to make bends, do not make sharp turns. To prevent the electrode-discharged energy from re-entering the underground wires and cables, all electrodes shall be installed away from said wires and cables. The spacing between any two electrodes shall be as shown in the detail of page 1, so that they don't compete for the same soil.

The earth-to-ground resistance of this circuit is to be measured using a Megger® or other similar instrument, and the reading is to be no more than 10 ohms. If the resistance is more than 10 ohms, additional ground plates and PowerSet® with a neutral PH value are to be installed in the direction of an irrigated area at a distance of 10', 12', 14', etc. It is required that the soil surrounding copper electrodes be kept at a

minimum moisture level of 15% at all times by dedicating an irrigation station at each controller location. The irrigated area should include a circle with a 10-foot radius around the ground rod and a rectangle measuring 1-foot x 24-feet around the plate.

All underground circuit connections are to be made using an exothermic welding process by utilizing products such as the Cadweld "One-Shot" kits. Solder shall not be allowed to make connections. In order to ensure proper ignition of the "One-Shot", the Cadweld T-320 igniter must be utilized (Paige Electric part number 1820040.) The 6 AWG bare copper wires are to be installed in as straight a line as possible, and if it is necessary to make a turn or a bend it shall be done in a sweeping curve with a minimum radius of 8" and a minimum included angle of 90°. Mechanical clamps shall be permitted temporarily during the resistance test process, but are to be replaced with Cadweld "One-Shot" kits immediately thereafter.

## **2.4 BONDING**

- A.** Said grounding circuit is referred-to as "supplementary grounding" in the NEC. And for safety reasons, the NEC required that all supplementary grounds be "bonded" to each other and to the service entrance ground (power source) as shown. This is also "recommended practice" of IEEE Standard 1100-1999. Note that this is in addition to the equipment ground, which is commonly referred to as "the green wire." The power wires (black, white and green for 120 VAC and black, red and green for 240 VAC) must always be kept together in a trench/conduit/tray/etc. The bonding conductors are to be 6 AWG solid bare copper unless the system power conductors are larger than 1/0 AWG, in which case they are to be 4 AWG solid bare copper. All splices to the bonding conductors shall be made using a Cadweld "One-Shot" kit. See details. (Paige Electric part number 1820074)

## **2.5 SHIELDING**

- A.** The bonding conductors are to be installed in such a way so that they act as shielding conductors. This becomes a network of solid bare copper wire over all the main bundles of other wires and cables. See details. The bare copper wire is to be installed as close to the surface as possible, yet being sufficiently below the ground level as to prevent damage from maintenance equipment such as aerators. And it must be place above all other valve/power/communication wires and cables, per detail, and installed in all trenches as shown on the electrical plan drawings. It is not necessary to install this conductor over short wire runs (less than 150 feet) away from the main wire bundles. The conductor is laid in as straight a line as possible, and when necessary to make bends, do so in a sweeping motion using the detail as a guideline. The shield network is to be connected to the service entrance earth ground, to all electronic equipment ground lugs, and all equipment supplementary grounding electrodes. One such network is necessary for each power source. Do not interconnect the equipment ground, bonding and shielding wires from different power sources.

## **Part 3 - Execution**

### **3.1 GENERAL**

- A.** Installation of wiring shall be in accordance with Section IV Irrigation System and in accordance to irrigation system manufacturer's instructions.
- B.** Any wire or cable that is stressed or damaged in any way shall be replaced at the Contractor's expense.
- C.** Make splices with approved connector assembly as specified in Section IV Irrigation System.
- D.** Inspect wire and cable for physical damage and proper connection. Verify continuity of each control circuit.

- E. Wire and Cable Installation:** Wire and cable burial depth is dictated by the National Electrical Code®. Temperature changes cause wires and cables to expand and contract as much as 1% of the length. And high voltage power lines create large electro-magnetic fields that cause interference and corrupt signals in communication lines. It is therefore necessary to take certain precautions when installing these products. The contractor shall install all wires and cables carrying up to 30 volts at a minimum burial depth of 6". If mechanical equipment, such as aerifiers and shovels, are expected to disturb the area, then the wires and cables shall be installed at a 12" depth. For wires and cables carrying more than 30 volts and less than 600 volts, the minimum burial depth shall be 24". When installing wires and cables in a trench, they must be "snaked" so that some slack is created. At points along the trench where there are sharp bends, a loop of 12" to 24" shall be created to allow for shrinkage. When communication cables are in the same trench as power wires, there shall be a minimum separation between them of 12"
- F. Wire and Cable Splices:**  
All electrical connections shall incorporate:
1. A solid mechanical connection of the copper conductors.
  2. Electrical insulation of the mechanical connection.
  3. A means to waterproof the insulated connection.
  4. "Strain-relief" to prevent the connection from coming apart when wires/cables are pulled-upon.

**End of Section**

## **BASIN (NATIVE PLANTINGS) RESTORATION SPECIFICATIONS**

### Contractor Qualifications

To qualify as a responsible bidder for the project, a Bidder (or identified sub-contractor) must meet the minimum experience requirement specified herein.

It is the intent of the City to award a contract only to a bidder who furnishes satisfactory evidence that it has the requisite experience, ability, equipment, staffing, and sufficient capital and facilities to perform the work successfully and within the time specified in the contract documents.

- A. Qualified CONTRACTORS will have the experience working in sensitive and high quality natural environments to achieve performance standards similar to Lake County SMC and Flood Plain permits and U.S. Army Corps of Engineers Section 404 permits.
- B. Prospective CONTRACTORS must have a qualified botanist or ecologist on staff with accurate field identification skills regarding suitable hydrologic conditions for all specified plant species, including at least (2) years' experience in native plant installation.
- C. Qualified CONTRACTORS must demonstrate prior experience working in natural areas with sensitive resources, specifically plant installation projects within wetland systems. Experience in the Chicago region is preferred and project experience shall be within the last five years.
- D. Qualified CONTRACTORS must have current capabilities and previous experience with successful plant protection measures and follow up management and monitoring activities.
- E. Qualified CONTRACTORS shall demonstrate that their company has not defaulted on any wetland plant installation performance standard with the past five (5) years.
- F. Qualified CONTRACTORS shall demonstrate sufficient access to plant nurseries that can successfully produce the diversity and quantity of plant species required.
- G. It is the intent to award a contract only to a bidder who furnishes satisfactory evidence that they have the requisite experience, ability, equipment, staffing, and sufficient capital and facilities to perform the work successfully and within the time specified.

CONTRACTORS shall indicate their qualifications (corporate experience, municipal experience, individual experience and references as well) on the form contained in the Bidding Documents following the Bid Form and shall submit the completed form and supporting documentation with their bids.

### NATIVE SEEDING

Description: This work shall consist of preparing the ground surface, pre-planting weed control, planting plug installation in the areas shown on the Final Engineering Plans, and Three-Year Management.

### Seeding Specifications

1. The CONTRACTOR shall furnish, transport, and install the seed as specified in the Native Seed Mix in the areas shown on the planting plan.
2. Spring seeding shall occur between April 15 and June 15. Fall dormant seeding shall be conducted no earlier than November 1 and after the first frost and until snow depth exceeds 1 inch.

3. The seed installation shall be conducted using the hand-broadcast method following installation of the plugs.
4. All native species shall be local genotype and origin shall be from a radius not to exceed 200 miles from the site. Seed mixes shall be supplied in pounds of Pure Live Seed (PLS). Purity and germination tests no older than twelve months must be submitted for all seed supplied to verify quantities of bulk seed required to achieve the pounds of Pure Live Seed specified. All species (grasses, sedge, and forbs) will be supplied at 100% PLS. Seed not compliant with PLS requirements will be augmented with additional quantities in order to compensate for lack of viability and achieve specified amounts of PLS. Seeds shall be true to name and variety and have the proper stratification and/ or scarification to break dormancy for the appropriate planting season.
5. The CONTRACTOR shall examine the grade, verify the elevations and water levels, observe the conditions under which work is to be performed, and notify the Engineer of unsatisfactory conditions. Proceeding with the work constitutes acceptance of existing conditions, including current water levels and soil condition.
6. The CONTRACTOR shall furnish seeds of specified local origin, hardy under the climatic conditions at the project site, free from insects and diseases, and having the appearance of health, vigor, and habit normal for the species. Comply with applicable state and federal laws regarding inspections. All regulations applicable to the seed mix and landscape materials shall be followed.
7. Seed shall not be sown during high winds or when the seedbed is not in the proper condition for seeding.
8. Prior to installation, The Engineer shall review any species substitutions and shall approve all species substitutions in writing. The Engineer reserves the authority to deny use of any species if deemed inappropriate for the site.
9. All seed materials shall be subject to inspection by the Engineer prior to installation.

#### 1<sup>st</sup> Growing Season Management Period Activities

1. The work consists of the CONTRACTOR conducting routine ecological management activities during the first growing season after installation as shown on the Planting Plan drawings to assist the CONTRACTOR in performance standards achievement.
2. The CONTRACTOR shall conduct chemical and/or mechanical weed control activities in all the native planting areas for 1<sup>st</sup> year growing season period following the initial planting/seeding. The CONTRACTOR shall conduct weed control application during this period. The CONTRACTOR is responsible to achieve a 95% kill of problematic, nuisance species to successfully complete each of the application periods specified below.
  - a. Application Period One (early spring): problematic species such as, but not limited to, reed canary grass, red/white clover, cattails.
  - b. Application Period Two (late spring to mid-summer): problematic species such as, but not limited to, teasel, white/yellow sweet clover, wild carrot, thistle, cattails, purple loosestrife, reed canary grass and common reed.
  - c. Application Period Three (mid to late summer): problematic species such as, but not limited to, tall goldenrod, hairy aster, ragweed, cattails, purple loosestrife, reed canary grass and common reed.

- d. Application Period Four (late summer and fall): problematic species such as, but not limited to, reed canary grass, thistle, common reed, red/white clover.
3. The CONTRACTOR shall irrigate all plugs as needed to achieve the survivorship requirements (i.e., 90% survivorship - see performance criteria below).

#### Contractor Performance Criteria

1. Within 3 months of planting and seeding, at least 75% of the pond banks, as measured by aerial coverage, shall be vegetated.

Basis of Payment: NATIVE SEEDING shall be paid for by ACRE of seed placed.

#### WETLAND PLANTING PLUGS (Of Planting Mix Specified)

This work shall consist of furnishing, transporting, and installing the container plants in the Aquatic, Deep Emergent, Shallow Emergent, and Wet Meadow areas, respectively, as shown on the Planting Plan drawings and as directed in the field by PROJECT LOCAL SPONSOR and/or ENGINEER. Please note that the planting areas shown on the plans are approximate limits based on anticipated normal water levels, limited bathymetric survey information, and field observations during past drawdown conditions. The limits of the different plant communities will be confirmed by the CONTRACTOR in the field in cooperation with PROJECT LOCAL SPONSOR and/or ENGINEER during the on-site Pre-Planting Meetings to observe spring hydrology.

Emergent plugs shall not be planted less than the specified rate and shall be protected with goose enclosures surrounding all natural groupings of plugs.

#### Materials

The wetland container plants shall be container grown and have minimum shoot heights of 12 inches at the time of planting. Unless specified differently in the plant mix tables or upon receiving prior approval from the PROJECT LOCAL SPONSOR and/or ENGINEER, the pot dimensions for plugs shall be at least 2 3/8 inches wide and 3 3/4 inches deep. Soil saturation shall be maintained for all container plants until installation. Plant material shall not be provided as dormant root material (i.e., tubers, rhizomes) or bare root material, other than the species specified in the plant mix tables. Plant material must be local genotype and be from a radius of 100 miles from the site. All container plant material shall be inoculated with mycorrhizal fungi. Container plants shall exhibit root growth sufficient to hold all soil intact when removed from container.

A pre-plant installation meeting at the primary nursery (or nurseries) to conduct a preliminary inspection of the plant material and to discuss the plant delivery process and schedule shall be required. This meeting will take place in March and must be attended by CONTRACTOR'S project manager responsible for plant installation.

#### Planting Conditions

At the time of plant installation, the aquatic plants shall be installed in areas that are greater than 12 inches below the anticipated average water levels and the deep emergent plants shall be installed in areas that are 6" to 12" below the anticipated average water levels. The shallow emergent plants shall be installed in areas that are 0" to 6" below the anticipated average water levels and the wet meadow plants shall be installed in areas that are at and above the anticipated average water levels.

During the plant establishment period, CONTRACTOR may need to manually irrigate these area(s) and/or artificially raise the water level (riffle modification, sandbags, etc.) to provide suitable hydrologic conditions if water levels are lower than anticipated or historically observed. At the same time, plant installation is prohibited when water levels are greater than 3" above the anticipated average water levels unless approved by PROJECT LOCAL SPONSOR and LANDOWNER. Please note that plant installation may be postponed following a flooding event until water levels return to suitable conditions.

### Container Plant Mixtures

The species must be local genotype and be from a radius of 100 miles from the site. The container plant mixtures shall be installed in locations designated on the plan and/or as dictated by observed hydrologic conditions.

### Planting Timing

Planting activities for plants shall be performed no earlier than May 15 and no later than July 1 under favorable conditions (i.e., water levels as specified). Supplemental watering may be necessary to ensure survival at no additional cost to PROJECT LOCAL SPONSOR.

### Species Substitutions

Prior to installation, the PROJECT LOCAL SPONSOR and/or ENGINEER and/or LANDOWNER shall review any species substitutions and reserves the authority to deny use of any species or quantity if deemed inappropriate for the site. Any species substitutions and/or change in quantity shall be discussed and approved by PROJECT LOCAL SPONSOR and/or ENGINEER during the pre-planting site meetings as specified below.

CONTRACTOR shall plan on attending two to three (2-3) on-site pre-planting meetings in early spring (anticipated to be in April and/or early May) to evaluate hydrologic conditions and discuss overall plant installation approach. At the final pre-planting meeting, CONTRACTOR shall provide a plant installation work plan that documents the anticipated plant installation logistics, plant installation schedule (plant delivery schedule) and any proposed changes to plant species and/or quantities as a result of observed site conditions.

### Notification & Documentation

CONTRACTOR shall notify the PROJECT LOCAL SPONSOR and/or ENGINEER two working days prior to the start of planting activities and all subsequent plant deliveries.

At the start of each week (no later than end of day Tuesday) during the plant installation period, CONTRACTOR shall provide an annotated planting plan exhibit identifying the plant installation areas and associated plant species and quantities that were installed during the previous week. The packing slip documenting the species and quantities installed shall be attached to the provided exhibit.

### Plant Protection Measures

CONTRACTOR is responsible for determining appropriate plant protection measures to achieve survivorship standards. If the selected protection measures include staking, CONTRACTOR shall use bio-degradable stakes or other approved reusable stakes. CONTRACTOR shall remove and provide off-site disposal of the planting enclosures after the second growing season, during dormant conditions.

### Performance Standards

Performance standards are established for wetland restoration projects in order to evaluate overall restoration/mitigation success, to comply with regulatory requirements, and to measure CONTRACTOR compliance with the approved plans and specifications. If performance standards are not achieved, CONTRACTOR shall be responsible for rectifying any deficiencies through additional site management activities, which may include re-planting and re-seeding, at the sole expense of CONTRACTOR.

As a result, the vegetative performance standards are based on wetland mitigation standards (most restrictive from a regulatory point of view) with the only difference being the evaluation period. Although the performance standards are based on a three-year or five-year management and monitoring period, the performance standards also include specific short-term requirements.

### Performance Standards

1. Within three months of permanent seeding, at least 90% vegetative coverage shall be achieved in the areas proposed for the mesic prairie and turf seed mixes. In addition, no area greater than 0.5 square meters shall be devoid of vegetation at the end of the three-year period for the mesic prairie area.

Basis of Payment

No separate payment shall be made for PERFORMANCE STANDARDS. Compensation for PERFORMANCE STANDARDS shall be incorporated into the price for all applicable individual contract work items (PERMANENT SEEDING (OF MIX SPECIFIED), WETLAND PLANTING (OF PLANTING MIX SPECIFIED), ECOLOGICAL MANAGEMENT, WETLAND MONITORING AND REPORTING).

SUPPLEMENTAL WATERING

Description: Supplemental watering, in addition to the initial watering and 15 additional waterings, shall be provided in areas seeded. Supplemental watering will be measured for payment in units of 1000 gal (1000 L) of water applied to the root zones of plant material.

The Contractor may use water from ponds for the purposes of SUPPLEMENTAL WATERING. The meter shall be placed on approved hydrants only. Under no circumstances is the Contractor allowed to operate any hydrants, valves, or other water facilities without the consent of the OWNER.

Basis of Payment: This work shall be paid for at the contract unit price per UNIT for SUPPLEMENTAL WATERING, which shall include all labor, equipment, and materials required to complete the work as specified herein.

GOLF COURSE RESTORATION PLANS  
IDOT DETENTION POND PROJECT

DEERPATH GOLF COURSE  
CITY OF LAKE FOREST, IL



Deerpath Golf Course  
500 West Deerpath Road  
Lake Forest, IL 60045  
(A City of Lake Forest facility)



18250 Beck Road Marengo, Illinois 60152  
Ph: 815.923.3400 www.lohmann.com

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**The scope of work contained in these project documents entails the restoration of the Deerpath Golf Course following the construction of two detention basins,** which are part of a larger IDOT-funded improvement project occurring on the golf course and along Deerpath Road. For sake of clarity, the basins will be referred to on these pages as West Basin (located on Holes 17/18) and East Basin (located on Hole 1).

- Site setup - temporary site fencing, staging, erosion control, tree removal, turf removal, hardscape removal, irrigation cut and cap
- Topsoil management - topsoil strip and replace in all basin areas and golf fairways and roughs; topsoil strip and stockpile for future use by Restoration Contractor to complete feature work (see map below)
- Mass earth moving - mass excavation, subgrade rough shaping
- Major drainage - installation of major drains and structures entering, exiting, and between the detention basins
- Wall construction - installation of retaining wall along West Basin

- Completed by April 1 - All site prep, topsoil management, mass grading and major drainage install in both basin areas.
- Completed by May 1 - Retaining wall on West Basin.

**STOCKPILE AREA FOR 650 CY TOPSOIL TO BE REPLACED BY RESTORATION CONTRACTOR**

**TEMP TEE BY OWNER**

**TEMP GREEN BY OWNER**

**ENTRY ROAD AND PARKING REPAIRED**

**MAJOR DRAINAGE INSTALLED**

**PERMANENT EROSION MAT INSTALLED**

**ALL MASS GRADING AND TOPSOIL REPLACEMENT COMPLETED (APRIL 1)**

**PERIMETER TEMP FENCING REMOVED (SILT FENCE REMOVAL BY RESTORATION CONTRACTOR)**

**EAST BASIN**

**MAJOR DRAINAGE INSTALLED**

**CONSTRUCTION ENTRANCE REMOVED**

**NO TOPSOIL WILL BE REPLACED BY MASS GRADING CONTRACTOR IN CROSS HATCHED AREAS**

**RETAINING WALL COMPLETED (MAY 1)**

**MAJOR DRAINAGE INSTALLED**

**CONSTRUCTION ENTRANCE REMOVED**

**WEST BASIN**

**IDOT MASS GRADING CONTRACTOR CONDITIONS TO BE LEFT AT TURNOVER**

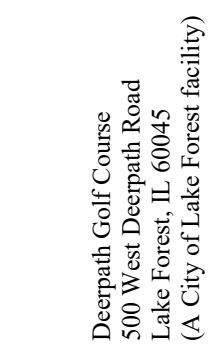
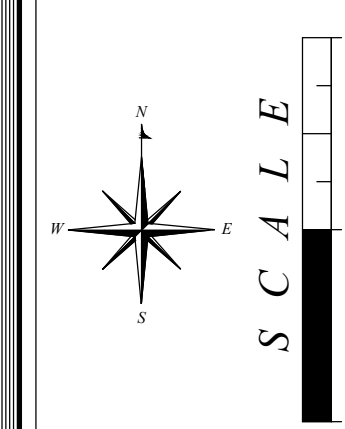
The remainder of these plan documents illustrate the scope of work to be completed by the golf course Restoration Contractor. In general, the scope of the restoration work will include the following:

- **Feature shaping of green, tees and bunkers** - As shown on the plan below, the mass grading contractor will be completing the rough grading for ALL areas but will only be replacing topsoil on the basin areas, roughs and fairways. For the tees, green and bunkers, the mass grading contractor shall complete rough grading only, and will pile topsoil for these areas in the stockpile location shown. The Restoration Contractor shall complete all finish shaping and topsoil replacement on golf features per the direction of these plans and the Golf Course Architect.
- **Feature drainage and construction** - The Restoration Contractor shall install all solid drainage and structures associated with the green and bunkers, and complete all material placement for the tees, green and bunkers.
- **Irrigation** - The Restoration Contractor shall perform all new irrigation installation. This includes immediate reconnection of the primary communication cable to the maintenance building prior to spring startup of the system. See irrigation plans for more details.
- **Golf course grassing** - The Restoration Contractor shall perform all golf turf and carputh installation services, including removal of silt fence.
- **Detention basin plantings** - The Restoration Contractor (or qualified sub-contractor) shall install all native plantings.

- Feature shaping - The mass grading contractor shall be responsible for all earth moving, rough shaping, major drainage and topsoil replacement in the East Basin area and major drainage easement. The Restoration Contractor shall be responsible for final clean-up prior to grassing, which may include minor shaping adjustments to ensure proper tie-ins along adjacent golf course edges.
- Minor drainage - The Restoration Contractor shall install all solid drainage to tie-in existing golf course structures to the new basin area
- Golf course grassing - The Restoration Contractor shall perform all golf turf installation services, including removal of silt fence.
- Detention Basin Plantings - The Restoration Contractor (or qualified sub-contractor) shall install all native plantings.

The permanent staging area for the project shall be located in the maintenance parking lot. This includes all materials, trailers, fuel and idle equipment that will be on the job for extended periods of time. Contractor shall be responsible for fencing or otherwise protecting all items in the staging area from theft and vandalism. Temporary staging and equipment locations may be utilized on the golf course at the Owner's discretion, but equipment and material may only stay in these areas for a maximum of 24 hours and shall not be left within flood prone areas. Any spoils left from temporary material storage in either permanent or temporary staging areas must be cleaned up in their entirety once removed.

If access is needed outside of the fenced area, these hauling locations must be approved by the Owner. It is the responsibility of the Contractor to note the condition of all haul road and staging locations prior to the start of construction and to monitor their use during the project. All areas must be returned to their existing condition at the completion of the job, including repair of any asphalt or concrete damage, re-grading of turf areas to level grade, re-grassing of turf areas, and removal of all flags, ropes or other debris. Any turf area requiring regrading and subsequent regrassing must be seeded unless otherwise approved by the Owner.



PROJECT CONTEXT

# DEERPATH GOLF COURSE

CITY OF LAKE FOREST II

[illegible]

Sheet No.

1

## CONTEXT

Work limits as shown have been pre-established based on the mass grading work that will precede this restoration work. Note that the Restoration Contractor will be responsible for removing all silt fence, which encompasses the entire perimeter of the project (work limits as shown also represent silt fence).

Hole 17 green shall be built using 8" of 6:3:1 mix placed over subgrade. The chipping green and Hole 18 tees shall receive 4" of 7:2:1 mix.

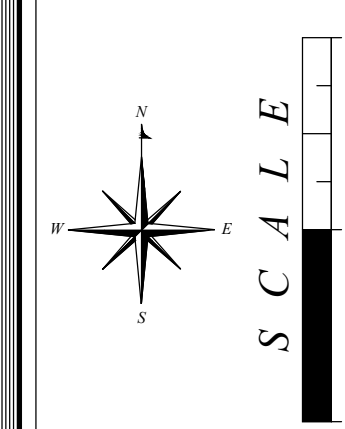
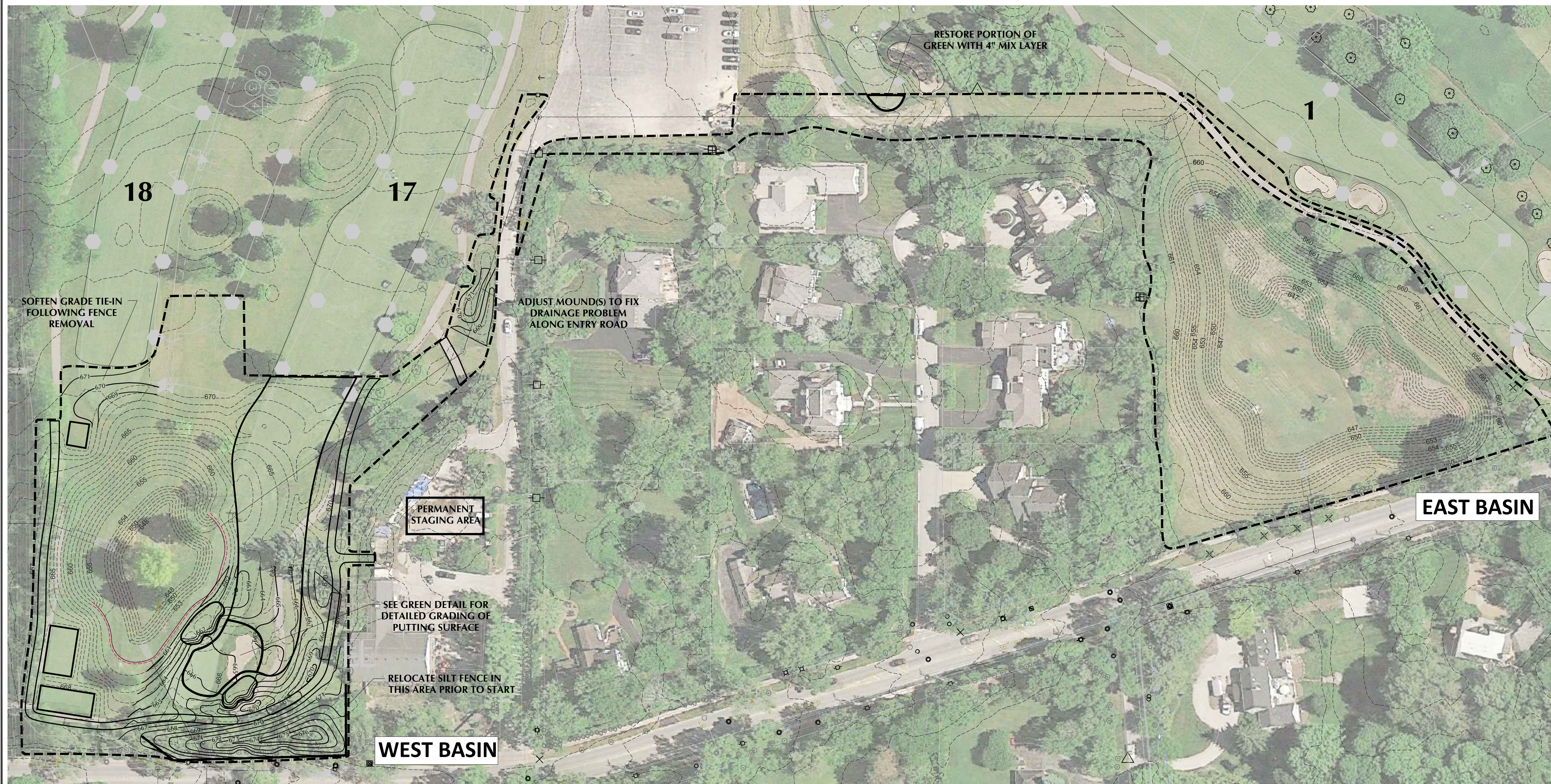
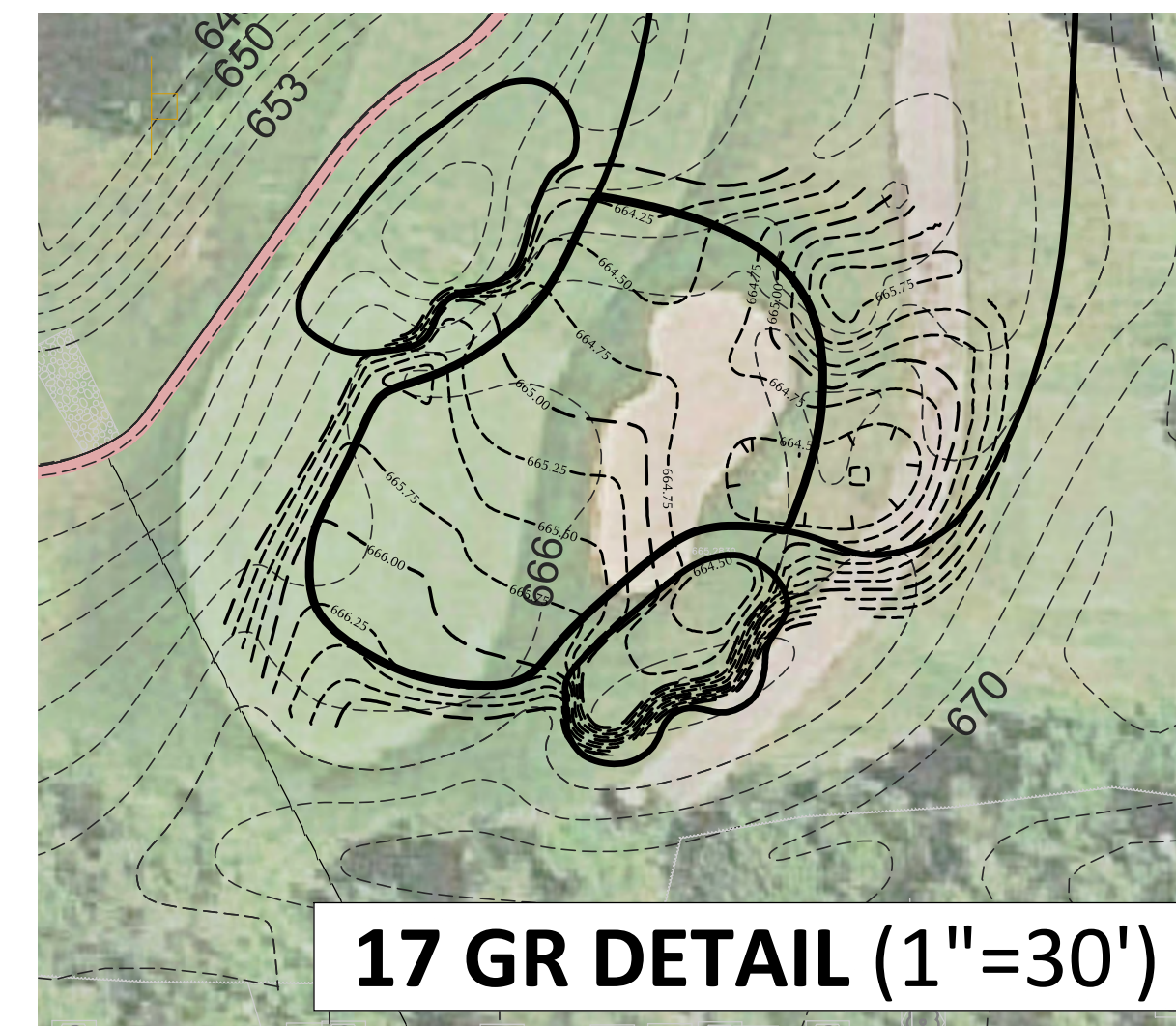
Refer to the Project Context Plan (Sheet 1) for the areas of the project where topsoil is to be replaced by the Restoration Contractor. In essence, these areas include the green on Hole 17 and tees on Hole 18. In these areas, the Restoration Contractor shall replace a 6" layer of topsoil following subgrade shaping. No topsoil shall be replaced until final grades are approved. In those locations where additional minor grading is proposed (beginning of 18 fairway and along the entry drive), the Restoration Contractor shall manage topsoil as needed to make the proposed excavations while ending up with a 6" topsoil layer when complete. The remaining areas within the work limits will be graded and topsoiled by the mass grading contractor. These areas will not require grading or shaping by the Restoration Contractor, however, all new fairway and rough areas shall be fine graded where needed to remove any undesirable depressions, abrupt tie-ins, and/or to provide adequate surface drainage toward structures.

Earthwork quantity estimates for Hole 17 green are available upon request, however all final earthwork calculations are the responsibility of the Contractor, who shall supply all materials and work necessary to complete the project as drawn and specified. All earthwork shall be balanced on site, no material shall be hauled away.

The Owner shall be responsible for the provision of vertical and horizontal benchmarks on the project site if needed. Contractor to locate and protect survey control and reference points.

Locations of existing irrigation and utilities as shown on the plan are approximate. Prior to mass grading, the Owner shall cut and cap all irrigation lines and salvage any existing irrigation materials within construction limits. Restoration Contractor shall confirm locations of all irrigation tie-ins with Owner and coordinate location of all public utilities. Location markings must be preserved by the Restoration Contractor, who shall be responsible for repair of any damages caused by his crews or sub-contractors to properly marked utilities.

EXISTING CONTOUR	---
EXISTING IRRIGATION	●—●
LIMITS OF WORK	
PROPOSED CONTOUR	— 666 —
PROPOSED 1/4 CONTOUR	--- 666.25 ---
SILT FENCE RELOCATE	—○—○—○—



Deerpath Golf Course  
500 West Deerpath Road  
Lake Forest, IL 60045  
(A City of Lake Forest facility)



**FEATURE SHAPING / GRADING**  
**DEERPATH GOLF COURSE**  
CITY OF LAKE FOREST, IL

[illegible]

Sheet No.

2

SHAPING

NOTES

Tile in bunkers shall be 4" perforated N-12, backfilled with gravel. Tile in greens shall be 2" slit drainage placed on 6' centers. Slit drainage trenches shall be cut into subgrade and generally be 3" wide x 6"-8" deep and backfilled with the same 6:3:1 mix used to build the green profile (8" deep).

All 4" or larger tile outside of bunkers and greens shall be solid N-12 pipe, backfilled with native soil, and shall be a minimum 18" deep with a minimum 0.5% pitch toward the outlet. Where necessary due to outlet limitations, pipe may be installed flatter than 0.5% and have a 12" minimum soil cover, but these areas must be approved by the Owner and/or Golf Course Architect.

If applicable, the Restoration Contractor shall be responsible for lifting and replacing of sod in locations outside of the construction limits where drainage is being installed. Where sod is not salvageable, contractor shall replace with new sod at the Owner's discretion, approval, and additional expense.

If it is required to cross existing cartpaths with new draitile, the Restoration Contractor shall saw cut the existing asphalt over the top of the trench, install drainage, replace 4" gravel base and install 2" asphalt cold patch. The final surface shall be rolled and blended smoothly where it meets existing asphalt.

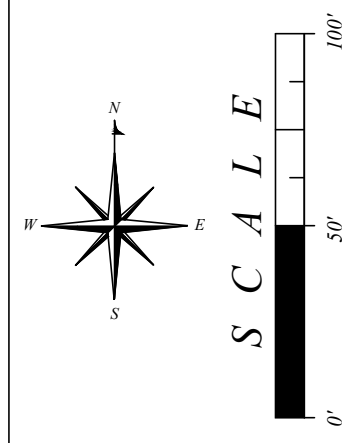
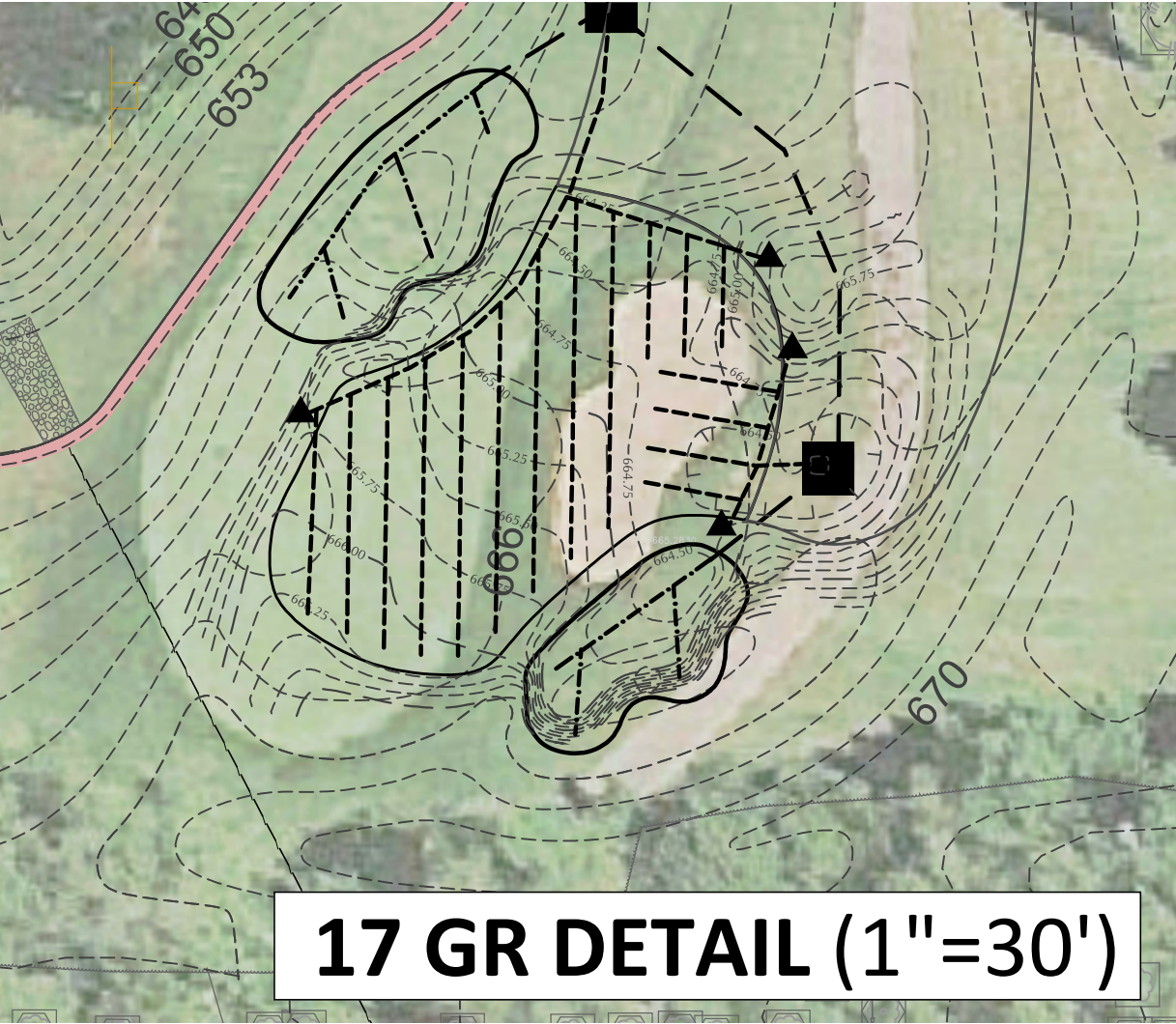
Grass depression areas shall be graded with slopes that pitch at a minimum 2.0% (max 4%) toward the basin.

Where existing draitile is shown to be extended with new pipe, the Restoration Contractor shall be responsible for testing the existing drainage system following tie-ins to ensure that it is functioning properly, which shall be reviewed and approved by the Owner. Where new drainage is tied into an existing tile, a new basin shall be installed a proper fitting shall be used for the connection ("y" or "t").

All existing functional draitile encountered during construction shall remain undisturbed or shall be tied into the new drainage system. Where applicable, existing basin rims shall be adjusted to meet any new grades.

LEGEND

EXISTING CONTOUR	---	666	---	2" TURF-FLO DRAINAGE	-----
EXISTING IRRIGATION	●		●	4" N-12 PERF DRAINAGE	- - - - -
EXISTING DRAINAGE	---		---	4" N-12 SOLID DRAINAGE	- - - - -
PROPOSED CONTOUR	---	666	---	6" N-12 SOLID DRAINAGE	-----
PROPOSED 1/4 CONTOUR	---	666.25	---	4" INSPECTION	▲
				12" CATCH BASIN	■
					◆



lohmannquatro  
GOLF COURSE ARCHITECTS  
10200 Oak Road, Maitland, Illinois 60152  
PH: 815.933.3400 www.lohmann.com

Deerpath Golf Course  
500 West Deerpath Road  
Lake Forest, IL 60045  
(A City of Lake Forest facility)



DRAINAGE

DEERPATH GOLF COURSE

CITY OF LAKE FOREST, IL

Remarks:	
By:	
Date:	

Sheet No.

3

DRAINAGE

NOTES

Restoration Contractor shall remove all silt fence and restore trenches. Temporary construction fence shall be removed by the mass grading contractor, but turf shall be restored by the Restoration Contractor.

All grassing outlines shall be located and/or verified in the field by the Golf Course Architect.

All prep work, seeding and sodding shall be completed by the Restoration Contractor.

Tee surfaces shall be laser-leveled to a 1% slope, preferably from front to back, unless site conditions or shot values dictate otherwise, which will be determined by the Golf Course Architect.

Fairways, tees and green(s) shall be sodded using bentgrass. Where indicated, rough areas shall be sodded using a bluegrass blend. Remaining roughs shall be seeded and hydromulched using a bluegrass blend and Flexterra mulch. See specifications for details on varieties and application rates.

Bunker subgrade shall be lined with aggregate liner. See Construction Details and specifications for more info on bunker construction.

Contractor shall be responsible for all carpath work. Paths shall be installed with a 2" layer of asphalt on 4" of crushed stone.

All drain tile lines run outside of the construction limits, if applicable, shall be stripped and replaced with existing sod. Where sod is not salvageable, new sod shall be used.

Landscape beds to be edged (4" vertical face) by the Restoration Contractor. Final bed design, preparation and install by the Owner.

Native plantings in pond basin areas are shown on Sheet 5.

LEGEND

EXISTING CONTOUR

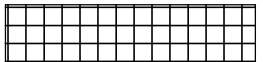
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666


EXISTING IRRIGATION

●-----●

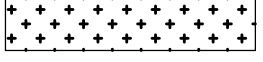
BENTGRASS SOD




BLUEGRASS SOD




BLUE SEED AND BLANKET




BUNKER SAND

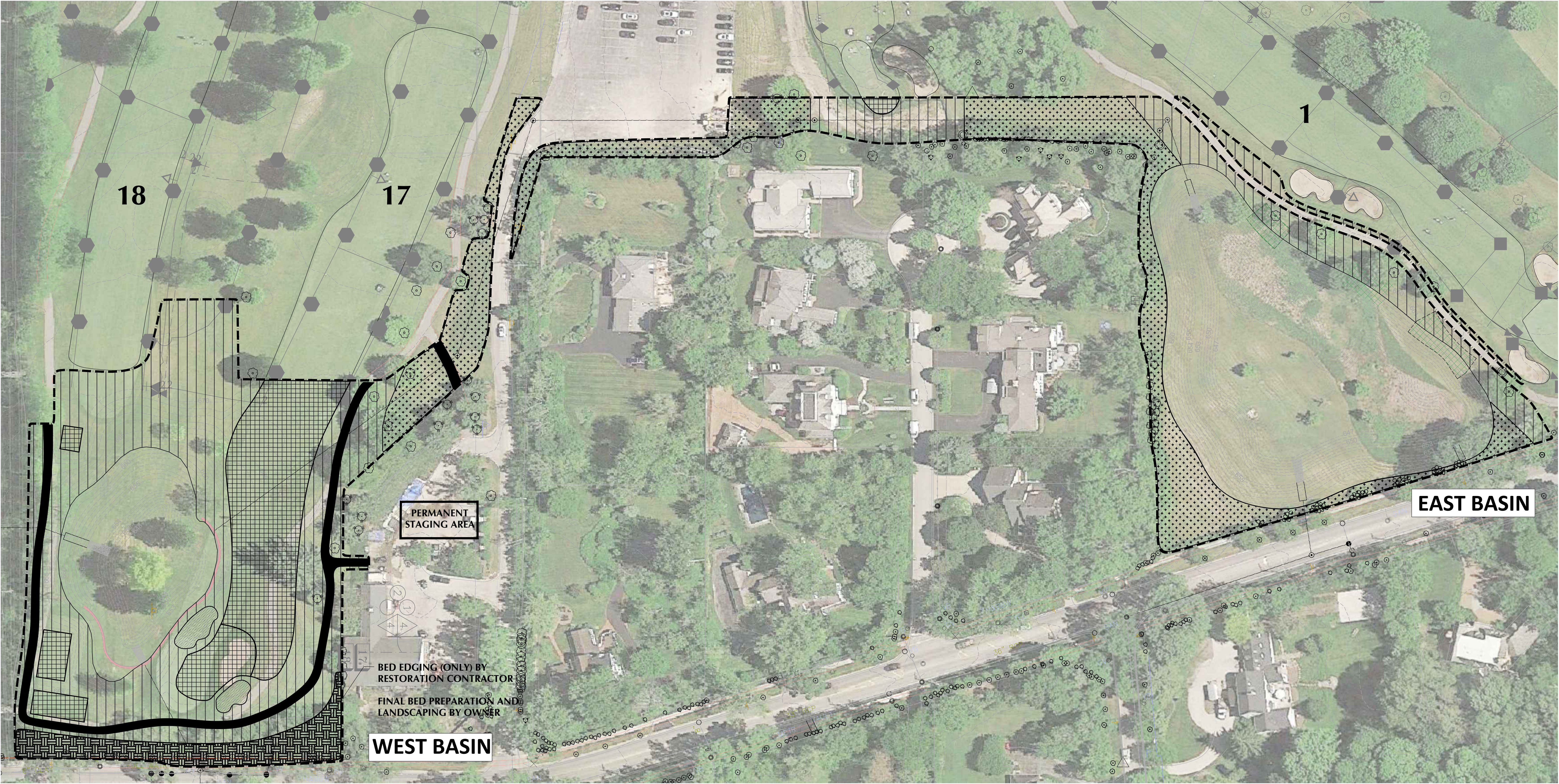


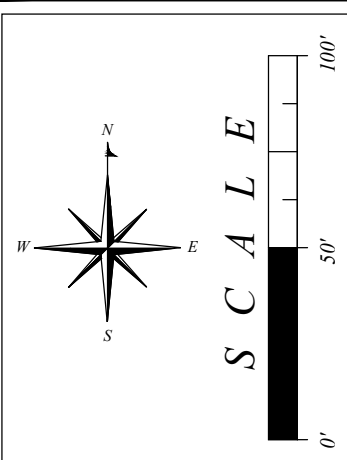
ASPHALT PATHS




LANDSCAPING BEDS (BY OWNER)

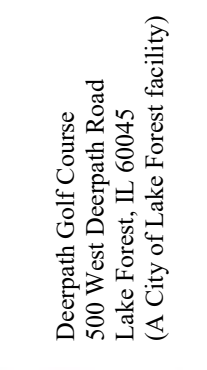










Lohmannquith  
GOLF COURSE ARCHITECTS  
18250 Oak Road, Moline, Illinois 61532  
PH: 815.933.3400 www.lohmann.com



Deerpath Golf Course  
500 West Deerpath Road  
Moline, Illinois 61558  
(A City of Lake Forest facility)



LAKE FOREST  
ILLINOIS



DEERPATH GOLF COURSE  
LAKE FOREST, ILL.

GOLF COURSE GRASSING

DEERPATH GOLF COURSE

CITY OF LAKE FOREST, IL

Remarks:

By:

Date:

Sheet No.

4

GRASSING (GOLF)

NOTES

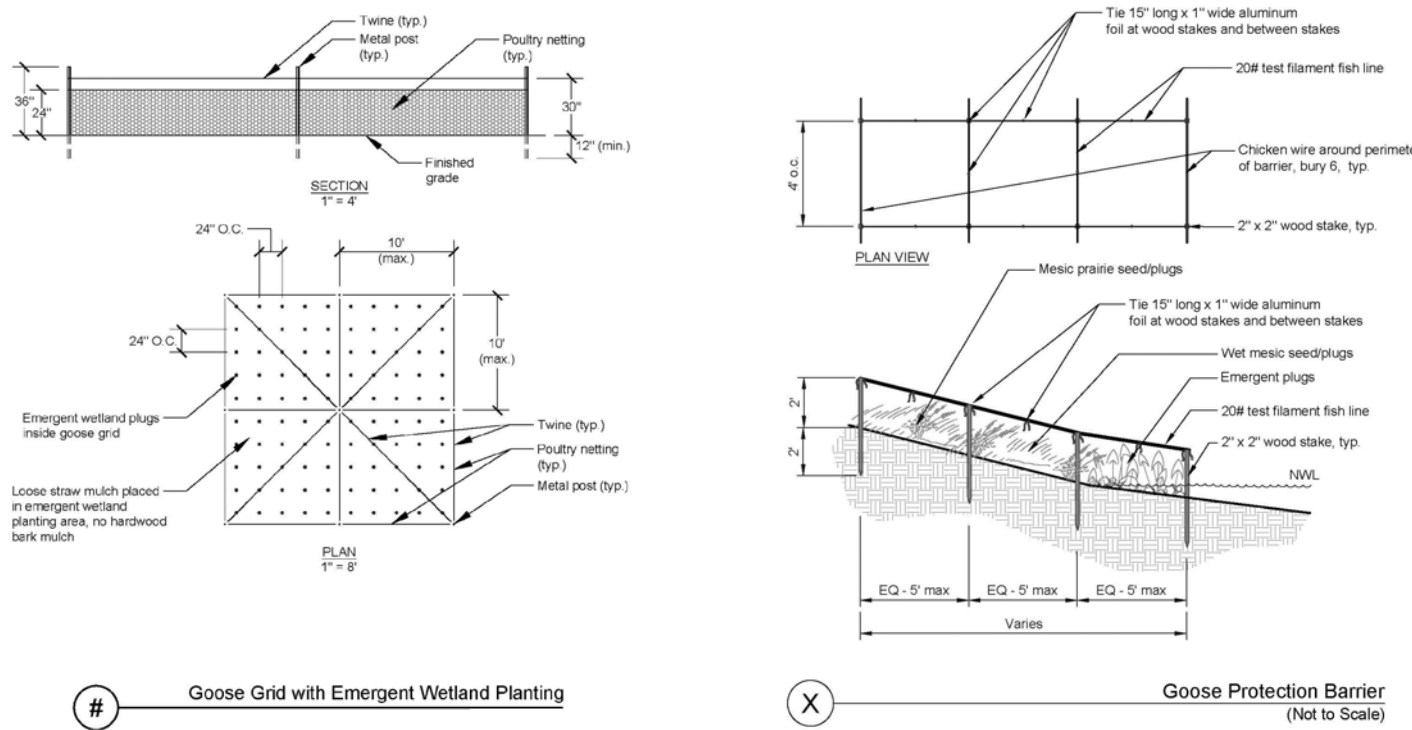
See project specifications for all notes regarding Native Plantings. Native planting quantity estimates shown here are for reference only. All final quantity calculations are the responsibility of the Restoration Contractor, who shall supply all materials and work necessary to complete the project as drawn and specified.

Plant enclosures (goose protection barrier) shall be placed around all plug/plant areas.

Prairie seed mix shall be covered with S75BN Erosion Control Blanket following planting.

LEGEND

- PICKEREL WEED LILY ZONE
- SHORELINE (WEST BASIN)
- SHORELINE (EAST BASIN)
- SHORT EMERGENT
- TALL EMERGENT
- SLOPE PRAIRIE



PICKEREL WEED ZONE (plants installed in one row - 10' on center)

Species	Common Name	Quantity
<i>Pontederia cordata</i>	Pickrel Weed	142

LILY ZONE (plants installed in groups of 3 tubers - 10' on center)

Species	Common Name	Quantity
<i>Nymphaea cordata</i>	White Water Lily	427

SHORT PRAIRIE GRASS SEED MIX (0.51 AC.)

Species	Common Name	Seeding Rate (lbs/Ac)	Quantity (lbs)
<i>Bouteloua curtipendula</i>	Side-oats Grama	10.00	5.10
<i>Elymus canadensis</i>	Canada Wild Rye	3.00	1.53
<i>Elymus virginicus</i>	Virginia Wild Rye	1.00	0.51
<i>Panicum virgatum</i>	Switch Grass	1.00	0.51
<i>Schizachyrium scoparium</i>	Little Bluestem	10.00	5.10
<i>Sporobolus heterolepis</i>	Prairie Drop Seed	0.25	0.13
<i>Avena sativa</i>	Seed Oats	32.00	16.32

SHORT EMERGENT PLUGS (0.16 AC.)

Species	Common Name	Rate (Plugs/Acre)	Quantity
<i>Acorus americanus</i>	Sw eet Flag	1,000	160
<i>Carex comosa</i>	Riverbank Sedge	500	80
<i>Iris virginica</i>	Blue Flag	1,000	160
<i>Juncus effusus</i>	Soft Rush	500	80
<i>Sagittaria latifolia</i>	Common Arrow head	500	80

TALL EMERGENT PLUGS (0.24 AC.)

Species	Common Name	Rate (Plugs/Acre)	Quantity
<i>Schoenoplectus acutus</i>	Hardstem bulrush	1,000	240
<i>Schoenoplectus pungens</i>	Chairmaker's Rush	500	120
<i>Schoenoplectus tabernaemontani</i>	Great Bulrush	1,000	240
<i>Scirpus atrovirens</i>	Dark Green Rush	500	120
<i>Sparganium eurycarpum</i>	Bur Reed	500	120

SHORELINE PLUG ZONE WEST BASIN (425 LF)

Shoreline planting row (plants installed on slope along NWL elevation - 2' on center)

Species	Common Name	Quantity
<i>Carex vulpinoidea</i>	Fox Sedge	212

Upper shoreline planting row (plants installed on slope approx 2' vertical feet above NWL - 2' on center)

Species	Common Name	Quantity
<i>Carex emoryi</i>	Riverbank Sedge	212

SHORELINE PLUG ZONE EAST BASIN (1,000 LF)

Shoreline planting row (plants installed on slope along NWL elevation - 2' on center)

Species	Common Name	Quantity
<i>Carex emoryi</i>	Riverbank Sedge	167
<i>Carex lacustris</i>	Lake Sedge	167
<i>Scirpus atrovirens</i>	Dark Green Bulrush	167

Upper shoreline planting row (plants installed on slope approx 1 1/2' vertical feet above NWL - 2' on center)

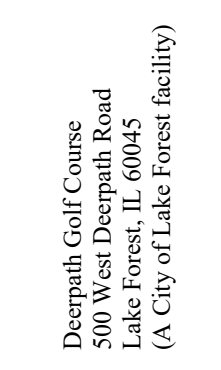
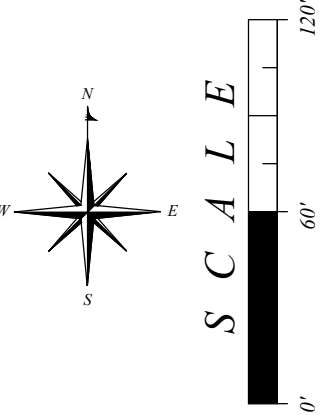
Species	Common Name	Quantity
<i>Carex emoryi</i>	Riverbank Sedge	167
<i>Carex vulpinoidea</i>	Fox Sedge	167
<i>Spartina pectinata</i>	Prairie Cord Grass	167

Middle bank planting row (plants installed on slope approx 1-1/2' vertical feet above Upper shoreline row - 2' on center)

Species	Common Name	Quantity
<i>Carex pellita</i>	Fox Sedge	125
<i>Elymus virginicus</i>	Virginia Wild Rye	125
<i>Panicum virgatum</i>	Switch Grass	125
<i>Spartina pectinata</i>	Prairie Cord Grass	125

Upper bank planting row (plants installed on slope approx 1-1/2' vertical feet above Middle shoreline row - 2' on center)

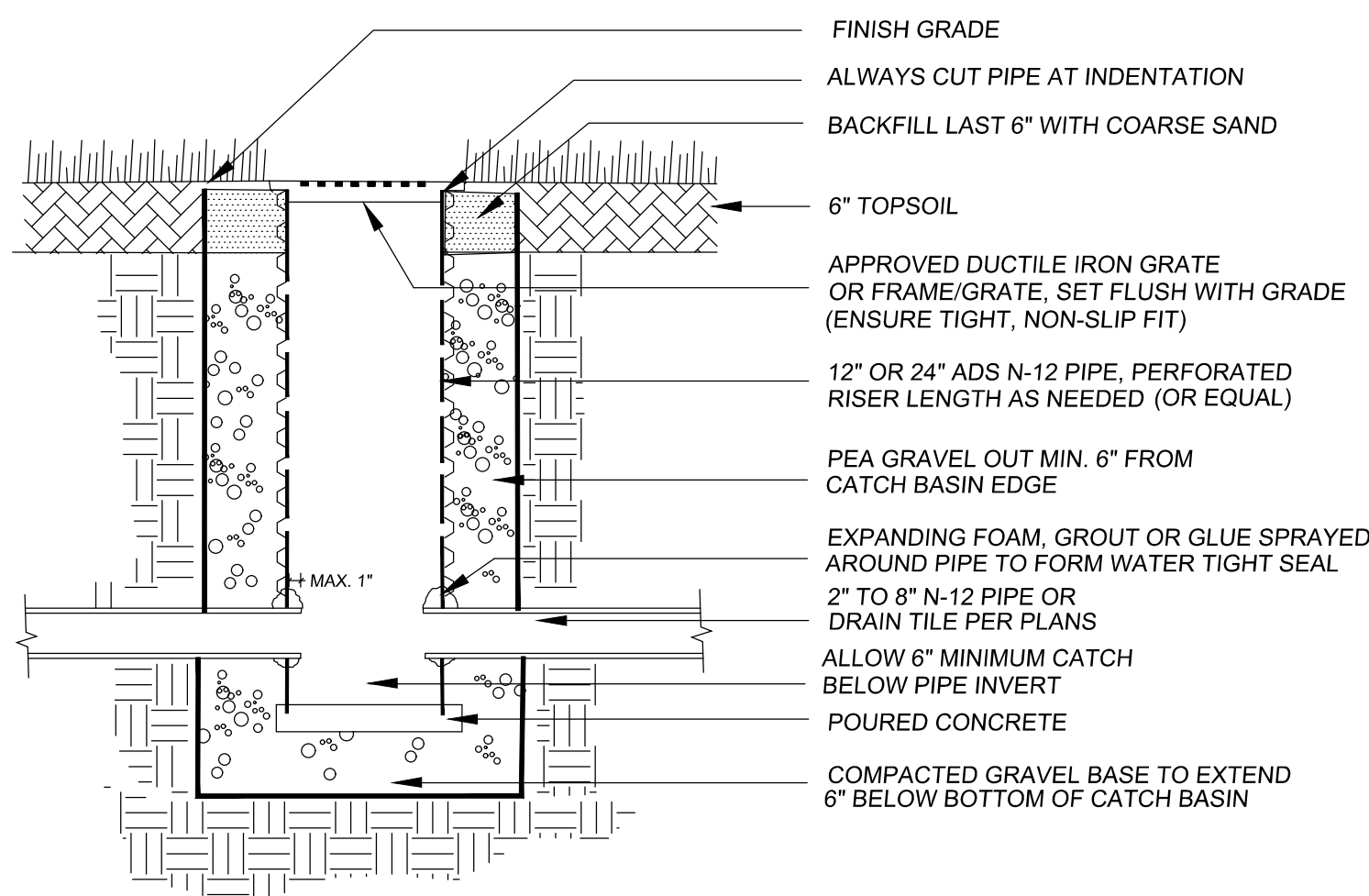
Species	Common Name	Quantity
<i>Carex pellita</i>	Fox Sedge	125
<i>Elymus virginicus</i>	Virginia Wild Rye	125
<i>Panicum virgatum</i>	Switch Grass	125
<i>Spartina pectinata</i>	Prairie Cord Grass	125



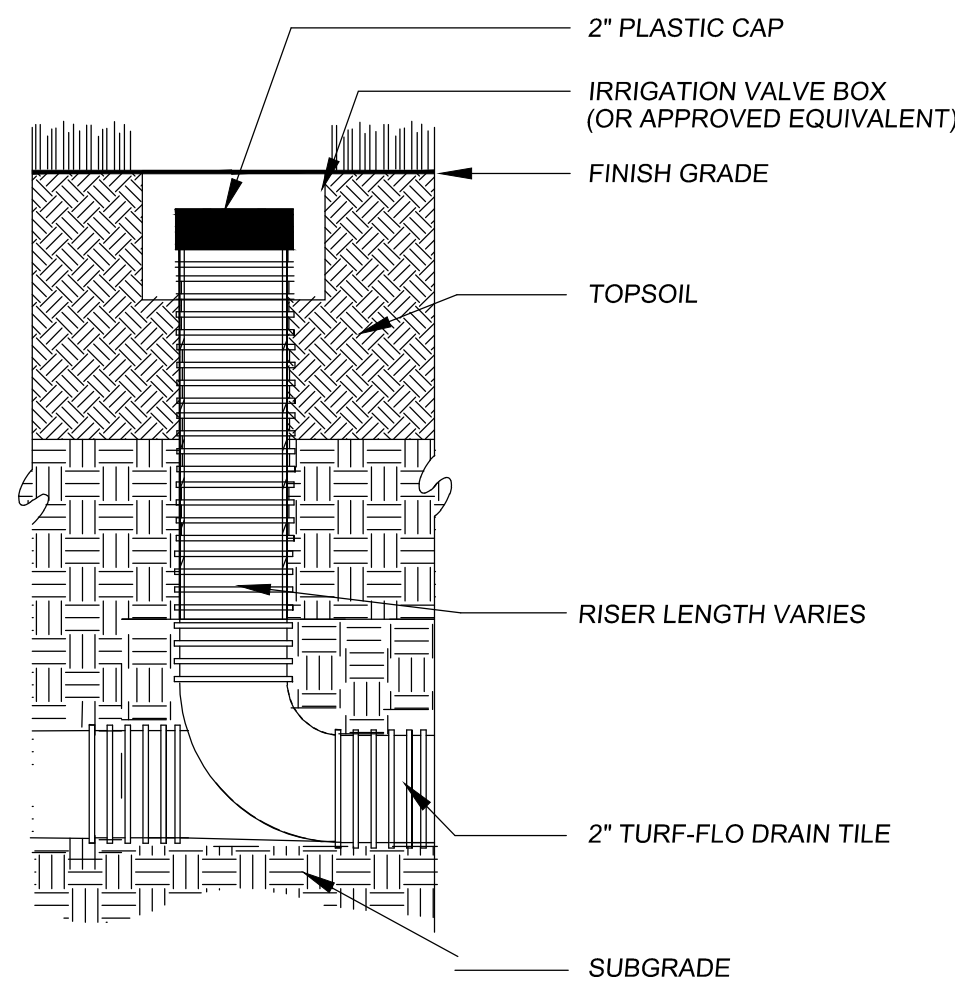
POND NATIVE GRASSING  
DEERPATH GOLF COURSE  
CITY OF LAKE FOREST, IL

By:	
Date:	
Remarks:	

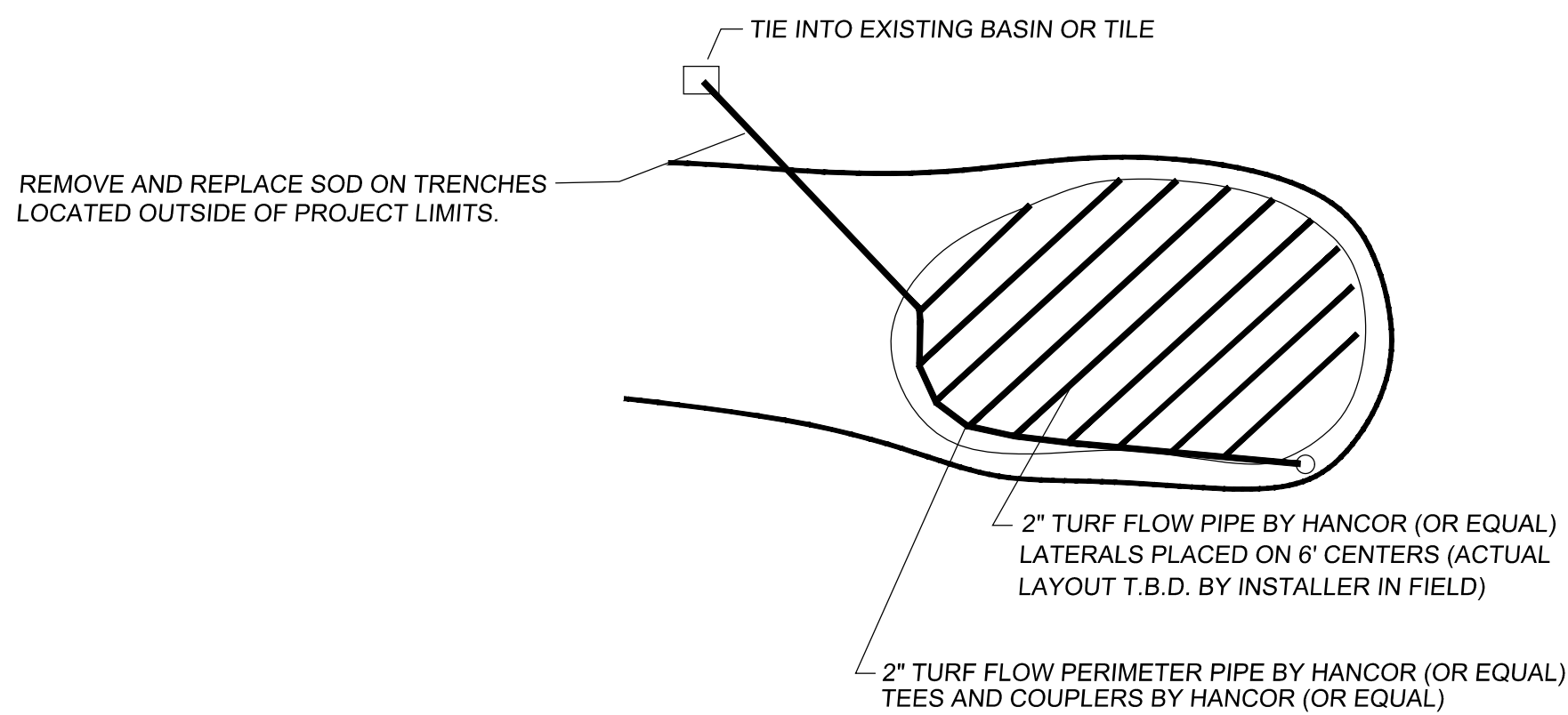
Sheet No.  
5  
GRASSING (POND)



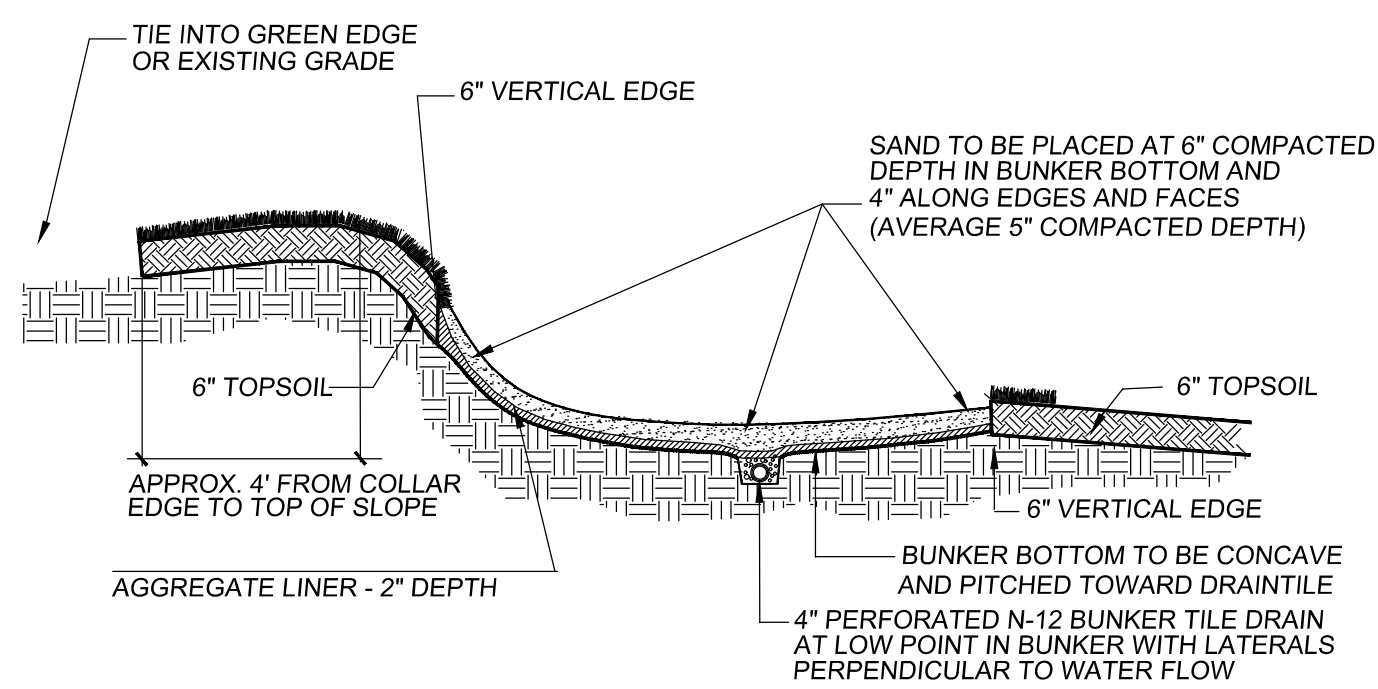
12" N-12 CATCH BASIN



2" INSPECTION

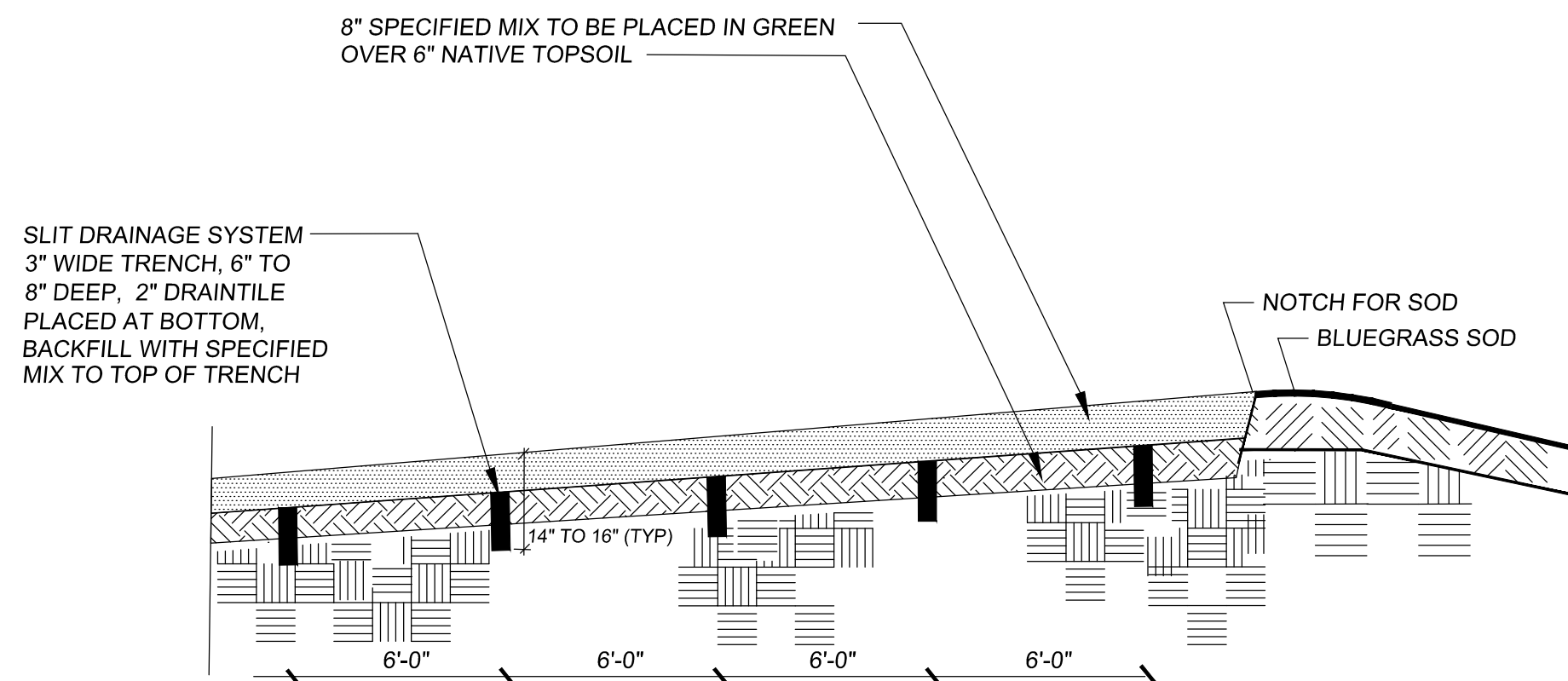


2" GREENS SLIT DRAINAGE

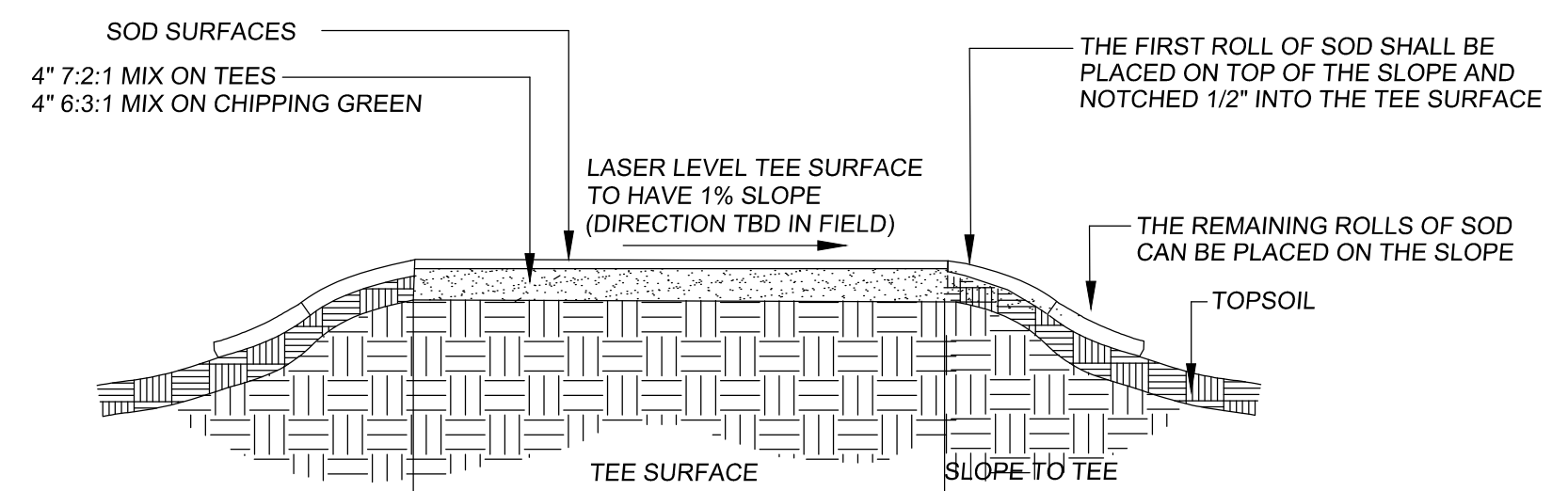


\* ARCHITECT'S RECOMMENDED EQUATION FOR  
INTERIOR DRAINTILE QUANTITIES: 75 sf per 1,000  
sf of bunker

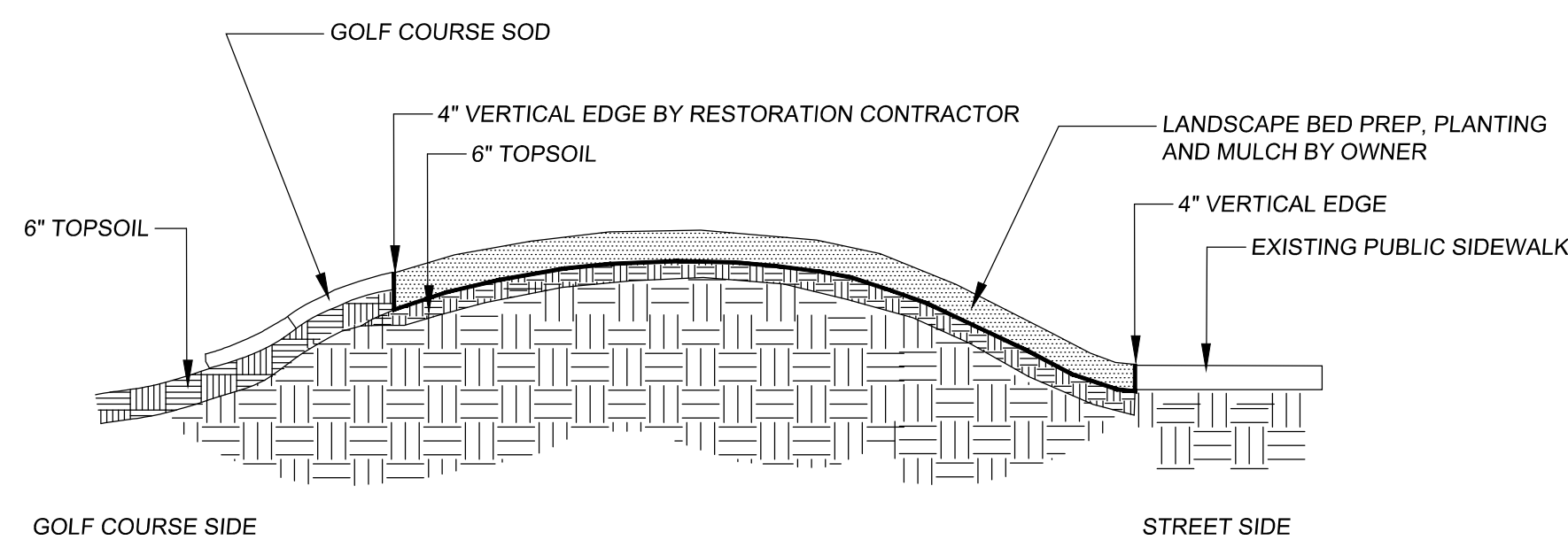
TYPICAL BUNKER CONSTRUCTION



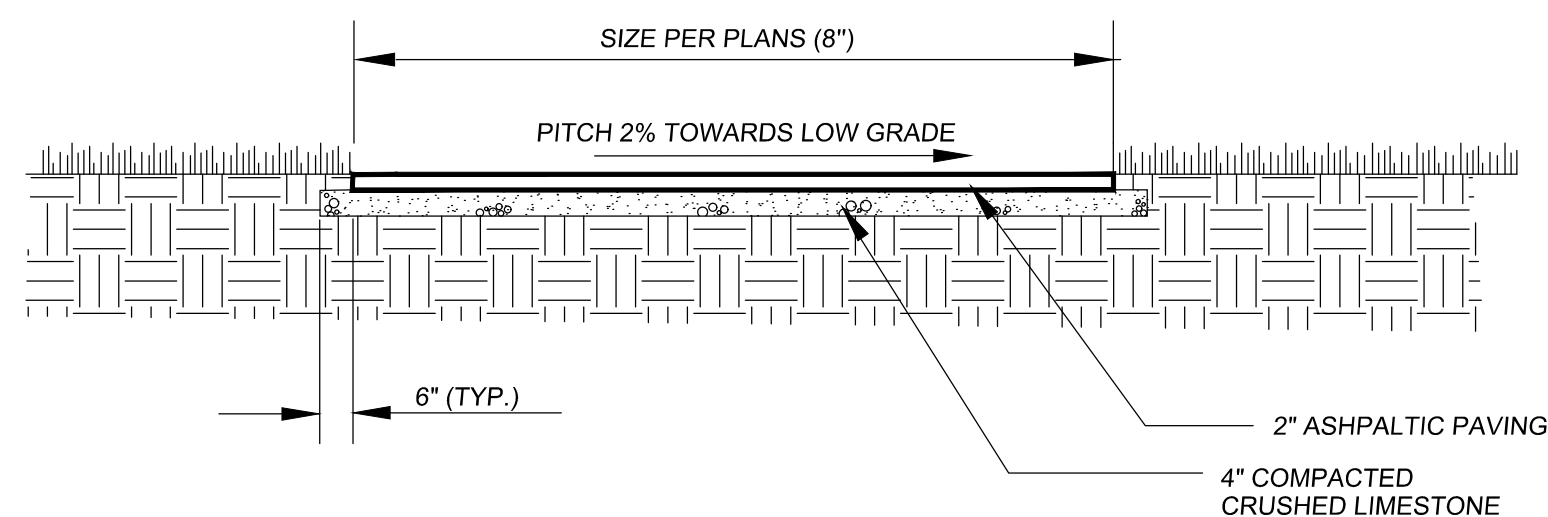
HOLE 17 GREEN CONSTRUCTION



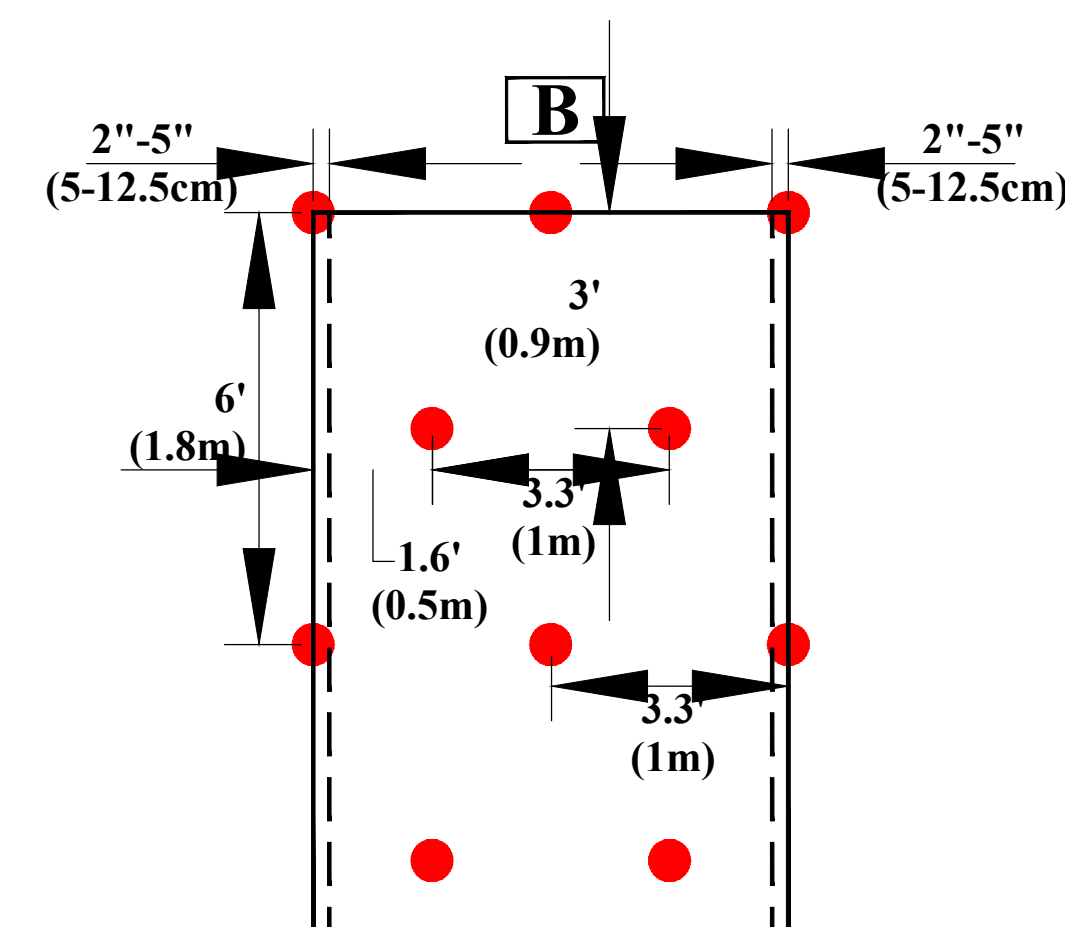
TEE CONSTRUCTION - SAND MIX  
(AND CHIPPING GREEN REPAIR)



LANDSCAPE BED EDGING



ASPHALT CARTPATH



1.15 Staples per SQ.YD.

EROSION CONTROL STAPLE PATTERN 3:1

N.T.S.



Deerpath Golf Course  
500 West Deerpath Road  
Lake Forest, IL 60045  
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CONSTRUCTION DETAILS

DEERPATH GOLF COURSE  
CITY OF LAKE FOREST, IL

Remarks:

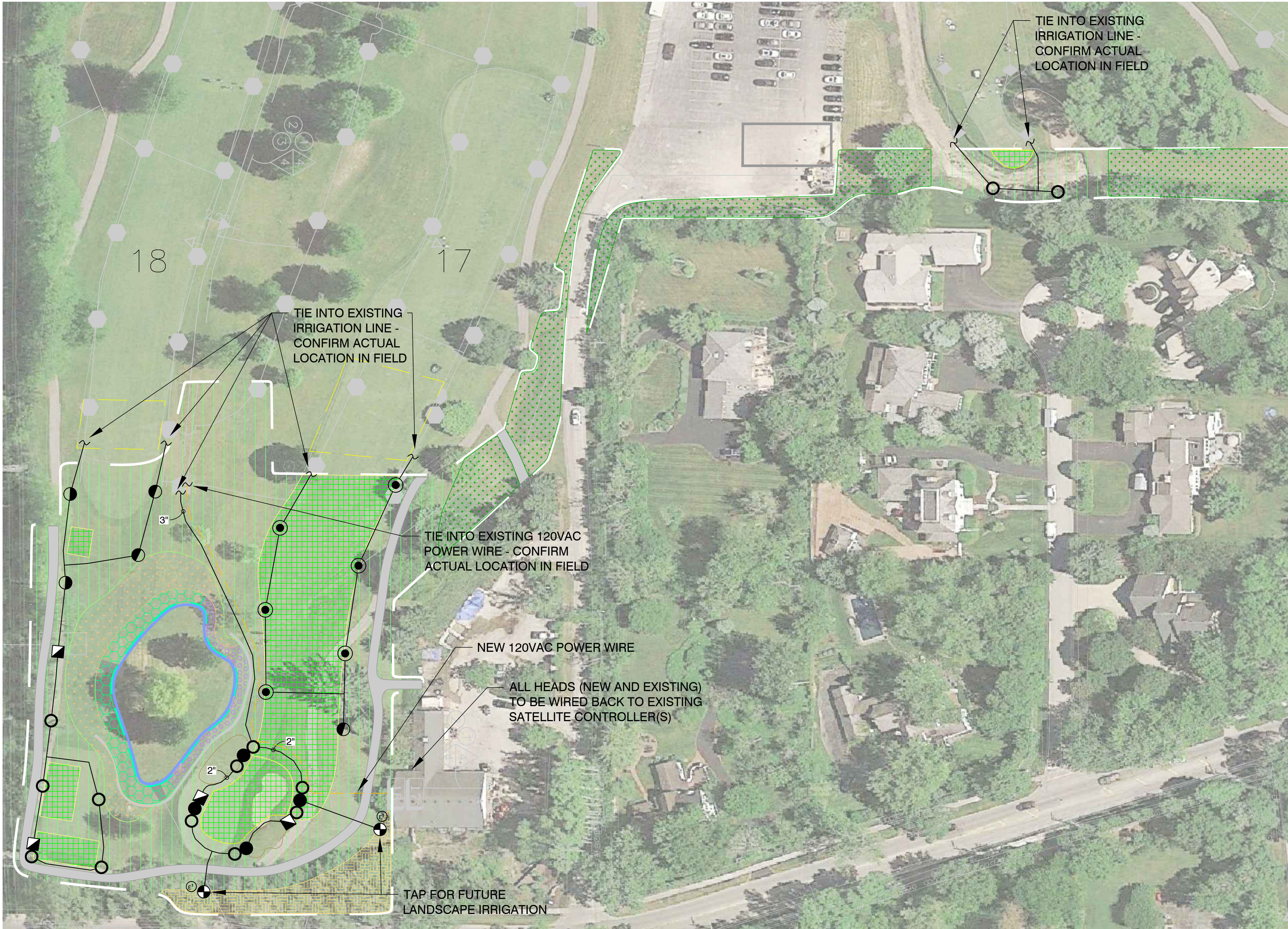
By:

Date:

Sheet No.

6

DETAILS



LEGEND		
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
●	Rain Bird A-702-E-80-32 Valve in Head Rotor for golf applications. Standard Nozzles. Full Circle Arc. Pressure Regulation 80psi.	4
○	Rain Bird A-752-E-80-36 Valve in Head Rotor for golf applications. Standard Nozzles. Full Circle Arc. Pressure Regulation 80psi.	13
⊙	Rain Bird A-800-E-80-56 Closed Circle Valve in Head Rotor for golf applications. Electric Valve. Full Circle Arc. Pressure Regulation 80psi.	5
●	Rain Bird A-850-E-80-34 Closed Circle Rotor for golf applications. Electric Valve in Head. Adjustable Arc 40 to 240 degrees. Pressure Regulation 80psi.	5
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
■	Rain Bird S-8C 1" Brass Quick-Coupling Valve, with Corrosion-Resistant Stainless Steel Spring, Thermoplastic Rubber Cover, and 1 Piece Body.	4
⊙	Extra Wire Drop	
—	Irrigation Lateral Line: PVC Class 200 SDR 21 All CP Unless Otherwise Noted	2,041 LT.
---	New 120vac Power Wire	

Note: All Quantities Are For Reference Only. Contractor Responsible For Actual Bid Counts.

## DESIGN NOTES

1. ALL PRODUCT APPLICATIONS AND INSTALLATIONS MUST MEET MANUFACTURER'S REQUIREMENTS.
2. FLOW RATES THROUGH PVC PIPING NOT TO EXCEED MANUFACTURER'S RECOMMENDATIONS.
3. PIPING AS SHOWN IS DIAGRAMMATIC IN NATURE. ALL PIPING TO BE LOCATED WITHIN OWNER'S PROPERTY LINES.
4. CONTRACTOR IS RESPONSIBLE FOR PROPER OPERATION OF IRRIGATION SYSTEM. SYSTEM SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS AND SHALL WATER ALL SEEDED AND SODDED AREAS NOTED. IRRIGATION PLAN IS INTENDED TO INCLUDE EVERYTHING NECESSARY TO THE PROPER OPERATION OF SAID IRRIGATION SYSTEM. IF ADJUSTMENTS ARE REQUIRED, CONTRACTOR SHALL MAKE ADJUSTMENTS FOR SAME.
5. IRRIGATION PLANS SHALL HAVE PRECEDENCE OVER IRRIGATION SPECIFICATIONS. ANY DISCREPANCIES BETWEEN THESE TWO DOCUMENTS MUST BE BROUGHT TO THE ATTENTION OF THE IRRIGATION CONSULTANT BEFORE INSTALLATION.
6. IT IS THE INTENT TO KEEP IRRIGATION WATER OFF OF ALL BUILDINGS, SIDEWALKS AND PARKING AREAS. IT WILL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FIELD TUNE EACH SPRINKLER AS TO KEEPING IRRIGATION ADJUSTED TO GRASSED AND SEEDDED AREAS ONLY. IT WILL ALSO BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO SUPPLY THE OWNER WITH AN OPERATING SCHEDULE THAT WORKS WITH EXISTING PLANS AND ANY FIELD ADJUSTMENTS.
7. IT IS THE INTENT OF THE IRRIGATION DESIGN TO ACHIEVE HEAD TO HEAD COVERAGE IN ALL GRASSED AND SEEDDED AREAS. IT WILL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO ADJUST FOR SAME.
8. IRRIGATION PLANS ARE DIAGRAMMATIC IN NATURE CONTRACTOR WILL BE RESPONSIBLE FOR THE LOCATION OF ALL EQUIPMENT AS STAGED BY IRRIGATION CONSULTANT. SAID EQUIPMENT, WHEN FIELD LOCATED, MAY VARY FROM PROPOSED PLAN DUE TO SITE CONDITIONS AND CONTRACTOR WILL MAKE ADJUSTMENTS ACCORDINGLY AT NO ADDITIONAL COST TO OWNER.

## PLUMBING NOTES:

1. ALL PIPING FITTINGS 2½" OR LARGER SHALL BE OF HARCO DUCTILE IRON TYPE. ALL SPRINKLERS IN LINE SHALL BE MOUNTED ON 1½" LASCO SWING JOINTS ON LASCO CLASS 200 PVC SERVICE TEES.
2. ALL PIPE SHALL BE CARRIED IN SEPARATE TRENCH.

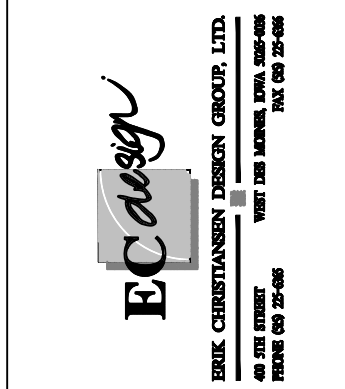
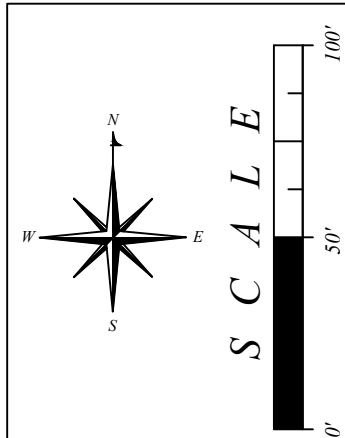
## ELECTRICAL NOTES:

1. ALL 120 V.A.C. POWER SPLICES AT FIELD SATELLITES.
2. ALL POWER WIRE TAPS AND CONNECTIONS SHALL CONFORM TO WITH LOCAL AND STATE CODES AND PERFORMED BY LICENSED ELECTRICIAN.
3. 24" LOOP OF WIRE LOCATED BELOW EACH HEAD.
4. ALL 24 V.A.C. SECONDARY WIRING SHALL BE (RED) #14 HOT AND (WHITE) #12 COMMON. (ONE HOT WIRE PER HEAD)
5. ALL WIRE SHALL HAVE ENOUGH SLACK AS TO ACCOMMODATE FOR EXPANSION AND/OR CONTRACTION.
6. ALL WIRE TO BE UL APPROVED FOR DIRECT BURIAL.
7. ALL 120 V.A.C. PRIMARY, AND 24 V.A.C. SECONDARY POWER TO BE INSTALLED AS PER STATE AND LOCAL CODES, SIZED AS PER PLAN WITH GROUND WIRE; MEETING N.E.C. REQUIREMENTS.
8. ONE SPARE HOT WIRE TO EACH GREEN AND TEE COMPLEX.

## PROGRAMMING NOTES:

1. FIELD SATELLITES SHALL CARRY APPROPRIATE STATION CARDS FOR INDIVIDUAL HEAD CONTROL OF ALL SPRINKLERS.
2. ALL SPRINKLERS SHALL HAVE ONE WIRE (HOT 24 V.A.C.) TO RESPECTIVE FIELD SATELLITE.
3. ALL SATELLITE LOCATIONS SHALL BE IN ACCORDANCE WITH RAIN FALL SURVEYS AND OUT OF 100 YEAR FLOOD PLAIN.

X	SATELLITE NUMBER
XX	APPROXIMATE STATION COUNT



Deerpath Golf Course  
500 West Deerpath Road  
Lake Forest, IL 60045  
(A City of Lake Forest facility)



# SITE IRRIGATION PLAN

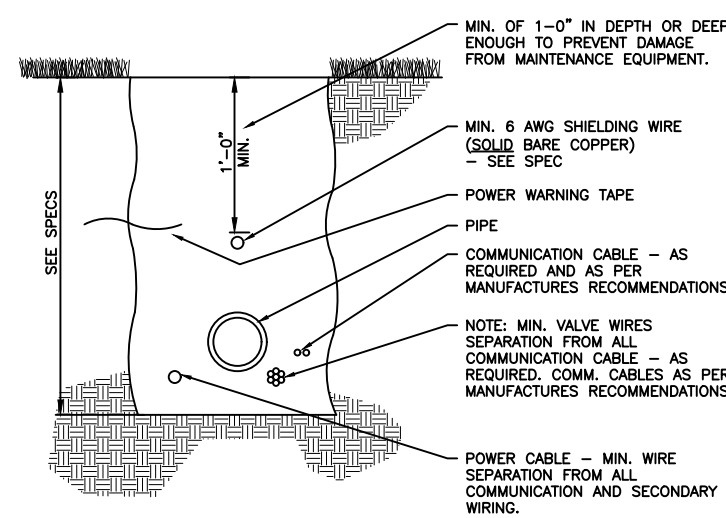
## DEERPATH GOLF COURSE

CITY OF LAKE FOREST, IL

By:	TS
Date:	TS

## SHELDING

THE BONDING CONDUCTORS ARE TO BE INSTALLED IN SUCH A WAY SO THAT EQUIPMENT WILL BE PROTECTED FROM MAINTENANCE EQUIPMENT. THE BONDING CONDUCTORS ARE TO BE INSTALLED IN SUCH A WAY SO THAT EQUIPMENT WILL BE PROTECTED FROM MAINTENANCE EQUIPMENT. THE BONDING CONDUCTORS ARE TO BE INSTALLED IN SUCH A WAY SO THAT EQUIPMENT WILL BE PROTECTED FROM MAINTENANCE EQUIPMENT.



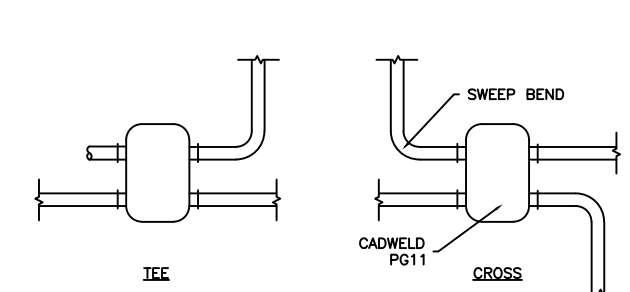
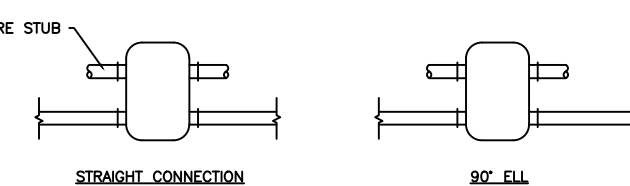
THE BARE WIRE IS TO BE INSTALLED AS CLOSE TO THE SURFACE AS POSSIBLE, BUT BEING SUFFICIENTLY BELOW THE GROUND LEVEL AS TO PREVENT DAMAGE FROM MAINTENANCE EQUIPMENT SUCH AS AERATORS, AND IT MUST BE PLACED ABOVE ALL OTHER VALVE/POWER/COMMUNICATION WIRES AND CABLES, NOT DETAIL AND INSTALLED IN ALL TRENCHES AS SHOWN ON THE ELECTRICAL PLAN DRAWINGS. IT IS NOT NECESSARY TO INSTALL THIS CONDUCTOR OVER A SHORT WIRE RUNS (LESS THAN 150 FEET) AWAY FROM THE MAIN WIRE BUNDLES. THE CONDUCTOR IS LAD IN AS STRAIGHT A LINE AS POSSIBLE AND WHEN NECESSARY TO MAKE BENDS, DO SO IN A SWEEPING MOTION USING THE FOLLOWING DETAIL AS A GUIDELINE.

NOTE: WHEN CONNECTING BARE COPPER WIRES TO THE GROUND LUG OF ELECTRONIC EQUIPMENT, FEED IT THROUGH A DEDICATED 1-1/2" PLASTIC SWEEP ELL TO AUTOMATICALLY MEET THE REQUIREMENTS OF THE "SWEEP BEND" SHOWN HERE.



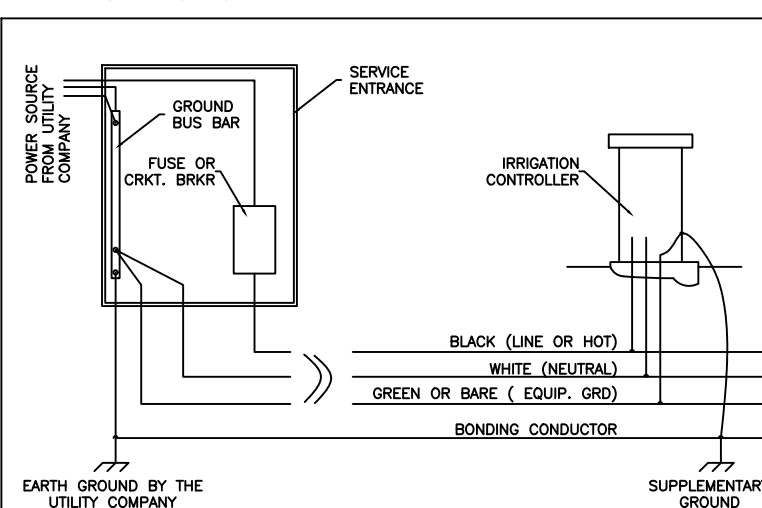
THE SHIELD NETWORK IS TO BE CONNECTED TO THE SERVICE ENTRANCE EARTH GROUND, TO ALL ELECTRONIC EQUIPMENT GROUND LUGS, AND ALL EQUIPMENT SUPPLEMENTARY GROUNDING ELECTRODES. ONE SUCH NETWORK IS NECESSARY FOR EACH POWER SOURCE. DO NOT INTERCONNECT THE EQUIPMENT GROUND WIRES FROM DIFFERENT POWER SOURCES.

WHEN JOINING BARE COPPER WIRES, DO SO USING AN ERCO PG11L "ONE-SHOT" KIT AS SHOWN IN THE DETAILS. [PAGE ELECTRIC PART NUMBER 1820074.]



## BONDING

THE ABOVE GROUNDING CIRCUIT IS REFERRED-TO AS "SUPPLEMENTARY GROUNDING" IN THE NEC. AND FOR SAFETY REASONS, THE NEC REQUIRES THAT ALL SUPPLEMENTARY GROUNDS BE "BONDED" TO EACH OTHER AND TO THE SERVICE ENTRANCE GROUND (POWER SOURCE) AS SHOWN IN THE DETAIL. THIS IS ALSO "RECOMMENDED PRACTICE" OF THE STANDARD 1100-1998. NOTE THAT THIS IS IN ADDITION TO THE EQUIPMENT GROUND, WHICH IS COMMONLY REFERRED-TO AS THE "GREEN WIRE". THE BLACK, WHITE AND GREEN WIRES MUST ALWAYS BE KEPT TOGETHER IN A TRENCH/CONDUIT/TRAY/ETC. SEE TRENCH DETAIL.

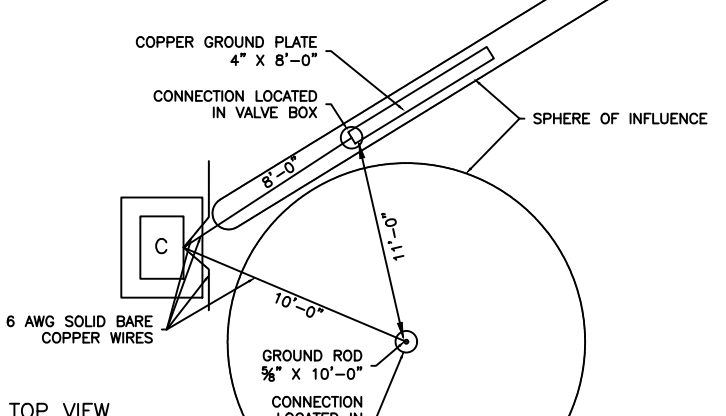


THE BONDING CONDUCTORS ARE TO BE 6 AWG SOLID BARE COPPER UNLESS THE SYSTEM POWER CONDUCTORS ARE LARGER THAN 1/0 AWG, IN WHICH CASE THEY ARE TO BE 4 AWG SOLID BARE COPPER. ALL SPICES TO THE BONDING CONDUCTORS SHALL BE MADE USING A CADDWELD "ONE-SHOT" KIT AS SHOWN IN THE DETAILS. [PAGE ELECTRIC PART NUMBER 1820074.]

## EARTH GROUNDING

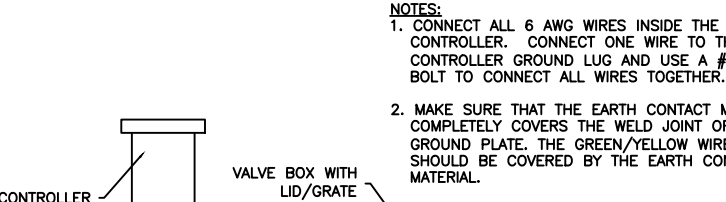
IT IS THE RESPONSIBILITY OF THE INSTALLER TO CONNECT ALL ELECTRONIC IRRIGATION EQUIPMENT FOR WHICH HE IS RESPONSIBLE TO EARTH IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE (NEC). GROUNDING COMPONENTS WILL INCLUDE THE ITEMS DESCRIBED IN THE FOLLOWING PARAGRAPHS AT A MINIMUM.

USE GROUNDING ELECTRODES THAT ARE UL LISTED OR MANUFACTURED TO MEET THE MINIMUM REQUIREMENTS OF ARTICLE 250-52 OF THE 2002 EDITION OF THE NEC. AT THE VERY MINIMUM, THE GROUNDING CIRCUIT WILL INCLUDE A COPPER CLAD STEEL GROUND ROD, 4" SOLID COPPER GROUND PLATE AND 100 POUNDS OF POWERSHIELD EARTH CONTACT MATERIAL, AS DEFINED BELOW AND PER THE FOLLOWING DETAIL.



## TOP VIEW

NOTES:  
1. CONNECT ALL 6 AWG WIRES INSIDE THE VALVE BOX. CONNECT ONE WIRE TO THE CONTROLLER GROUND LUG AND USE A #4 SPLIT BOLT TO CONNECT ALL WIRES TOGETHER.  
2. MAKE SURE THAT THE EARTH CONTACT MATERIAL COMPLETELY COVERS THE WELD JOINT OF THE GROUND PLATE. THE GREEN/YELLOW WIRE INSULATION SHOULD BE COVERED BY THE EARTH CONTACT MATERIAL.



## SIDE VIEW

GROUND RODS ARE TO HAVE A MINIMUM DIAMETER OF 5/8" AND A MINIMUM LENGTH OF 10 FEET. THESE ARE TO BE DRIVEN INTO THE GROUND IN A VERTICAL POSITION OR AN OBLIQUE ANGLE NOT TO EXCEED 45 DEGREES IN A LOCATION 10 FEET FROM THE ELECTRONIC EQUIPMENT. THE GROUND PLATE OR THE WIRES AND CABLES CONNECTED TO SAID EQUIPMENT, AS SHOWN IN THE DETAIL ABOVE, THE ROD IS TO BE CLAMPED WITH THE UL LISTED BRACE ELECTRIC PART NUMBER 1820037. A 6 AWG SOLID BARE COPPER WIRE (ABOUT 12 FEET LONG) SHALL BE CONNECTED TO THE ELECTRONIC EQUIPMENT GROUND LUG AS SHOWN IN THE DETAIL ABOVE.

THE COPPER GROUNDING PLATE ASSEMBLY [PAGE ELECTRIC PART NUMBER 1821994.] MUST MEET THE MINIMUM REQUIREMENTS OF ARTICLE 250-52(2) OF THE 1989 NEC. THEY ARE TO BE MADE OF A COPPER ALLOY INTENDED FOR GROUNDING APPLICATIONS AND WILL HAVE MINIMUM DIMENSIONS OF 4" X 8" X 0.0625". A 25-FOOT CONTINUOUS LENGTH (NO SPICES ALLOWED UNLESS USING EXOTHERMIC WELDING PROCESS) OF 6 AWG SOLID BARE COPPER WIRE IS TO BE ATTACHED TO THE PLATE BY THE MANUFACTURER USING AN APPROVED WELDING PROCESS. THIS WIRE IS TO BE CONNECTED TO THE ELECTRONIC EQUIPMENT GROUND LUG AS SHOWN IN THE DETAIL. THE GROUND PLATE IS TO BE INSTALLED TO A MINIMUM DEPTH OF 30" AT A LOCATION 8 FEET FROM THE ELECTRONIC EQUIPMENT AND UNDERGROUND WIRES AND CABLES. TWO 50 POUND BAGS OF POWERSHIELD [PAGE ELECTRIC PART NUMBER 1820088] EARTH CONTACT MATERIAL MUST BE SPREAD SO THAT IT SURROUNDS THE COPPER PLATE (BOTH) ALONG ITS LENGTH WITHIN A 6" WIDE TRENCH. SALTS, FERTILIZERS, BENTONITE, CLAY, CEMENT, COKE, CARBON, AND OTHER CHEMICALS ARE NOT TO BE USED TO IMPROVE SOIL CONDUCTIVITY BECAUSE THESE MATERIALS ARE CORROSIVE AND WILL CAUSE THE COPPER ELECTRODES TO ERODE AND BECOME LESS EFFECTIVE WITH TIME.

INSTALL ALL GROUNDING GROUT COMMONEST IN STRAIGHT LINES. WHEN NECESSARY TO MAKE BENDS, DO NOT MAKE SHARP TURNS TO PREVENT THE ELECTRODE-PROTECTED ENERGY FROM REENTERING THE UNDERGROUND WIRES AND CABLES. ALL ELECTRODES SHALL BE INSTALLED AWAY FROM SAID WIRES AND CABLES. THE SPACING BETWEEN ANY TWO ELECTRODES SHALL BE AS SHOWN IN THE DETAIL OF PAGE 1, SO THAT THEY DON'T COMPLETE FOR THE SAME SOL.

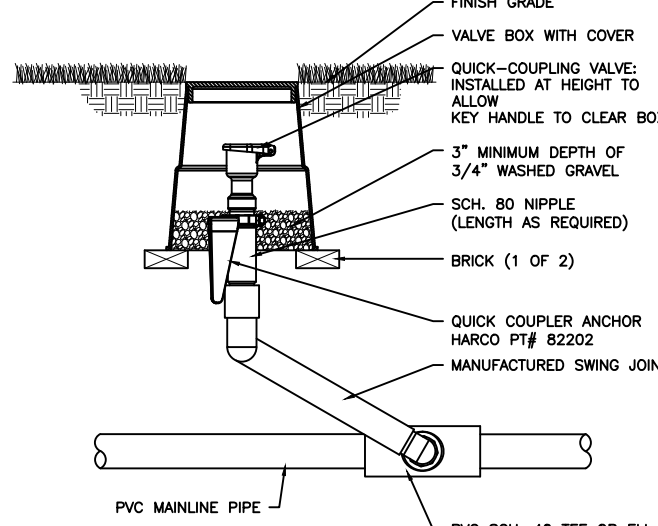
THE EARTH-TO-GROUND RESISTANCE OF THIS CIRCUIT TO BE MEASURED USING A MEGGER, OR OTHER SIMILAR INSTRUMENTS, AND THE READING IS TO BE NO MORE THAN 10 OHMS. IF THE RESISTANCE IS MORE THAN 10 OHMS, ADDITIONAL GROUND PLATES AND THE SOL SURROUNDING COPPER ELECTRODES BE KEPT AT A MINIMUM MOISTURE LEVEL OF 15% AT ALL TIMES BY LOCATING AN IRRIGATION STATION AT EACH CONTROLLER LOCATION. THE IRRIGATED AREA SHOULD INCLUDE A CIRCLE WITH A 10-FOOT RADIUS AROUND THE GROUND ROD AND A RECTANGLE MEASURING 1-FOOT X 24-FOOT AROUND THE PLATE.

ALL UNDERGROUND CIRCUIT CONNECTIONS ARE TO BE MADE USING AN EXOTHERMIC WELDING PROCESS BY UTILIZING PRODUCTS SUCH AS THE CADDWELD "ONE-SHOT" KITS. SOLDER SHALL NOT BE ALLOWED FOR THESE CONNECTIONS. IN ORDER TO ENSURE PROPER UNION OF THE "ONE-SHOT", THE CADDWELD T-320 KITCHER MUST BE UTILIZED [PAGE ELECTRIC PART NUMBER 1820048]. THE TWO BARE COPPER WIRES ARE TO BE INSTALLED IN AS STRAIGHT A LINE AS POSSIBLE AND IF IT IS NECESSARY TO MAKE A TURN OR A BEND IT SHALL BE DONE IN A SWEEPING CURVE WITH A MINIMUM RADIUS OF 4" AND A MINIMUM INCLUDED ANGLE OF 90°. MECHANICAL CLAMPS SHALL BE PERMITTED TEMPORARILY DURING THE RESISTANCE TEST PROCESS, BUT ARE TO BE REPLACED WITH CADDWELD "ONE-SHOT" KITS IMMEDIATELY THEREAFTER.

WIRE AND CABLES  
POWER WIRING (120 VAC OR 220 VAC):  
ALL POWER CABLES ARE TYPE TRAY CABLE. THEY ARE TO BE UL LISTED FOR DIRECT BURIAL AND RATED AT 600 VOLTS. THE CABLE SHALL INCLUDE THREE CONDUCTORS, WHICH ARE TO BE COLORED PER WIRE INDUSTRY STANDARD OR NUMBERED AS 1, 2, AND 3. THE SIZE OF THE "HOT" AND "COMMON" CONDUCTORS ARE TO BE AS SHOWN ON THE IRRIGATION PLANS, AND THE SIZE OF THE "GROUND" CONDUCTORS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE, OR LARGER. THE INNER COPPER CONDUCTORS SHALL BE TO BE COVERED WITH HIGH DIELECTRIC PVC AND NYLON. THE OUTER JACKET WILL BE BLACK PVC AND IS TO BE SLIGHTLY RESISTANT. [PAGE ELECTRIC CO., LP SPECIFICATION NUMBER P72660 FOR 10 AWG AND SMALLER AND SPECIFICATION NUMBER P72670 FOR 8 AWG AND LARGER.]

CONTROL VALVE WIRING (24 VOLT AC, NOMINAL):  
WIRES CONNECTING THE REMOTE CONTROL VALVES TO THE IRRIGATION CONTROLLER ARE SINGLE CONDUCTORS, TYPE PE. ITS CONSTRUCTION INCORPORATES A SOLID COPPER CONDUCTOR AND POLYETHYLENE (PE) INSULATION WITH A MINIMUM THICKNESS OF 0.045 INCHES. THE WIRES SHALL BE UL LISTED FOR DIRECT BURIAL IN IRRIGATION SYSTEMS AND BE RATED AT A MINIMUM OF 30 VAC. WIRE SIZES AND COLORS ARE DEFINED IN THE IRRIGATION PLANS AND OTHER SPECIFICATIONS. [PAGE ELECTRIC CO., LP SPECIFICATION NUMBER P70706.]

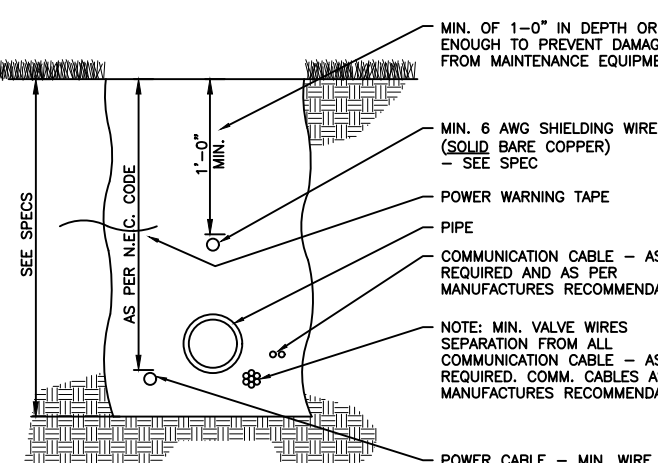
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NOTE: TURN FITTINGS AND PIPING NORMALLY SIZED DENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE.

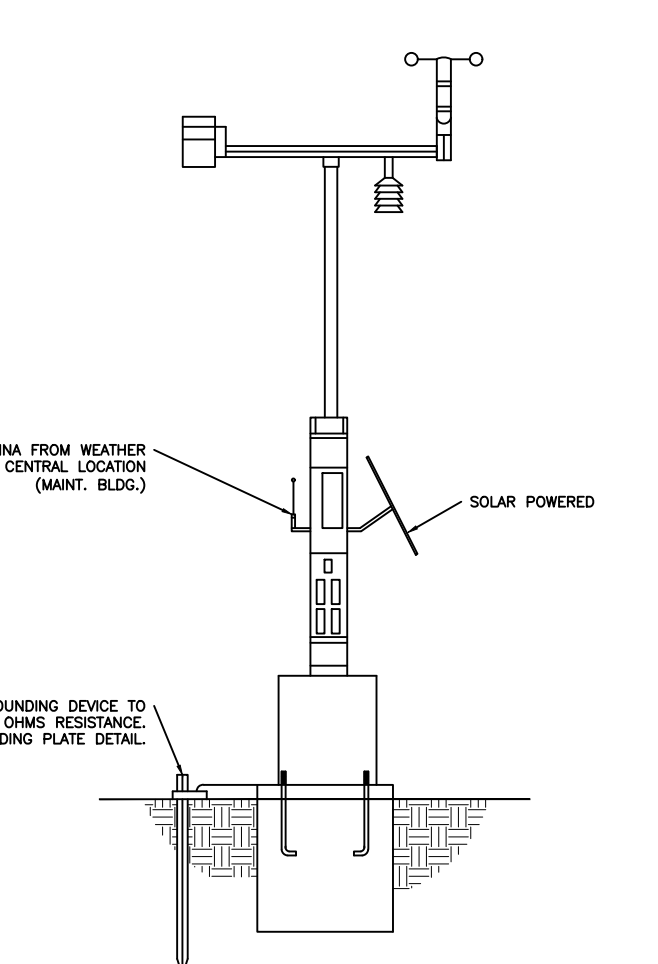
## QUICK-COUPLING VALVE WITH STABILIZER - GREENS/TEES

SCALE: NOT TO SCALE



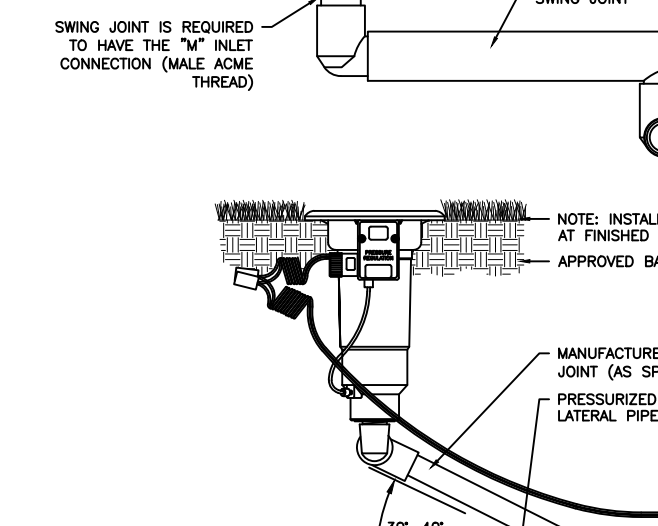
## TRENCH CROSS SECTION

SCALE: NOT TO SCALE



## R.F. WEATHER STATION

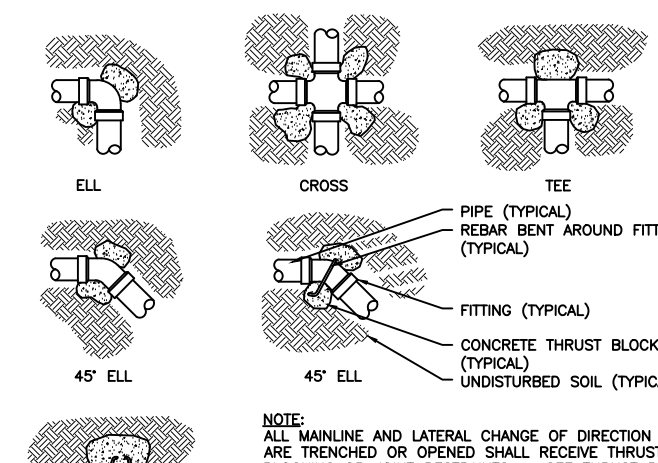
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NOTE: INSTALL SPRINKLER AT FINISHED GRADE APPROVED BACKFILL.

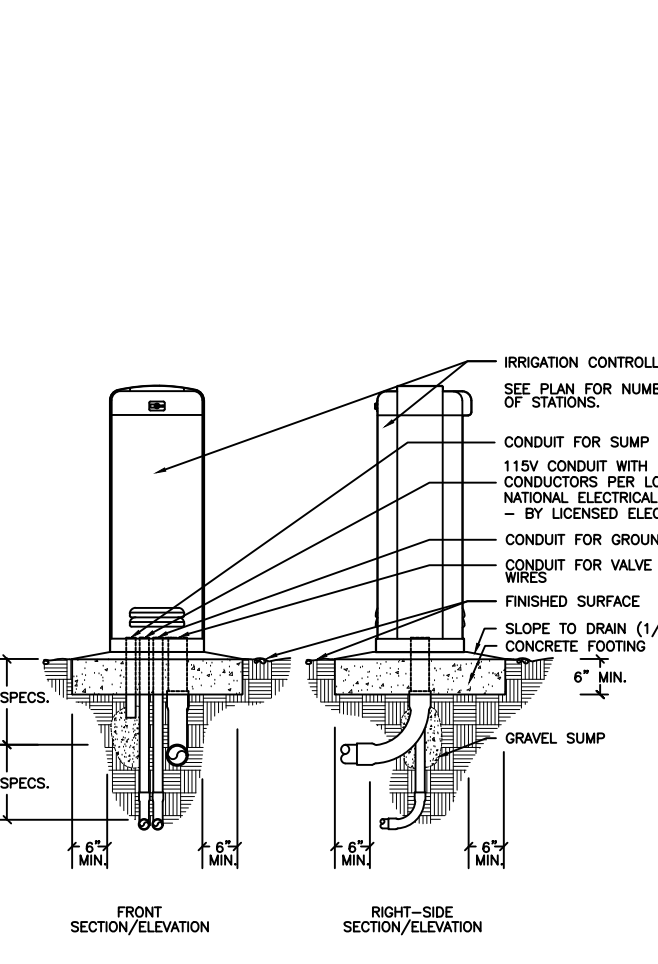
## LARGE TURF GEARED ROTOR

SCALE: NOT TO SCALE



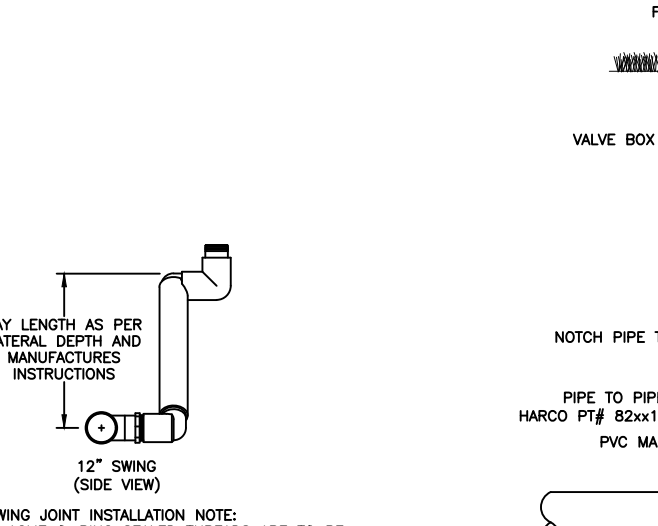
## THRUST BLOCK

SCALE: NOT TO SCALE



## PEDESTAL-MOUNT CONTROLLER R.F. SATELLITE

SCALE: NOT TO SCALE



NOTE: SWING JOINT INSTALLATION NOTES:  
1. GATE O-RINGS SEALED THREADES ARE TO BE FINGER TIGHTENED AND "BACKED OFF" ONE FULL ROTATION BEFORE INSTALLATION.  
2. THE SWING JOINT LAY ANGLE IS TO BE INSTALLED AT AN ANGLE BETWEEN 30° AND 45°.

## CAST IRON VALVE DETAIL - MJ

SCALE: NOT TO SCALE

## THRUST BLOCKING

STEP 1. MULTIPLY THE PRESSURE LEVEL DESIRED FOR TESTING BY THE APPROPRIATE VALUE SHOWN IN THE FOLLOWING TABLE:

PIPE SIZE INCHES	90° ELBOW	45° ELBOW	22.5° ELBOW
1.5"	2.94	4.16	2.25
2"	4.56	6.45	3.50
2.5"	6.65	9.40	5.10
3"	9.80	13.9	7.51
3.5"	12.8	18.1	9.81
4"	16.2	23.0	12.4
5"	24.7	35.0	18.9
6"	34.8	49.2	26.7
8"	59.0	83.5	45.2
10"	91.5	130.0	70.0
12"	129.0	182.0	98.5

BASED ON POUNDS PER PSI WORKING PRESSURE.

STEP 2. DETERMINE THE BEARING STRENGTH OF THE SOIL FROM THE TABLE BELOW:

BEARING STRENGTH OF SOILS

SOILS AND SAFE BEARING LOADS (LBS. SQ. FT.)

SOUND SHALE

CEMENTED GRAVEL AND SAND-SUFFICIENT TO PICK

COMPACT SAND

CAN BE SPACED

MUCK

STEP 3. DIVIDE THE TOTAL THRUST OBTAINED IN STEP 1 BY THE BEARING STRENGTH OF THE SOIL. THIS GIVES THE SQUARE FEET OF AREA NEEDED.

## SIDE THRUST ON CURVES

AN OUTWARD PRESSURE EXISTS ON ALL DEFLECTIONS FROM A STRAIGHT LINE. GOOD SOIL, PROPERLY TAMPED, IS SUFFICIENT TO HOLD SIDE THRUST. UNLESS SOIL CONDITIONS ARE DESIREABLE, IN THIS CASE, TO ANCHOR AGAINST THIS SIDE THRUST, THE BLOCKING SHOULD BE PLACED AGAINST THE PIPE ON EACH SIDE OF THE COUPLING. DO NOT THRUST BLOCK THE COUPLING ITSELF.

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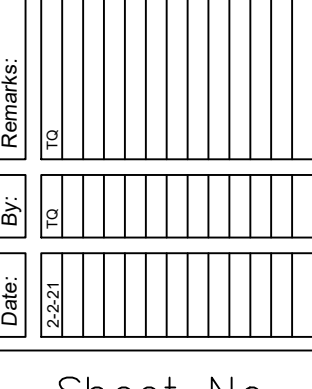
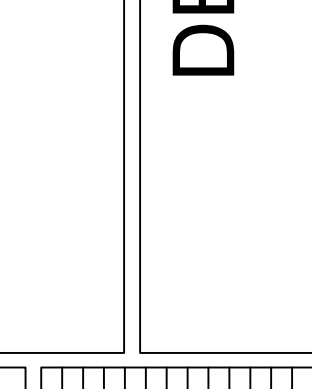
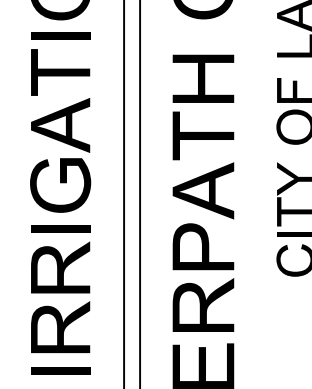
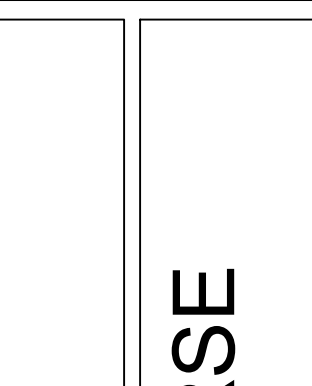
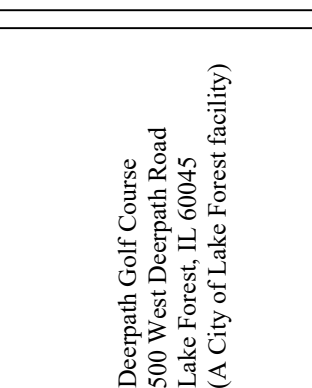
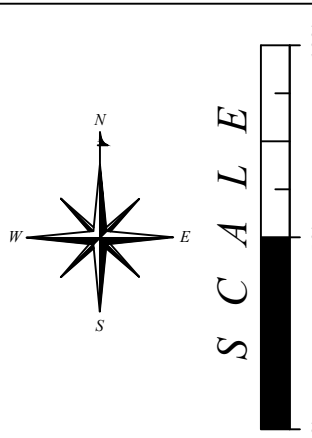
PIPE SIZE INCHES

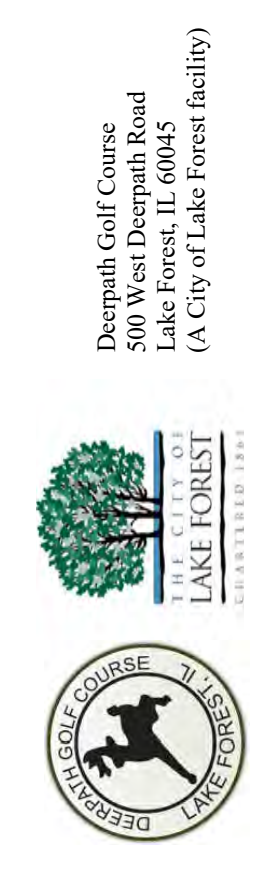
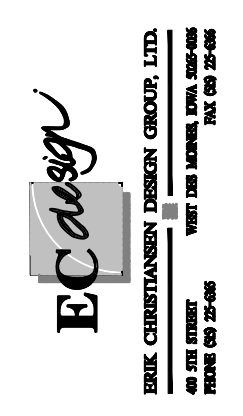
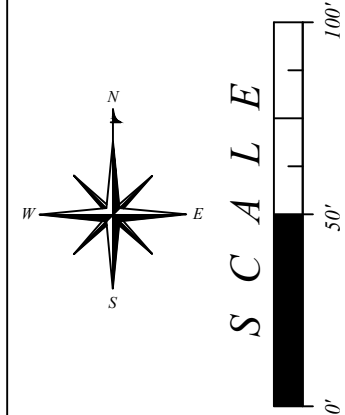
PIPE SIZE INCHES

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APPENDIX - AS-BUILT

DEERPATH GOLF COURSE

CITY OF LAKE FOREST, IL

Remarks:	
By:	
Date:	

