

**LAKESIDE ESTATES
PUMP STATION AND FORCE MAIN**

CONTRACT DOCUMENTS

PREPARED FOR:

CITY OF MASCOUTAH
3 WEST MAIN STREET
MASCOUTAH, IL 62258
(618) 566-2964

DOCUMENT DATE: AUGUST 13, 2020

**BID DEADLINE / OPENING: SEPTEMBER 15, 2020
2:00 P.M.**

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(DIVISION 1)

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SECTION 001000 – INVITATION TO BID

PROJECT: Lakeside Estates Pump Station and Force Main
Mascoutah, Illinois

OWNER: City of Mascoutah
3 West Main Street
Mascoutah, IL 62258
(618) 566-2964

GENERAL: Sealed proposals from qualified **CONTRACTORS** for furnishing all labor, materials, equipment, means, and performing all work for the “Lakeside Estates Pump Station and Force Main” will be received by the City of Mascoutah at the location and time set below.

**DUE DATE
OF BIDS:** **Tuesday – September 15, 2020**

TIME BIDS DUE: **2:00 p.m.**

LOCATION: **City of Mascoutah
3 West Main Street
Mascoutah, IL 62258**

**OBTAINING
CONTRACT
DOCUMENTS:** Contract Documents may be examined at the following locations:

- 1) Millennia Professional Services of Illinois, Ltd.
11 Executive Drive, Suite 12
Fairview Heights, IL 62208
(618) 624-8610
- 2) Southern Illinois Builders Association
1468 Green Mount Road
O’Fallon, IL 62269
(618) 624-9055
- 3) Dodge Plan Room
www.construction.com
- 4) City of Mascoutah
www.mascoutah.org

Copies of the Contract Documents, drawings and specifications, may be obtained at location (1) above at the cost of \$45.00 per set or downloaded at www.mascoutah.org. No refund will be given for return of Contract Documents. Anyone planning to submit a bid must be preregistered as a plan holder by contacting location (1) above.

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SECTION 001100 – INSTRUCTIONS FOR BIDDERS

1. DEFINED TERMS

Terms used in these instructions to Bidders which are defined in the General Conditions of the Construction Contract have the meanings assigned to them in the General Conditions.

Certain additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both singular and plural thereof.

- 1.1. Bidder – one who submits a Bid directly to Owner as distinct from a sub-bidder, who submits a bid to a Bidder.
- 1.2. Issuing Office – the office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- 1.3. Successful Bidder – the lowest, qualified, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

2. COPIES OF BIDDING DOCUMENTS

- 2.1. Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from:

Millennia Professional Services of Illinois, Ltd.
11 Executive Drive, Suite 12
Fairview Heights, IL 62208

- 2.2. Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3. Owner and Engineer 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 confer a license or grant for any other use.

3. QUALIFICATIONS OF BIDDERS

To perform Work on the "Lakeside Estates Pump Station and Force Main" each Bidder must submit with bid:

- A. List of Subcontractors.
- B. At the request of the owner, submit within five (5) days, detailed written evidence such as financial data, previous experience, present commitments and other such data as may be called for below (or in the Supplementary Conditions). Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or convenience of obtaining such qualification prior to award of contract.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- 4.1. It is the responsibility of each Bidder before submitting a Bid:
 - 4.1.1. To examine thoroughly the Contract Documents and other related data identified in the Bidding Documents (including "technical data" referred to below);
 - 4.1.2. To visit the site to become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance, or furnishing of the Work;

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- 4.1.3. To consider federal, state, and local Laws and Regulations that may affect cost, progress, performance, or furnishing of the Work;
 - 4.1.4. To study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data; and
 - 4.1.5. To promptly notify Engineer of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents and such other related documents.
- 4.2. Reference is made to the Supplementary Conditions for identification of:
- 4.2.1. Those reports of exploration and tests of subsurface conditions at or contiguous to the site which have been utilized by Engineer in preparation of the Contract Documents. Bidder may rely upon the general accuracy of the "technical data" contained in such reports but not upon other data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of bidding or construction.
 - 4.2.2. Those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site that have been utilized by Engineer in preparation of the Contract Documents. Bidder may rely upon the general accuracy of the "technical data" contained in such drawings but not upon other data, interpretations, opinions or information shown or indicated in such drawings or otherwise relating to such structures, nor upon the completeness thereof for the purpose of bidding or construction.
- Bidder is responsible for any interpretation or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information.
- 4.3. Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner and Engineer do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.
 - 4.4. 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 Contract Documents due to differing or unanticipated conditions appear in Paragraphs 4.02 and 4.03 of the General Conditions.
 - 4.5. Before submitting a Bid each Bidder will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or 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 Contract Documents.
 - 4.6. On request, Owner will provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests and studies as each Bidder deems necessary for submission of a Bid. Bidder must fill all holes and clean up and restore the site to its former conditions upon completion of such explorations, investigations, tests and studies.

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- 4.7. Reference is made to the Supplementary Conditions for the identification of the general nature of 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 for which a Bid is to be submitted. 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 work.
- 4.8. 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 Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Contract Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by Engineer is acceptable to Bidder, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.
- 4.9. The provisions of Instruction for Bidders paragraphs 4.1 through 4.8, inclusive, do not apply to Hazardous Environmental Condition at Site covered by Paragraph 4.06 of the General Conditions.

5. AVAILABILITY OF LANDS FOR WORK, ETC.

The lands upon which the Work is to be performed, right-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract 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. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.

6. INTERPRETATIONS AND ADDENDA

- 6.1. All questions about the meaning or intent of the Bidding Documents are to be directed to Engineer. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than six days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 6.2. Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

7. BID SECURITY

- 7.1. Each Bid must be accompanied by Bid security made payable to Owner in an amount of Five Percent (5%) of Bidder's maximum Bid price and in the form of a certified check, bank money order or a Bid Bond (on form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 7.2. The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, 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 Agreement and furnish the required contract security within fifteen days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The bid security of other Bidders whom Owner believes to have reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the

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Agreement or the forty-sixth day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

- 7.3. Bid security with Bids which are not competitive will be returned within seven days after the Bid opening.

8. CONTRACT TIMES

The number of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the term "Contract Times" is defined in paragraph 1.01 of the General Conditions) are set forth in the Agreement (or incorporated therein by reference to the attached Bid Form).

9. LIQUIDATED DAMAGES

Provisions for liquidated damages, if any, are set forth in the Agreement.

10. SUBSTITUTE AND "OR-EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Paragraph 6.05 of the General Conditions and may be supplemented in the General Requirements.

11. SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 11.1. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, 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 and other persons and organizations 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, person or organization if requested by Owner. An Owner or Engineer who after due investigation has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, may before the Notice of Award is given request apparent Successful Bidder to submit an acceptable substitute, without an increase in Bid price.

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 and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any Bidder. Any Subcontractor, Supplier, other person or organization listed and to whom Owner or Engineer does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.

- 11.2. In contracts where the Contract Price is on the basis of Cost-of-the-Work Plus a Fee, 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.

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- 11.3. No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

12. BID FORM

- 12.1. The Bid Form is included with the Bidding Documents; additional copies may be obtained from Engineer (or the Issuing Office).
- 12.2. All blanks on the Bid Form must be completed by printing in black or blue ink or by typewriter.
- 12.3. Bids by corporations must be executed in the corporate name by the president or vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.
- 12.4. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- 12.5. All names must be typed or printed in black or blue ink below the signature.
- 12.6. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).
- 12.7. The address and telephone number for communications regarding the Bid must be shown.
- 12.8. Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided in accordance with Paragraph 3 above. State contractor license number, if any, must also be shown.
- 12.9. The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances named in the Contract Documents as provided in GC-11.8.

13. SUBMISSION OF BIDS

Bids shall be submitted at the time and place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it.

14. BID SECURITY

- 14.1. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
- 14.2. If, within twenty-four 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, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

15. OPENING OF BIDS

Bids will be opened and (unless obviously non-responsive) read aloud publicly at the place where Bids are to be submitted. 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.

16. BIDS TO REMAIN SUBJECT TO ACCEPTANCE

All Bids will remain subject to acceptance for sixty days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date.

17. AWARD OF CONTRACT

- 17.1. Owner reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, non-responsive, unbalanced or conditional Bids and to 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, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. 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. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 17.2. In evaluating Bids, Owner will consider the qualifications of Bidders, 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.
- 17.3. Owner may consider the qualifications and experience of Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers and other persons and organizations must be submitted as provided in the Supplementary Conditions. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- 17.4. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- 17.5. If the contract is to be awarded, it will be awarded to lowest Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.
- 17.6. If the contract is to be awarded, Owner will give Successful Bidder a Notice of Award within thirty-five days after the day of the Bid opening.

18. CONTRACT SECURITY

Paragraph 5.01 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by the required performance and payment Bonds.

19. CONTRACT SECURITY

When Owner gives Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within fifteen days thereafter Contractor 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 Contractor. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

20. PREVAILING WAGE

Only Illinois Laborers may be employed, and the general prevailing rate of wages in the locality as determined by the Department of Labor shall be paid to all laborers, workmen and mechanics performing work on the project. The Contractor's Performance Bonds must include a provision guaranteeing the faithful performance of such prevailing wage clause in the contract. A copy of the most recent revised prevailing wage rates and/ or most recent amendments, as determined by the Illinois Department of Labor, is included as part of these bidding requirements (See Exhibit).

21. EQUAL EMPLOYMENT OPPORTUNITY

Equal Employment Opportunity Clause required by the Illinois Fair Employment Practices Commission as a material term of all public contracts:

"Equal Employment Opportunity"

In the event of the contractor's noncompliance with any provision of this Equal Employment Practices Commission's Rules and Regulations for Public Contracts, the contractor may be declared non-responsible and, therefore, ineligible for future contracts or subdivisions or municipal corporations, and the contract may be canceled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulations.

During the performance of this contract, the contractor agrees as follows:

- (1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin or ancestry; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.
- (2) That, if it hires additional employees in order to perform this contract, or any portion hereof, it will determine the availability (in accordance with the Commission's Rules and Regulations for Public contracts) of minorities and women in the area (s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.
- (3) That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, national origin or ancestry.
- (4) That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the contractor's obligations under the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts. If any such labor organization or representative fails or refuses to cooperate with the contractor in its efforts to comply with such Act and Rules and Regulations for Public Contracts. If any such labor organization or representative fails or refuses to cooperate with the contractor in its efforts to comply with such Act and Rules and Regulations, the contractor will promptly so notify the

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Illinois Fair Employment Practices Commission and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

- (5) That it will submit reports as required by the Illinois Fair Employment Practices Commission's Rules and Regulations for Public Contracts, furnish all relevant information as may from time to time be requested by the Commission or the contracting agency, and in all respects comply with the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts.
- (6) That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Illinois Fair Employment Practices Commission for purposes of investigation to ascertain compliance with the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts.
- (7) That it will include verbatim or by reference the provision of paragraphs 1 through 7 of this clause in every performance subcontract as defined in Section 2.10 (b) of the Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every such subcontractor; and that it will also include the provisions of paragraphs 1,5,6 and 7 in every supply subcontract as defined in Section 2.10 (a) of the Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every such subcontractor. In the same manner as with other provisions of this contract, the contractor will be liable for compliance with applicable provisions of this clause by all its subcontractors; and further it will promptly notify the contracting agency and the Illinois Fair Employment Practices Commission in the event any subcontractor fails or refuses to comply therewith. In addition, no contractor will utilize any subcontractor declared by the Commission to be non-responsible and, therefore, ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

With respect to the two types of subcontracts referred to under paragraph 7 of the Equal Opportunity Clause above, following is an excerpt of Section 2 of the FEPC's Rules and Regulations for Public Contracts:

Section 2.10

The term "Subcontract" means any agreement, arrangement or understanding, written or otherwise, between a contractor and any person (in which the parties do not stand in the relationship of an employer and an employee):

- (a) For the furnishing of supplies or services or for the use of real or personal property, including lease arrangements, which, in whole or in part, is utilized in the performance of any one or more contracts;
- (b) Under which any portion of the contractor's obligation under any one or more contracts is performed, undertaken or assumed.

SECTION 004100 – BID FORM

PROJECT IDENTIFICATION: Lakeside Estates Pump Station and Force Main

CONTRACT IDENTIFICATION AND NUMBER: 2019-039-01

THIS BID IS SUBMITTED TO: City of Mascoutah
3 West Main Street
Mascoutah, IL 62258

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for forty-five (45) days after the day of Bid opening. BIDDER will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen (15) days after the date of OWNER's Notice of Award.

3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:
 - (a) BIDDER has examined and carefully studied the Bidding Documents and the following Addenda receipt of all which hereby acknowledged: (List Addenda by Addendum Number and Date)

<u>ADDENDA #</u>	<u>DATE</u>
_____	_____
_____	_____
_____	_____

- (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, performance and furnishing of the Work.

- (c) BIDDER is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

- (d) BIDDER has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02.1 of the General Conditions. BIDDER accepts the determination set forth in paragraph 4.02 of the Instructions for Bidders of the extent of the "technical data" contained in such reports and drawings upon which BIDDER is entitled to rely as provided in paragraph 4.02 of the Instructions for Bidders. BIDDER acknowledges that such reports and drawings are not Contract Documents and may not be complete for BIDDER's purposes. BIDDER acknowledges that OWNER and Engineer do not assume responsibility for the accuracy or completeness of information and data

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shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site. BIDDER has obtained and carefully studied (or assumes the responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto. BIDDER does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.

- (e) BIDDER is aware of the general nature of Work to be performed by OWNER and others at the site that relates to Work for which this Bid is submitted as indicated in the Contract Documents.
 - (f) BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigation, explorations, tests, studies and data with the Contract Documents.
 - (g) BIDDER has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that BIDDER has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
 - (h) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.
4. BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

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UNIT PRICE BASE BID

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL ITEM PRICE
1.01	Tree Removal, 6"-15"	13	Each		
1.02	Concrete Driveway Pavement Removal	16	Sq Yd		
1.03	Asphalt Pavement Removal	154	Sq Yd		
1.04	Concrete Pad Removal	11	Sq Yd		
1.05	Sanitary Sewer Removal, 4" PVC	32	Lin Ft		
1.06	18" CPP Culvert Removal	20	Lin Ft		
1.07	Ornamental Light Removal	1	Each		
1.08	Ex Planter Removal	1	Each		
2.01	Sanitary Sewer, 8" PVC	71	Lin Ft		
2.02	Sanitary Sewer Force Main, 4" PVC	305	Lin Ft		
2.03	6" PVC Sewer Laterals	10	Lin Ft		
2.04	Sanitary Sewer Manhole	2	Each		
2.05	Sanitary Sewer Cleanout	2	Each		
2.06	Connection to Existing Sewer	2	Each		
2.07	Sanitary Sewer Pump Station	1	Lump Sum		
2.08	Precast Concrete Flared End Sections, 15"	2	Each		
2.09	15" Reinforced Concrete Pipe	48	Lin Ft		
2.10	Trench Backfill	24	Cu Yd		
3.01	Concrete Driveway Pavement	16	Sq Yd		
3.02	Asphalt Pavement	8	Sq Yd		
3.03	Gravel Pavement	121	Sq Yd		
3.04	6' Chain Link Fence (and Gate)	108	Lin Ft		
3.05	Seeding	0.18	Acres		

TOTAL BASE PRICE _____ (\$ _____)
use words (figures)

BIDDER acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

LAKESIDE ESTATES PUMP STATION AND FORCE MAIN
MASCOUTAH ILLINOIS

5. The Work shall not commence until September 29, 2020 and shall be substantially complete by December 29, 2020, and completed and ready for final payment in accordance with Article 14 of the General Conditions by January 12, 2021. The Work shall only be completed between 7:00 am and 7:00 pm.

BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

6. The following documents are attached to and made a condition of this Bid:

(a) Required Bid Security in the form of _____

(b) A tabulation of Subcontractors, Suppliers and other persons and organizations required to be identified in this Bid.

7. Communications concerning this Bid shall be addressed to:

The address of BIDDER indicated below.

The following address:

8. Terms used in this Bid which are defined in the General Conditions or Instructions will have the meanings indicated in the General Conditions or Instructions.

SUBMITTED on _____, 20 ____

State Contractor License No. _____

If BIDDER is:

An Individual

By _____ (SEAL)
(Individual's Name)

doing business as _____

Business address: _____

Phone Number: _____

Partnership

By _____ (SEAL)
(Firm Name)

(General Partner)

doing business as _____

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Business address: _____

Phone Number: _____

Corporation

By _____ (SEAL)
(Corporation Name)

(State of Incorporation)

By _____ (SEAL)
(Name of person authorized to sign)

(Title) (CORPORATE SEAL)

Attest _____ (SEAL)
(Secretary)

Business address: _____

Phone Number: _____

Date of Qualification to do business is: _____

Joint Venture

By _____ (SEAL)
(Name)

(Address)

By _____ (SEAL)
(Name)

(Address)

Phone Number and Address for receipt of official communications

(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).

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LIST OF SUBCONTRACTORS (IF ANY):

SECTION 004300 – BID BOND (PENAL SUM FORM)

BIDDER (Name and Address):

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

OWNER (Name and Address):

BID

BID DUE DATE:
PROJECT (Brief Description Including Location):

BOND

BOND NUMBER:
DATE: (Not later than Bid Due Date):
PENAL SUM:

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the following page, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent or representative.

BIDDER

_____(Seal)
Bidder's Name and Corporate Seal

By: _____
Signature and Title

Attest: _____
Signature and Title

SURETY

_____(Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

LAKESIDE ESTATES PUMP STATION AND FORCE MAIN
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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.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents the executed Agreement required by the Bidding Documents and any performance and payments bonds required by the Bidding Documents and Contract 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 and Contract 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 and 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 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. Notice 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 the Bond conflicts with any applicable provision of 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.

Dated _____, 20 ____

To: _____
(BIDDER)

ADDRESS: _____

PROJECT _____

OWNER's CONTRACT NO. _____

CONTRACT FOR _____

(Insert Name of Contract as it appears in the Bidding Documents)

You are notified that your Bid Dated _____, 20 ____ for the above Contract has been Considered. You are the apparent Successful Bidder and have been awarded a contract for providing all Labor, supervision, equipment, materials, and means necessary to construct the project entitled:

“Lakeside Estates Pump Station and Force Main”

All in accordance with the requirements, provisions, and intentions of the Contract Documents.

(Indicate total Work, alternates or sections or Work awarded)

The Contract Price of your contract is _____ Dollars (\$ _____)

____ copies of each of the proposed Contract Documents (w/o Drawings) accompany this notice of Award.
____ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within fifteen days of the date of this Notice of Award, that is by _____, 20 ____

1. You must deliver to the OWNER 2 fully executed counterparts of the Agreement including all the Contract Documents. Each of the Contract Documents must bear your signature on designated pages.
2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Instructions to Bidders (paragraph 18) and General Conditions (paragraph 5.1).
3. (List other conditions precedents).

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Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid in default, to annul this Notice of Award and to declare your Bid Security forfeited.

Within ten days after you comply with the above conditions, OWNER will return to you one fully signed counterpart of the agreement with the Contract Documents attached.

(OWNER)

By: _____
(AUTHORIZED SIGNATURE)

(TITLE)

ACCEPTANCE OF AWARD

By: _____
(CONTRACTOR)

(AUTHORIZED SIGNATURE)

(TITLE)

(DATE)

COPY to:
ENGINEER

**SECTION 005200 – STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR**

THIS AGREEMENT is dated as of the _____ day of _____ in the year 20____ by and between the City of Mascoutah, having an office at 3 West Main Street, Mascoutah, Illinois 62258 (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

1.1 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

To provide all labor, supervision, equipment, materials and means necessary to construct the project "Lakeside Estates Pump Station and Force Main," all in accordance with the requirements, provisions and intentions of the Contract.

Article 2. ENGINEER.

2.1 This Project has been designed by:

Millennia Professional Services of Illinois, Ltd.
11 Executive Drive, Suite 12
Fairview Heights, IL 62208
(618) 624-8610

who is hereinafter called ENGINEER and who 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 completion of the Work in accordance with the Contract.

Article 3. CONTRACT TIMES.

3.1. The Work shall not commence until September 29, 2020 and will be substantially complete by December 29, 2020, and completed and ready for final payment in accordance with Article 14 of the General Conditions by January 12, 2021. The Work shall only be completed between 7:00 am and 7:00 pm.

3.2. Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving 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 seven-hundred and fifty dollars (\$ 750.00) for each calendar day that expires after the time specified in paragraph 3.1 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 time specified in paragraph 3.1 for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER seven hundred and fifty dollars (\$750.00) for each calendar day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment.

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Article 4. CONTRACT PRICE.

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 as follows:

UNIT PRICE BASE BID

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL ITEM PRICE
1.01	Tree Removal, 6"-15"	13	Each		
1.02	Concrete Driveway Pavement Removal	16	Sq Yd		
1.03	Asphalt Pavement Removal	154	Sq Yd		
1.04	Concrete Pad Removal	11	Sq Yd		
1.05	Sanitary Sewer Removal, 4" PVC	32	Lin Feet		
1.06	18" CPP Culvert Removal	20	Lin Feet		
1.07	Ornamental Light Removal	1	Each		
1.08	Ex Planter Removal	1	Each		
2.01	Sanitary Sewer, 8" PVC	71	Lin Ft		
2.02	Sanitary Sewer Force Main, 4" PVC	305	Lin Ft		
2.03	6" PVC Sanitary Sewer Lateral	10	Lin Ft		
2.04	Sanitary Sewer Manhole	2	Each		
2.05	Sanitary Sewer Cleanout	2	Each		
2.06	Connection to Existing Sewer	2	Each		
2.07	Sanitary Sewer Pump Station	1	Lump Sum		
2.08	Precast Concrete Flared End Sections, 15"	2	Each		
2.09	15" Reinforced Concrete Pipe	48	Lin Ft		
2.10	Trench Backfill	24	Cu Yd		
3.01	Concrete Driveway Pavement	16	Sq Yd		
3.02	Asphalt Pavement	8	Sq Yd		
3.03	Gravel Pavement	121	Sq Yd		
3.04	6' Chain Link Fence (and Gate)	108	Lin Ft		
3.05	Seeding	0.18	Acre		

TOTAL BASE PRICE _____ (\$ _____)
use words (figures)

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

LAKESIDE ESTATES PUMP STATION AND FORCE MAIN
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- 5.1. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, on or about the 30th day of each month during construction as provided in paragraphs 5.1.1. and 5.1.2. below. All such payments will be measured by the schedule of values established in paragraph 2.05 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.
- 5.1.1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with Article 14 of the General Conditions.
- 90 % of Work completed (with the balance being retainage). If Work has been 50% completed as determined by ENGINEER, and if the character and progress of the Work have been satisfactory to OWNER and ENGINEER, OWNER, on recommendation of ENGINEER, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage on account of Work completed, in which case the remaining progress payments prior to Substantial Completion will be in an amount equal to 100% of the Work completed.
- 90 % (with the balance being retainage) of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in Article 14 of the Gen. Conditions).
- 5.1.2. Upon Substantial Completion, in an amount sufficient to increase total payments to CONTRACTOR to 90 % of the Contract Price (with the balance being retainage), less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with Article 14 of the General Conditions.
- 5.2. Upon final completion and acceptance of the Work in accordance with Article 14 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said Article 14.

Article 6. INTEREST.

All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum rate allowed by law at the place of the Project.

Article 7. CONTRACTOR'S REPRESENTATIONS.

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

- 7.1. CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in paragraph 8) and the other related data identified in the Bidding Documents including "technical data."
- 7.2. 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, performance or furnishing of the Work.
- 7.3. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

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- 7.4. CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02.1 of the General Conditions. CONTRACTOR accepts the determination set forth in paragraph 4.02 of the Instruction for Bidders of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in paragraph 4.02 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract.
- 7.5. 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.
- 7.6. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- 7.7. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Article 8. CONTRACT DOCUMENTS.

The Contract Documents that comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 8.1. This Agreement (pages 1 to 6 , inclusive).
- 8.2. Exhibits to this Agreement include: Prevailing Wages (page 1 to 7 , inclusive)
- 8.3. Performance, Payment, and other Bonds.
- 8.4. Notice to Proceed.
- 8.5. General Conditions (pages 1 to 53 , inclusive).
- 8.6. Supplementary Conditions (pages 1 to 2 , inclusive).
- 8.7. Technical Specifications bearing the title: "LAKESIDE ESTATES PUMP STATION"

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- 8.8. Drawings consisting of a cover sheet and sheets numbered 1 through 10 , inclusive with each sheet bearing the following general title: LAKESIDE ESTATES PUMP STATION AND FORCE MAIN
- 8.9. Addenda numbers _____ to _____, inclusive.
- 8.10. CONTRACTOR's Bid Form (pages 1 to 6 , inclusive) marked Section 004100.
- 8.11. Documentation submitted by CONTRACTOR prior to Notice of Award (pages _____ to _____, inclusive).
- 8.12. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to Article 3 of the General Conditions.

The documents listed in paragraphs 8.2 et seq. above are attached to this agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Article 3 of the General Conditions.

Article 9. Miscellaneous.

- 9.1. Terms used in this agreement, which are defined in Article 1 of the General Conditions, will have the meanings indicated in the General Conditions.
- 9.2. No assignment by a party hereto of any rights under or interests in the Contract Documents 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.
- 9.3. 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.
- 9.4. Any provisions 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 provisions or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

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IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, 20____ (which is the Effective Date of the Agreement).

OWNER _____

CONTRACTOR _____

By: _____

By: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest _____

Attest _____

Address for giving notices:

Address for giving notices:

(If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement).

License No. _____

Agent for service of process: _____

(If CONTRACTOR is a corporation, attach evidence of authority to sign).

SECTION 005500 – NOTICE TO PROCEED

Dated _____

To: _____
(CONTRACTOR)

ADDRESS: _____

PROJECT _____

OWNER'S CONTRACT NO. _____

CONTRACT FOR _____

(Insert Name of Contract as it appears in the Bidding Documents)

You are notified that the Contract Times under the above contract will start to run on:

By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of the Agreement the dates of (1) Substantial Completion and (2) completion and readiness for final payment are:

(1) _____

(2) _____

Before you may start any Work at the site, paragraph 2.7 of the General Conditions provides that you and Owner must each deliver to the other (with copies to ENGINEER and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also before you may start any Work at the site, you must
(add other requirements)

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(OWNER)

By:

(AUTHORIZED SIGNATURE)

(TITLE)

ACCEPTANCE OF AWARD

By:

(CONTRACTOR)

(AUTHORIZED SIGNATURE)

(TITLE)

(DATE)

Copy to:
ENGINEER

SECTION 006000 – CONSTRUCTION PERFORMANCE BOND

Construction 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 Principal Place of Business):

CONTRACTOR (Name and Address):

OWNER (Name and Address):

CONSTRUCTION CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Construction Contract Date):

Amount:

Modifications to this Bond Form:

CONTRACTOR AS PRINCIPAL
Company: _____ (Corp. Seal)

SURETY
Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title:

CONTRACTOR AS PRINCIPAL
Company: _____ (Corp. Seal)

SURETY
Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title:

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

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3. If there is no Owner default, the Surety's obligation under this Bond shall arise after:

The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held no later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and

The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and

The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1 - Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

4.2 - Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

4.3 - Obtain bids or negotiate proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's Default; or

4.4 - Waive the right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

a) After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefore to the Owner; or

b) Deny liability in whole or in part and notify the Owner citing reasons therefore.

5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6. After the owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2 or 4.3 above, then the responsibilities of

LAKESIDE ESTATES PUMP STATION AND FORCE MAIN
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the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but not subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from actions or failure to act of the Surety under Paragraph 4; and Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction 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 the Owner or its Heirs, executors, administrators or successors.
8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
9. 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 the Contractor ceased working or within two years after the 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.
10. The Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal 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.
12. DEFINITIONS

Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowances to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

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

Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

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

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SECTION 006100 – CONSTRUCTION PAYMENT BOND

Construction 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 Principal Place of Business):

CONTRACTOR (Name and Address):

OWNER (Name and Address):

CONSTRUCTION CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Construction Contract Date):

Amount:

Modifications to this Bond Form:

CONTRACTOR AS PRINCIPAL
Company: _____ (Corp. Seal)

SURETY
Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title:

CONTRACTOR AS PRINCIPAL
Company: _____ (Corp. Seal)

SURETY
Company: _____ (Corp. Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title:

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

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

Promptly makes payment, directly or indirectly, for all sums due Claimants, and Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

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

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

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

Claimants who do not have a direct contact with the Contractor:

- a) Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the 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 were furnished or supplied or for whom the labor was done or performed; and
- b) Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
- c) Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5. If a notice, as per the requirements of Paragraph 4, is given by the Owner to the Contractor or to the Surety, this is considered sufficient compliance.

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

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

Pay or arrange for payment of any undisputed amounts.

7. The 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 the Surety.

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8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The 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.
10. The Surety hereby waives notice of any changes, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
11. 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 notice required by Subparagraph 4.1 or Clause 4.2(iii), 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 Construction 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.
12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in the Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal 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.
14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
15. DEFINITIONS

Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the 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 Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the 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.

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

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

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STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT

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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*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer 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 Engineer 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).

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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 Engineer'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 Engineer 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. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer 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.

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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 Engineer 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 Engineer, 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.

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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, material man, 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 Engineer 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 Engineer. 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 Engineer 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 Engineer 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.

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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 Engineer’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.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

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.

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2.03 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

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 Engineer 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. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- 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.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer 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 Engineer.
1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer 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.

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2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer 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 Engineer 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 Engineer, 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, Engineer, 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 Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer 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

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promptly report it to Engineer 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 Engineer 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. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 3. Engineer'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 Engineer and specific written verification or adaptation by Engineer.
- 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 Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, 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 Supplementary 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

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Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “technical data,” Contractor may not rely upon or make any claim against Owner or Engineer, 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.

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;

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 Engineer 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. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer 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 Engineer’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.

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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 Engineer, 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 Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
1. Owner and Engineer 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 Engineer. Engineer 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

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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 Engineer 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 Engineer'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 Engineer 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 Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- 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 Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, 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)

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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 Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, 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 Engineer, 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 Engineer, 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. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the

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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.

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 Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary 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 Supplementary 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*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is

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to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

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6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees,

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agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

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- 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 Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

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

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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 Engineer 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 Engineer 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 Engineer.

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 incorporated into the Work shall be as specified or, if not specified, shall be of good quality and 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 Engineer, 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 Engineer 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 Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer'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 Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer'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 Engineer 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 Engineer'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 Engineer 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 Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer 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:

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- a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
- 2) will state:
- a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) 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
 - c) 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:
- a) all variations of the proposed substitute item from that specified, and
 - b) 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 Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer'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 Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- 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. *Engineer's Cost Reimbursement:* Engineer will record Engineer'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 Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer 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.

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- 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, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer 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 Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer 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 Engineer 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 or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the

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Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

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 Engineer, 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 Engineer, 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 Supplementary 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.

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 Engineer 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

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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.

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 Engineer, 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, Engineer, 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.

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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 Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer 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 Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer'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 Engineer 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 Engineer 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).

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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 Engineer 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 Engineer 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 Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer 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 Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer 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 Engineer may require to enable Engineer 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 Engineer'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 Engineer 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 Engineer for review and approval of each such variation.

D. Engineer's Review:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer'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. Engineer'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. Engineer'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 Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer'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 Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval.

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Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer 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 and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer 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 Engineer;
2. recommendation by Engineer or payment by Owner of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by Engineer 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 Engineer;
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 Engineer, 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

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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 Engineer 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 Engineer and Engineer'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.

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 Engineer 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 Engineer.
- C. Owner and Engineer 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 Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer'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. Engineer'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.
- 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 Engineer 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 Engineer 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 Supplementary 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 Supplementary 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.

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- 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. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

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. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

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.

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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 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer 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, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer'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, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer 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.

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9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer 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 Supplementary 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 Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer 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. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer 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. Engineer 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 Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer'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 Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

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

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

- A. Engineer 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 Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer 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 Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer'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, Engineer 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 Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer 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 Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer 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. Engineer 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. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer 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. Engineer'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, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer 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 and Contractor shall execute appropriate Change Orders recommended by Engineer 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 Engineer 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. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer 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 Engineer 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 Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer 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 Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action*: Engineer 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 Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer'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

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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 Engineer, 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 Engineer, 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

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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 Engineer 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 Engineer.

B. *Cash Allowances:*

- 1. Contractor agrees that:

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- 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 Engineer 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 Engineer 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 adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

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- 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 adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- 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.

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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, Engineer, 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, Engineer, 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 Engineer 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, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, 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.

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13.03 *Tests and Inspections*

- A. Contractor shall give Engineer 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. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- 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 Engineer 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 Engineer'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 Engineer.
- 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 Engineer, Contractor shall, if requested by Engineer, 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 Engineer timely notice of Contractor's intention to cover the same and Engineer 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 Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer 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); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

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- 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 workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, 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 rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

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 Engineer, 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.

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- 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 Engineer's recommendation of final payment, Engineer) 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 Engineer 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 Engineer'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 Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer 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 Engineer and Engineer'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

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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 Engineer. 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 Engineer 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.

B. *Review of Applications:*

1. Engineer 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 Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer'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

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- 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 Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer 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 Engineer 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 Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - 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. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer 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 Engineer'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. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

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C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer'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 Engineer 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 Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) 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 ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative

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certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. 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 on the tentative list.

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, Engineer, 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 Engineer 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 Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer 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 Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer 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.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and 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 Engineer, 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. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer 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 Engineer, less any sum Owner is entitled to set off against Engineer'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 Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, 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 Engineer 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 Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 - 2. 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.

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 and Engineer 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 Engineer; 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:

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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 Engineer as to their reasonableness and, when so approved by Engineer, 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 and Engineer, 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.
- B. 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.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer 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.
- B. 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.
- C. If the Claim is not resolved by mediation, Engineer'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

17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

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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, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. 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. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. 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.

17.04 *Survival of Obligations*

- A. 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.

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 008000 – SUPPLEMENTARY CONDITIONS

Introduction

These Supplementary Conditions amend or supplement the General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

Defined Terms

The terms used in these Supplementary Conditions that are defined in the Standard General Conditions of the Construction Contract have the meanings assigned to them in the General Conditions.

SC - 4.02 (Subsurface and Physical Conditions)

- A. Delete Paragraphs 4.02.A and 4.02.B in their entirety and insert the following:
 - 1. No reports of explorations or tests of subsurface conditions at or contiguous to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.

SC - 4.06 Hazardous Environmental Conditions

- A. Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:
 - 1. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

SC - 5.04 (Contractor's Liability Insurance)

- A. The CONTRACTOR shall secure and protect City of Mascoutah (OWNER) and its agents from any liability or damage whatsoever, for injury (including death) to any person or property.
- B. The CONTRACTOR and all subcontractors shall at all times during the continuance of work under the contract, including extra work in connection therewith; shall provide the following types of insurance:
 - a. COMPREHENSIVE GENERAL LIABILITY coverage on all Premises and Operations without exclusion, including coverage for Explosion, Collapse and Underground Property Damage, Independent Contractors and Person Injury with minimum limits of liability to be \$1,000,000 per occurrence for Bodily Injury and Property Damage, and \$2,000,000 aggregate at this location.
 - b. COMPREHENSIVE AUTO LIABILITY coverage on all owned, non-owned and hired vehicles under the control of the CONTRACTOR or his Sub-Contractors with the minimum limits of liability to be \$1,000,000 each occurrence for Bodily Injury and Property Damage, and \$1,000,000 aggregate at this location.
 - c. WORKER'S COMPENSATION coverage shall be provided for all operations with the minimum statutory state and federal limits, as well as Employer's Liability Limit to be \$1,000,000 per accident, Disease-Policy Limit, and Disease-Each Employee.
 - d. CONTRACTUAL LIABILITY coverage with minimum limits of liability to be \$1,000,000 each occurrence for Bodily Injury and Property Damage, and \$1,000,000 aggregate at this location.

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- e. UMBRELLA EXCESS LIABILITY coverage over primary insurance with minimum limits of \$5,000,000.

The policy(s) must carry the following endorsement: "City of Mascoutah, Illinois, a public agency; their elected and appointed officials, officers, agents and employees, individually and as elected and appointed officials, officers, agents and employees, in the exercise of their duties" (as additional insured).

- C. All insurance policies shall be issued by companies authorized to do business under the laws of Illinois. Such policies shall contain appropriate endorsement to save and hold harmless City of Mascoutah from any liability or damage whatsoever. To that end, each policy shall name City of Mascoutah as insured. Furthermore, the contractor shall file certified copies of all policies of insurance to be provided by the contractor as provided in this agreement, together with the form of the policies and the companies in which the same are issued, shall be subject to the approval of the Owner.
- D. No change or cancellation in insurance shall be made without ten (10) days written notice to City of Mascoutah.
- E. Compliance by the CONTRACTOR and all subcontractors with the foregoing requirements as to carrying insurance and furnishing certificates shall not relieve the contractor and all subcontractors of their liabilities and obligations under this heading or other hereof.

Indemnity Clause

- A. CONTRACTOR shall indemnify and hold safe and harmless City of Mascoutah (OWNER) and its agents from all suits, actions, claims, demands, interest or payments brought on account of any injuries or damages (including damages for care and loss of services because of bodily injury, sickness or disease including death resulting there from) sustained by any person or property (including employees of the contractor or his subcontractors) in consequence of any neglect, fault, act or failure to act on the part of the CONTRACTOR, his subcontractors, their servants, agents or employees, in the safeguarding or performance of the work undertaken by the CONTRACTOR in this agreement.
- B. CONTRACTOR further agrees to indemnify City of Mascoutah against any costs and attorneys fees incurred as a result of any injuries or damages covered under the foregoing Paragraph A.
- C. CONTRACTOR accordingly agrees to assume all risk and liabilities for accidents or damages that may occur to persons or property during the performance of the work under this agreement and these specifications, by reason of the negligence or carelessness of himself, his agents, his employees or his subcontractors' employees and agents.
- D. Should any other CONTRACTOR or subcontractor having or who shall hereafter have a contract with The City of Mascoutah for the performance of work upon the site sustain any damage through any act or omission of the CONTRACTOR hereunder or through any act or omission such other CONTRACTOR for all such damages and to indemnify and hold City of Mascoutah harmless from all such claims.
- E. This agreement shall be binding on and inure to the benefit of the heirs, executors, administrators, successors and assigns of the respective parties thereof.

END OF SECTION 008000

SECTION 009000 – RELEASE OF LIENS (CONTRACTOR)

WHEREAS, we, the undersigned, have installed or furnished labor, materials, and/or equipment for the installation of _____ installed pursuant to a written agreement dated _____ between the _____ (hereinafter referred to as the OWNER), and _____ (hereinafter referred to as the CONTRACTOR), which said facilities are owned by the OWNER and described and located as follows:

WHEREAS, we the undersigned, have agreed to release any and all claims and liens which we have, or might have, against the OWNER, or said facilities by reason of the labor, materials and equipment furnished by us in connection with said installation:

NOW THESE PRESENTS WITNESS, that we, the undersigned, in consideration of the premises, and of the sum of One Dollar (\$1.00) in hand paid by the said OWNER, at and before the sealing and delivery hereof, the receipt whereof, we do hereby acknowledge, have remised, released and forever quit-claimed, unto the said OWNER, its successors and assigns, any and all manner of liens, claims and demands whatsoever which we now have, or might have, or could have, on or against the said facilities or the OWNER thereof, for work done, or for equipment, or materials furnished in connection with the installation thereof. It is the intent of this release that the OWNER, its successors and assigns shall and may hold, have, use and enjoy the said facilities free and discharged from all liens and demands whatsoever, which we now have, or might have, or could have against the same if these present had not been made.

COMPANY NAME _____ (SEAL)

BY _____
TITLE _____ DATE _____

Sworn to and subscribed before me, a Notary Public, this _____ day of _____, 20_____

Notary Public (SEAL)

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I _____, duly authorized representative of _____, designated as CONTRACTOR, do hereby state that the parties whose names are signed to the attached releases, pages 1 thru _____ are all of the parties who have furnished labor, materials or equipment in connection with the construction of the facilities mentioned above; excepting only such materials as may have been furnished by the OWNER.

Dated _____, 20 _____

Representative's signature

Sworn to and subscribed before me, a Notary Public, this _____ day of _____, 20 _____

Notary Public (SEAL)

SECTION 009100 – RELEASE OF LIENS (SUB-CONTRACTOR)

WHEREAS, we, the undersigned, have installed or furnished labor, materials, and/or equipment for the installation of _____ installed pursuant to a written agreement dated _____ between the _____ (hereinafter referred to as the OWNER), and _____ (hereinafter referred to as the CONTRACTOR), which said facilities are owned by the OWNER and described and located as follows:

WHEREAS, we the undersigned, have agreed to release any and all claims and liens which we have, or might have, against the OWNER, or said facilities by reason of the labor, materials and equipment furnished by us in connection with said installation:

NOW THESE PRESENTS WITNESS, that we, the undersigned, in consideration of the premises, and of the sum of One Dollar (\$1.00) in hand paid by the said OWNER, at and before the sealing and delivery hereof, the receipt whereof, we do hereby acknowledge, have remised, released and forever quit-claimed, unto the said OWNER, its successors and assigns, any and all manner of liens, claims and demands whatsoever which we now have, or might have, or could have, on or against the said facilities or the OWNER thereof, for work done, or for equipment, or materials furnished in connection with the installation thereof. It is the intent of this release that the OWNER, its successors and assigns shall and may hold, have, use and enjoy the said facilities free and discharged from all liens and demands whatsoever, which we now have, or might have, or could have against the same if these present had not been made.

COMPANY NAME _____ (SEAL)

BY _____
TITLE _____ DATE _____

Sworn to and subscribed before me, a Notary Public, this _____ day of _____, 20_____

Notary Public (SEAL)

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Prevailing Wage Rates for St. Clair County effective July 15, 2019

Trade Title	Rg	Type	C	Base	Foreman	Overtime				H/W	Pension	Vac	Trng	Other Ins
						M-F	Sa	Su	Hol					
ASBESTOS ABT-GEN	All	BLD		31.29	31.79	1.5	1.5	2.0	2.0	8.25	13.40	0.00	0.80	
ASBESTOS ABT-MEC	All	BLD		31.75	32.75	1.5	1.5	2.0	2.0	8.00	6.25	2.00	0.55	
BOILERMAKER	All	BLD		36.54	39.04	1.5	1.5	2.0	2.0	7.07	24.08	1.50	1.05	
BRICK MASON	All	BLD		33.38	35.38	1.5	1.5	2.0	2.0	9.10	12.82	0.00	0.87	
CARPENTER	All	ALL		39.58	41.08	1.5	1.5	2.0	2.0	7.42	9.25	0.00	0.50	0.50
CEMENT MASON	All	ALL		34.50	35.50	1.5	1.5	2.0	2.0	9.95	14.50	0.00	0.30	
CERAMIC TILE FINISHER	All	BLD		28.29	28.29	1.5	1.5	2.0	2.0	7.45	6.86	0.00	0.81	
ELECTRIC PWR EQMT OP	All	ALL		45.57	54.94	1.5	1.5	2.0	2.0	6.95	12.76	0.00	0.46	
ELECTRIC PWR GRNDMAN	All	ALL		34.02	54.94	1.5	1.5	2.0	2.0	5.19	9.54	0.00	0.34	
ELECTRIC PWR LINEMAN	All	ALL		52.41	54.94	1.5	1.5	2.0	2.0	7.99	14.69	0.00	0.52	
ELECTRIC PWR TRK DRV	All	ALL		37.20	54.94	1.5	1.5	2.0	2.0	5.68	10.42	0.00	0.37	
ELECTRICIAN	All	ALL		40.70	43.14	1.5	1.5	2.0	2.0	7.99	11.87	0.00	1.02	2.44
ELECTRONIC SYSTEM TECH	All	BLD		34.57	36.57	1.5	1.5	2.0	2.0	3.65	9.79	0.00	0.40	
ELEVATOR CONSTRUCTOR	All	BLD		50.09	56.35	2.0	2.0	2.0	2.0	15.57	17.51	4.50	0.62	
FLOOR LAYER	All	BLD		34.21	34.96	1.5	1.5	2.0	2.0	7.42	9.25	0.00	0.50	0.50
GLAZIER	All	BLD		35.91	37.91	1.5	1.5	2.0	2.0	6.25	11.23	0.00	0.68	
HEAT/FROST INSULATOR	All	BLD		38.86	39.96	1.5	1.5	2.0	2.0	10.50	12.86	0.00	0.75	0.05
IRON WORKER	All	ALL		32.25	34.45	1.5	1.5	2.0	1.5	9.71	16.25	0.00	0.42	
LABORER	N	ALL		31.44	31.94	1.5	1.5	2.0	2.0	8.25	14.05	0.00	0.80	
LABORER	S	ALL		29.05	29.55	1.5	1.5	2.0	2.0	7.28	17.41	0.00	0.80	
MACHINIST	All	BLD		48.93	51.43	1.5	1.5	2.0	2.0	7.68	8.95	1.85	1.32	
MARBLE FINISHER	All	BLD		27.48	0.00	1.5	1.5	2.0	2.0	6.45	5.70	0.00	0.58	
MARBLE MASON	All	BLD		33.38	35.38	1.5	1.5	2.0	2.0	9.10	12.82	0.00	0.87	
MILLWRIGHT	All	ALL		39.58	41.08	1.5	1.5	2.0	2.0	7.42	9.25	0.00	0.50	0.50
OPERATING ENGINEER	All	BLD	1	38.30	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	BLD	2	37.17	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	BLD	3	32.69	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	BLD	4	32.75	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	BLD	5	32.42	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	BLD	6	40.85	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	BLD	7	41.15	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	

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OPERATING ENGINEER	All	BLD	8	41.43	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	BLD	9	39.30	41.30	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	1	36.80	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	2	35.67	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	3	31.19	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	4	31.25	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	5	30.92	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	6	39.35	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	7	39.65	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	8	39.93	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
OPERATING ENGINEER	All	HWY	9	37.80	39.80	1.5	1.5	2.0	2.0	12.85	18.25	0.00	1.05	
PAINTER	All	BLD		31.25	32.75	1.5	1.5	2.0	2.0	6.05	11.42	0.00	0.70	
PAINTER	All	HWY		32.45	33.95	1.5	1.5	2.0	2.0	6.05	11.42	0.00	0.70	
PAINTER OVER 30 FT.	All	BLD		32.25	33.75	1.5	1.5	2.0	2.0	6.05	11.42	0.00	0.70	
PAINTER PWR EQMT	All	BLD		32.25	33.75	1.5	1.5	2.0	2.0	6.05	11.42	0.00	0.70	
PAINTER PWR EQMT	All	HWY		33.45	34.95	1.5	1.5	2.0	2.0	6.05	11.42	0.00	0.70	
PILEDRIIVER	All	ALL		39.58	41.08	1.5	1.5	2.0	2.0	7.42	9.25	0.00	0.50	0.50
PIPEFITTER	NW	BLD		40.25	44.25	1.5	1.5	2.0	2.0	8.04	9.80	0.00	1.55	
PIPEFITTER	SE	BLD		39.55	42.05	1.5	1.5	2.0	2.0	9.40	6.10	0.00	1.25	
PLASTERER	All	BLD		33.00	34.50	1.5	1.5	2.0	2.0	9.95	9.75	0.00	0.45	
PLUMBER	NW	BLD		39.35	41.85	1.5	1.5	2.0	2.0	7.70	8.00	0.00	1.25	
PLUMBER	SE	BLD		39.55	42.05	1.5	1.5	2.0	2.0	9.40	6.10	0.00	1.25	
ROOFER	All	BLD		33.30	35.30	1.5	1.5	2.0	2.0	9.10	8.90	0.00	0.41	
SHEETMETAL WORKER	All	ALL		34.94	36.44	1.5	1.5	2.0	2.0	9.65	8.94	2.10	0.54	0.35
SPRINKLER FITTER	All	BLD		42.31	45.31	1.5	2.0	2.0	2.0	8.72	12.95	0.00	1.10	
TERRAZZO FINISHER	All	BLD		31.24	0.00	1.5	1.5	2.0	2.0	6.45	4.37	0.00	0.42	
TERRAZZO MASON	All	BLD		32.53	32.83	1.5	1.5	2.0	2.0	6.45	5.87	0.00	0.45	
TRUCK DRIVER	All	ALL	1	38.17	42.29	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
TRUCK DRIVER	All	ALL	2	38.71	42.29	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
TRUCK DRIVER	All	ALL	3	39.01	42.29	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
TRUCK DRIVER	All	ALL	4	39.34	42.29	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
TRUCK DRIVER	All	ALL	5	40.39	42.29	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
TRUCK DRIVER	All	O&C	1	30.54	33.83	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
TRUCK DRIVER	All	O&C	2	30.97	33.83	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
TRUCK DRIVER	All	O&C	3	31.21	33.83	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
TRUCK DRIVER	All	O&C	4	31.47	33.83	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	

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TRUCK DRIVER	All	O&C	5	32.31	33.83	1.5	1.5	2.0	2.0	13.00	6.60	0.00	0.25	
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Legend

Rg Region

Type Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers

C Class

Base Base Wage Rate

OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.

OT Sa Overtime pay required for every hour worked on Saturdays

OT Su Overtime pay required for every hour worked on Sundays

OT Hol Overtime pay required for every hour worked on Holidays

H/W Health/Welfare benefit

Vac Vacation

Trng Training

Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations ST. CLAIR COUNTY

LABORERS (NORTH) - The area bounded by Route 159 to a point south of Fairview Heights and west-southwest to Route 3 at Monroe County line.

PLUMBERS & PIPEFITTERS (SOUTHEAST) - That part of the county bordered by Rt. 50 on the North and West including Belleville.

PLUMBERS (NORTHWEST) - Towns of Aloraton, Brooklyn, Cahokia, Caseyville, Centreville, Dupo, East Carondelet, E. St. Louis, Fairview Heights, French Village, National City, O'Fallon, Sauget, and Washington Park.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

Oil and chip resealing (O&C) means the application of road oils and liquid asphalt to coat an existing road surface, followed by application of aggregate chips or gravel to coated surface, and subsequent rolling of material to seal the surface.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER AND MARBLE FINISHER

The handling, at the building site, of all sand, cement, tile, marble or stone and all other materials that may be used and installed

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by [a] tile layer or marble mason. In addition, the grouting, cleaning, sealing, and mixing on the job site, and all other work as required in assisting the setter. The term "Ceramic" is used for naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

ELECTRONIC SYSTEMS TECHNICIAN

Installation, service and maintenance of low-voltage systems which utilizes the transmission and/or transference of voice, sound, vision, or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background/foreground music, intercom and telephone interconnect, field programming, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school, intercom and sound burglar alarms and low voltage master clock systems.

Excluded from this classification are energy management systems, life safety systems, supervisory controls and data acquisition systems not intrinsic with the above listed systems, fire alarm systems, nurse call systems and raceways exceeding fifteen feet in length.

OPERATING ENGINEER - BUILDING

GROUP I. Cranes, Dragline, Shovels, Skimmer Scoops, Clamshells or Derrick Boats, Pile Drivers, Crane-Type Backhoes, Asphalt Plant Operators, Concrete Plant Operators, Dredges, Asphalt Spreading Machines, All Locomotives, Cable Ways or Tower Machines, Hoists, Hydraulic Backhoes, Ditching Machines or Backfiller, Cherrypickers, Overhead Cranes, Roller - Steam or Gas, Concrete Pavers, Excavators, Concrete Breakers, Concrete Pumps, Bulk Cement Plants, Cement Pumps, Derrick-Type Drills, Boat Operators, Motor Graders or Pushcats, Scoops or Tournapulls, Bulldozers, Endloaders or Fork Lifts, Power Blade or Elevating Graders, Winch Cats, Boom or Winch Trucks or Boom Tractors, Pipe Wrapping or Painting Machines, Asphalt Plant Engineer, Journeyman Lubricating Engineer, Drills (other than Derrick Type), Mud Jacks, or Well Drilling Machines, Boring Machines or Track Jacks, Mixers, Conveyors (Two), Air Compressors (Two), Water Pumps regardless of size (Two), Welding Machines (Two), Siphons or Jets (Two), Winch Heads or Apparatuses (Two), Light Plants (Two), All Tractors regardless of size (straight tractor only), Fireman on Stationary Boilers, Automatic Elevators, Form Grading Machines, Finishing Machines, Power Sub-Grader or Ribbon Machines, Longitudinal Floats, Distributor Operators on Trucks, Winch Heads or Apparatuses (One), Mobil Track air and heaters (two to five), Heavy Equipment Greaser, Relief Operator, Assistant Master Mechanic and Heavy Duty Mechanic, self-propelled concrete saws of all types and sizes with their attachments, gob-hoppers, excavators all sizes, the repair and greasing of all diesel hammers, the operation and set-up of bidwells, water blasters of all sizes and their clutches, hydraulic jacks where used for hoisting, operation of log skidders, iceolators used on and off of pipeline, condor cranes, bow boats, survey boats, bobcats and all their attachments, skid steer loaders and all their attachments, creter cranes, batch plants, operator (all sizes), self propelled roto mills, operation of conveyor systems of any size and any configuration, operation, repair and service of all vibratory hammers, all power pacs and their controls regardless of location, curtains or brush burning machines, stump cutter machines, Nail launchers when mounted on a machine or self-propelled, operation of con-cover machines, and all Operators except those listed below).

GROUP II. Assistant Operators.

GROUP III. Air Compressors (One), Water Pumps, regardless of Size (One), Waterblasters (one), Welding Machine (One), Mixers (One Bag), Conveyor (One), Siphon or Jet (One), Light Plant (One), Heater (One), Immobile Track Air (One), and Self Propelled Walk-Behind Rollers.

GROUP IV. Asphalt Spreader Oilers, Fireman on Whirlies and Heavy Equipment Oilers, Truck Cranes, Dredges, Monigans, Large Cranes - (Over 65-ton rated capacity) Concrete Plant Oiler, Blacktop Plant Oiler, and Creter Crane Oiler (when required).

GROUP V. Oiler.

GROUP VI. Operators on equipment with Booms,including jibs, 100 feet and over, and less than 150 feet long.

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GROUP VII. Operators on equipment with Booms, including jibs, 150 feet and over, and less than 200 feet long.

GROUP VIII. Operators on Equipment with Booms, including jibs, 200 feet and over; Tower Cranes; and Whirlie Cranes.

GROUP IX. Master Mechanic

OPERATING ENGINEERS - Highway

GROUP I. Cranes, Dragline, Shovels, Skimmer Scoops, Clamshells or Derrick Boats, Pile Drivers, Crane-Type Backhoes, Asphalt Plant Operators, Concrete Plant Operators, Dredges, Asphalt Spreading Machines, All Locomotives, Cable Ways or Tower Machines, Hoists, Hydraulic Backhoes, Ditching Machines or Backfiller, Cherrypickers, Overhead Cranes, Roller - Steam or Gas, Concrete Pavers, Excavators, Concrete Breakers, Concrete Pumps, Bulk Cement Plants, Cement Pumps, Derrick-Type Drills, Boat Operators, Motor Graders or Pushcats, Scoops or Tournapulls, Bulldozers, Endloaders or Fork Lifts, Power Blade or Elevating Graders, Winch Cats, Boom or Winch Trucks or Boom Tractors, Pipe Wrapping or Painting Machines, Asphalt Plant Engineer, Journeyman Lubricating Engineer, Drills (other than Derrick Type), Mud Jacks, Well Drilling Machines, Boring Machines, Track Jacks, Mixers, Conveyors (Two), Air Compressors (Two), Water Pumps regardless of size (Two), Welding Machines (Two), Siphons or Jets (Two), Winch Heads or Apparatuses (Two), Light Plants (Two), All Tractors regardless of size (straight tractor only), Fireman on Stationary Boilers, Automatic Elevators, Form Grading Machines, Finishing Machines, Power Sub-Grader or Ribbon Machines, Longitudinal Floats, Distributor Operators on Trucks, Winch Heads or Apparatuses (One), Mobil Track air and heaters (two to five), Heavy Equipment Greaser, Relief Operator, Assistant Master Mechanic and Heavy Duty Mechanic, self-propelled concrete saws of all types and sizes with their attachments, gob-hoppers, excavators all sizes, the repair and greasing of all diesel hammers, the operation and set-up of bidwells, water blasters of all sizes and their clutches, hydraulic jacks where used for hoisting, operation of log skidders, iceolators used on and off of pipeline, condor cranes, bow boats, survey boats, bobcats and all their attachments, skid steer loaders and all their attachments, creter cranes, batch plants, operator (all sizes), self propelled roto mills, operation of conveyor systems of any size and any configuration, operation, repair and service of all vibratory hammers, all power pacs and their controls regardless of location, curtains or brush burning machines, stump cutter machines, Nail launchers when mounted on a machine or self-propelled, operation of con-cover machines, and all Operators (except those listed below).

GROUP II. Assistant Operators.

GROUP III. Air Compressors (One), Water Pumps, regardless of Size (One), Waterblasters (one), Welding Machine (One), Mixers (One Bag), Conveyor (One), Siphon or Jet (One), Light Plant (One), Heater (One), Immobile Track Air (One), and Self Propelled Walk-Behind Rollers.

GROUP IV. Asphalt Spreader Oilers, Fireman on Whirlies and Heavy Equipment Oilers, Truck Cranes, Dredges, Monigans, Large Cranes - (Over 65-ton rated capacity) Concrete Plant Oiler, Blacktop Plant Oiler, and Creter Crane Oiler (when required).

GROUP V. Oiler.

GROUP VI. Operators on equipment with Booms, including jibs, 100 feet and over, and less than 150 feet long.

GROUP VII. Operators on equipment with Booms, including jibs, 150 feet and over, and less than 200 feet long.

GROUP VIII. Operators on Equipment with Booms, including jibs, 200 feet and over; Tower Cranes; and Whirlie Cranes.

GROUP IX. Mechanic

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION Class 1. Drivers on 2 axle trucks hauling less than 9 ton. Air compressor and welding machines and brooms, including those pulled by separate units, truck driver helpers, warehouse employees, mechanic helpers, greasers and tiremen, pickup trucks when hauling materials, tools, or workers to and from and on-the-job site, and fork lifts up to 6,000 lb. capacity.

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Class 2. Two or three axle trucks hauling more than 9 ton but hauling less than 16 ton. A-frame winch trucks, hydrolift trucks, vactor trucks or similar equipment when used for transportation purposes. Fork lifts over 6,000 lb. capacity, winch trucks, four axle combination units, and ticket writers.

Class 3. Two, three or four axle trucks hauling 16 ton or more. Drivers on water pulls, articulated dump trucks, mechanics and working forepersons, and dispatchers. Five axle or more combination units.

Class 4. Low Boy and Oil Distributors.

Class 5. Drivers who require special protective clothing while employed on hazardous waste work. TRUCK DRIVER - OIL AND CHIP RESEALING ONLY.

This shall encompass laborers, workers and mechanics who drive contractor or subcontractor owned, leased, or hired pickup, dump, service, or oil distributor trucks. The work includes transporting materials and equipment (including but not limited to, oils, aggregate supplies, parts, machinery and tools) to or from the job site; distributing oil or liquid asphalt and aggregate; stock piling material when in connection with the actual oil and chip contract. The Truck Driver (Oil & Chip Resealing) wage classification does not include supplier delivered materials.

TERRAZZO FINISHER

The handling of all materials used for Mosaic and Terrazzo work including preparing, mixing by hand, by mixing machine or transporting of pre-mixed materials and distributing with shovel, rake, hoe, or pail, all kinds of concrete foundations necessary for Mosaic and Terrazzo work, all cement terrazzo, magnesite terrazzo, Do-O-Tex terrazzo, epoxy matrix ter-razzo, exposed aggregate, rustic or rough washed for exterior or interior of buildings placed either by machine or by hand, and any other kind of mixture of plastics composed of chips or granules when mixed with cement, rubber, neoprene, vinyl, magnesium chloride or any other resinous or chemical substances used for seamless flooring systems, and all other building materials, all similar materials and all precast terrazzo work on jobs, all scratch coat used for Mosaic and Terrazzo work and sub-bed, tar paper and wire mesh (2x2 etc.) or lath. The rubbing, grinding, cleaning and finishing of same either by hand or by machine or by terrazzo resurfacing equipment on new or existing floors. When necessary finishers shall be allowed to assist the mechanics to spread sand bed, lay tarpaper and wire mesh (2x2 etc.) or lath. The finishing of cement floors where additional aggregate of stone is added by spreading or sprinkling on top of the finished base, and troweled or rolled into the finish and then the surface is ground by grinding machines.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

- On August 7, 2018, IDOL published changes to the HT/Frost Insulator classification in Alexander County, the Sheetmetal Worker classification in Alexander, Bond, Clay, Clinton, Crawford, Edwards, Effingham, Fayette, Franklin, Gallatin, Greene,

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Hamilton, Hardin, Jackson, Jasper, Jefferson, Jersey, Johnson, Lawrence, Macoupin, Madison, Marion, Massac, Monroe, Montgomery, Perry, Pope, Pulaski, Randolph, Saline, St. Clair, Union, Wabash, Washington, Wayne, White, and Williamson Counties, and the Iron Worker trade in Richland County.

SECTION 011000 – SUMMARY OF WORK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 WORK UNDER THIS CONTRACT

- A. The CONTRACTOR shall furnish all labor, materials, equipment and means to construct the project entitled, “Lakeside Estates Pump Station and Force Main” as shown on the Drawings and described herein. The work includes, but is not limited to, the following:
 - 1. Demolition and removal of existing pavement, sanitary sewer, and appurtenances.
 - 2. Construction of a new sanitary sewer pump station, force main, manholes, and mains including granular backfill and paving.
- B. The above general outline of principal features does not in any way limit the responsibility of the CONTRACTOR to perform all work and furnish the required materials, equipment, labor, etc., obviously a part of the work and necessary for the proper operation and installation of same, although not specifically indicated in the Contract Documents.
- C. Materials, equipment, labor, etc., obviously a part of the work and necessary for the proper operation and installation of same, although not specifically indicated in the Contract Documents, shall be provided as if called for in detail without additional cost to the OWNER.

1.3 LOCATION

- A. The work shall be performed in the City of Mascoutah within the public right-of-way of Eisenhower Street and McKinley Street as coordinated with the OWNER, and as shown on the Construction Drawings.
- B. All parts of the work performed by the CONTRACTOR shall be performed within those limits, unless the CONTRACTOR has obtained specific written approval of the property owner involved and the OWNER.

1.4 CHANGE PROCEDURES

- A. The ENGINEER may issue to CONTRACTOR a Proposal Request which includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Times for executing the change and the period of time during which the requested price will be considered valid. CONTRACTOR will prepare and submit an estimate within 10 working days. The estimate shall contain a detailed breakdown of the labor, equipment, material, subcontract, equipment rental, contingencies, overhead, and profit costs associated

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with the requested change. The estimate shall also include any requested adjustments to Contract Times including the window of time the OWNER has to render decision on the matter.

1.5 DEFINED TERMS

- A. Terms used in these Specifications which are defined in the General Conditions of the Contract Documents shall have the meanings assigned to them in the General Conditions.

1.6 PAYMENT

- A. All work required under this Section shall be paid for at the unit prices as found in the bid schedule. These unit prices shall include all work described in this Section and no additional compensation will be allowed for any cost incurred.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.1 FIELD SURVEY WORK

- A. The CONTRACTOR shall provide engineering surveys to establish reference points for construction as provided in Article 4.05 of the General Conditions.
- B. Should the CONTRACTOR detect a discrepancy between the information as presented in the Contract Drawings and any existing survey gridwork, bench marks, structures, etc., the CONTRACTOR shall notify the ENGINEER immediately. New construction shall not commence until accurate control base lines and bench marks have been established.
- C. The CONTRACTOR shall throughout the course of the project, provide a representative to set all stakes which are needed for offset stakes, slope stakes, pavement and curb line and grade stakes, stakes for structures, sewers, utilities, roadway drainage, pipe underdrains, paved gutter, fence, culverts, or other structures, supplementary bench marks, and any other horizontal or vertical controls necessary to secure a correct layout for construction of the work.
- D. It shall be the CONTRACTOR's responsibility that the finished work conform to the lines, grades, elevations and dimensions called for in the Contract Documents. The Work shall be subject to checking by the ENGINEER, but any inspection or checking of CONTRACTOR's layout by the ENGINEER and the acceptance of all or part of it shall not relieve the CONTRACTOR of his responsibility to secure the proper dimensions, grades, elevations and locations on the several parts of the Work.
- E. Prior to the commencement of any Work activity, the CONTRACTOR shall survey and layout the work to be performed and advise the ENGINEER of any conflicts,

obstructions, concerns, etc. which will prevent completion of such work in accordance with the requirements of the Contract Documents. If the CONTRACTOR fails to conduct such survey and layout or if the survey and layout fails to identify a conflict obstruction, etc., which it reasonably should have, and a conflict obstruction, concern, etc., is discovered, the CONTRACTOR shall bear the cost of any standby time for labor and/or equipment which occurs pending the ENGINEER's direction and the cost of rework of any Work installed which is affected by the conflict, obstruction, etc.

- F. Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the work, the CONTRACTOR shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

3.2 COORDINATION AND MEETING

- A. The CONTRACTOR will be required to coordinate his work, to phase the construction operations, and provide, install and maintain any temporary connections necessary to prevent interference to operation of OWNER's facilities. Any construction work requiring the shut-down of facilities must be scheduled and performed only at such times as shall be authorized by the ENGINEER. Such work must be completed during the specific periods authorized by the OWNER. It may be necessary that work will be performed during several shut-down periods and/or during periods of premium time payment to accomplish the desired construction. All costs to perform the CONTRACTOR's work, including premium time payments, shall be borne by the CONTRACTOR and are included in the Contract price.
- B. In addition to the above, the CONTRACTOR shall:
 - 1. Coordinate scheduling, submittals, and work of the various sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodation items installed later.
 - 2. CONTRACTOR shall not have exclusive occupancy of the site of work. Other contractors and the OWNER's employees may enter and perform work on the site. The OWNER and others will conduct their work in such a manner as not to interfere with the work of the CONTRACTOR and the same courtesy is expected of the CONTRACTOR.

3.3 PROTECTION OF EXISTING FACILITIES

- A. CONTRACTOR shall take particular note to existing facilities and take all reasonable precautions to prevent damage to them. Any existing facilities damage by the CONTRACTOR's carelessness or negligence shall be repaired or replaced by the CONTRACTOR at no additional cost to the OWNER.
- B. CONTRACTOR shall determine the location of all existing underground utility structures, such as gas, electric, telephone, cable T.V., waterlines, storm sewers, and sanitary sewer line before actual construction commences.

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END OF SECTION 011000

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SECTION 011100 – DRAWING INDEX

PART 1 – GENERAL

1.1 DRAWINGS

The following drawings, dated August 13, 2020, prepared by Millennia Professional Services of Illinois, Ltd., accompany this Specification and are part of the Contract Documents.

INDEX OF SHEETS

1. Cover
2. Existing Conditions and Demolition Plan
3. Force Main Plan and Profile
4. Sanitary and Storm Sewer Profiles
5. Pump Station Site Plan
6. Pump Station Details
7. Control Panel Details
8. Control Panel Installation Details
9. Miscellaneous Details
10. Pump Electrical Site Plan

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 011100

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SECTION 012600 – CONTRACT MODIFICATION

No. _____

PROJECT _____
 DATE OF ISSUANCE _____ EFFECTIVE DATE _____

OWNER _____
 OWNER's Contract No. _____
 CONTRACTOR _____ ENGINEER _____

You are directed to proceed promptly with the following change(s):

Description:

Purpose of Work Change Directive:

Attachments: (List documents supporting change)

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price \$ _____	Original Contract Times Substantial Completion _____ Ready for final payment: _____ <div style="text-align: right;">days or dates</div>
Net changes from previous Change Orders No. _____ to No. _____ \$ _____	Net changes from previous Change Orders No. _____ to No. _____ _____ <div style="text-align: right;">days</div>
Contract Price prior to the Change Order \$ _____	Contract Price prior to the Change Order Substantial Completion _____ Ready for final payment: _____ <div style="text-align: right;">days or dates</div>
Net Increase (or decrease) of this Change Order \$ _____	Net Increase (or decrease) of this Change Order _____ <div style="text-align: right;">days</div>
Contract Price with all approved Change Orders \$ _____	Contract Price with all approved Change Orders Substantial Completion _____ Ready for final payment: _____ <div style="text-align: right;">days or dates</div>

RECOMMENDED:
 By: _____
 Engineer (Authorized Signature)
 Date: _____

APPROVED:
 By: _____
 Owner (Authorized Signature)
 Date: _____

ACCEPTED:
 By: _____
 Contractor (Authorized Signature)
 Date: _____

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SECTION 012900 – APPLICATION FOR PAYMENT

APPLICATION FOR PAYMENT NO. _____

To _____ (OWNER)

Contract for _____

OWNER's Contract No. _____ ENGINEER's Project No. _____

For Work accomplished through the date of _____

ITEM	CONTRACTOR's Schedule of Values			Work Completed	
	Unit Price	Quantity	Amount	Quantity	Amount
	\$	\$	\$	\$	\$
TOTAL (Orig. Contract) C.O. No. 1 C.O. No. 2			\$		\$

Accompanying Documentation:	GROSS AMOUNT DUE	\$ _____
	LESS ____ % RETAINAGE	\$ _____
	AMOUNT DUE TO DATE	\$ _____
	LESS PREVIOUS PAYMENTS	\$ _____
	AMOUNT DUE THIS APPLICATION	\$ _____

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CONTRACTOR's Certification:

The undersigned CONTRACTOR certifies that: (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied to discharge in full all obligations of CONTRACTOR incurred in connection with Work covered by prior Applications for Payment numbered 1 through _____ inclusive; (2) title to all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all liens, claims, security interest and encumbrances (except such as are covered by Bond acceptable to OWNER indemnifying OWNER against any such lien, claim, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective as that term is defined in the Contract Documents.

Dated _____, 20 _____
_____ CONTRACTOR

By _____
(Authorized Signature)

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____, 20 _____
_____ ENGINEER

By _____
(Authorized Signature)

SECTION 015000 – TEMPORARY FACILITIES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

PART 2 – PRODUCTS

2.1 WATER SUPPLY

- A. The CONTRACTOR shall obtain water as may be required for the purpose of this Contract through direct local arrangements. The CONTRACTOR shall furnish and install all necessary meters, temporary piping and valves in connection with such water supply.

2.2 TEMPORARY HEAT

- A. The CONTRACTOR shall provide approved type heating apparatus with the necessary fuel as may be required for the prosecution of his work. The stored materials and finished work shall be protected at all times from damage by the weather elements.

2.3 ELECTRICAL SUPPLY

- A. The CONTRACTOR shall pay all fees, obtain necessary permits and have meter installed for power and light as may be required for the prosecution of this work.

2.4 TEMPORARY LIGHTING

- A. Provide and maintain incandescent lighting for construction operations and lighting to exterior staging and storage areas as required after dark.

2.5 SANITARY FACILITIES

- A. The CONTRACTOR shall provide temporary facilities and enclosures for the use of workmen and shall maintain in a sanitary condition and remove upon project closeout. The sanitary facilities shall comply with requirements of pertinent health and sanitary codes.

2.6 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

2.7 PROGRESS CLEANING

- A. Maintain areas free of waste, debris and rubbish. Maintain site in a clean and orderly condition. Remove waste, debris and rubbish from site weekly and dispose off-site.

2.7 PAYMENT

- A. All work required under this Section shall be included in the Contract Price.

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PART 3 – EXECUTION

Not Used

END OF SECTION 015000

SECTION 017000 – PROJECT CLOSEOUT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Technical Specification Sections, apply to this Section.

1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record documentation.
 - 6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 7. Complete final cleaning requirements.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1.3 FINAL COMPLETION AND CLOSEOUT PROCEDURE

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for ENGINEER's inspection.
- B. Provide submittals to ENGINEER that are required by governing or other authorities.
- C. Submit final lien waivers, insurance forms, and payroll information as necessary.
- D. Submit application for final payment identifying total adjusted Contract sum, previous payments and sum remaining due.

1.4 GUARANTEES AND WARRANTIES

- A. The CONTRACTOR expressly warrants that all workmanship and materials performed or furnished under this Contract will conform to the Specifications, Drawings, samples and other applicable descriptions furnished or adopted by the CONTRACTOR and with all applicable laws, provisions and requirements of the Contract Documents. The CONTRACTOR shall remedy any defects due to faulty materials or workmanship which shall appear within a period of one (1) year from the date of acceptance of the work hereunder and pay for any damage to other work resulting therefrom. The OWNER shall give notice of observed defects with reasonable promptness. The CONTRACTOR warranty hereunder is in addition to, and not in limitation of, any obligations found elsewhere in the

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Contract Documents, any special guarantees provided by the CONTRACTOR or his suppliers, and any obligations imposed by law.

- B. In addition to the requirements, the CONTRACTOR shall assign material and equipment guarantees and warranties from all manufacturers and suppliers to the OWNER and deliver copies of such guarantees and warranties and the assignments thereof to the OWNER in order to assure the OWNER of the full benefit of such guarantees and warranties.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.1 RESTORATION

- A. The CONTRACTOR shall restore and/or replace paving, curbing, sidewalks, gutters, shrubbery, fences, sod or other disturbed surfaces and structures to a condition equal to that before the work began and to the satisfaction of the ENGINEER and shall furnish all labor and materials incidental thereto except as noted on the drawings and in these documents.

3.2 FINAL CLEANING

- A. Execute final cleaning prior to final inspection. Clean site; sweep paved areas, rake clean landscape surfaces. Remove waste and surplus materials, rubbish and construction facilities from the site.

END OF SECTION 017000

SECTION 017100 – CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____

DATE OF ISSUANCE _____

OWNER _____

OWNER's Contract No. _____

CONTRACTOR _____ ENGINEER's Project No. _____

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the Following specified parts thereof:

TO _____
OWNER

AND TO _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within _____ days of the above date of Substantial Completion.

LAKESIDE ESTATES PUMP STATION AND FORCE MAIN
MASCOUTAH ILLINOIS

From the date of Substantial Completion the responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

RESPONSIBILITIES

OWNER: _____

CONTRACTOR: _____

The following documents are attached to and made a part of this Certificate:

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on _____, 20 _____

ENGINEER
By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____, 20 _____

CONTRACTOR
By: _____
(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on _____, 20 _____

OWNER
By: _____
(Authorized Signature)

SECTION 26 32 13
ENGINE GENERATOR

PART 1 GENERAL

1.1 SUMMARY

- A This section includes the following items from a single supplier:
 - 1. Engine Generator Set.
 - 2. Enclosure
 - 3. Related Accessories as specified

- B Related Requirements
 - 1. It is the intent of this specification to secure an engine-driven generator set that has been prototype tested, factory built, production-tested, and site-tested together with all accessories necessary for a complete installation as shown on the plans and drawings and specified herein.
 - 2. Any exceptions to the published specifications shall be subject to the approval of the engineer and submitted minimum 4 days prior to the closing of the bid with a line by line summary description of all the items of compliance, any items that have been omitted or have been taken exception to, and a complete description of all deviations.
 - 3. It is the intent of this specification to secure a generator set system that has been tested during design verification, in production, and at the final job site. The generator set will be a commercial design and will be complete with all of the necessary accessories for complete installation as shown on the plans, drawings, and specifications herein. The equipment supplied shall meet the requirements of the National Electrical Code and applicable local codes and regulations.
 - 4. All equipment shall be new and of current production by an international, power system manufacturer of generators, transfer switches, and paralleling switchgear. The manufacturer shall be a supplier of a complete and coordinated system. There will be single-source responsibility for warranty, parts, and service through a factory-authorized representative with factory-trained technicians.

1.2 SUBMITTALS

- A Action Submittals
 - 1. Product Data
 - a The submittal shall include prototype test certification and specification sheets showing all standard and optional accessories to be supplied; schematic wiring diagrams, dimension drawings, and interconnection diagrams identifying by terminal number each required interconnection between the generator set, the transfer switch, and the remote annunciator panel if it is included elsewhere in these specifications.
 - 2. Shop Drawings

- B Informational Submittal
 - 1. Certificates
 - a The generator set shall be listed to UL 2200 or submitted to an independent third party certification process to verify compliance as installed.
 - 2. Test and Evaluation Reports
 - 3. Manufacturer's Instruction
 - 4. Source Quality Control Submittals

5. Field or Site Quality Control
6. Manufacturer's Report
7. Special Procedure Submittal
8. Qualification Statement

C Closeout Submittal

1. Maintenance Contracts
2. Operation And Maintenance Data
3. Bonds
4. Warranty Documentation
5. Record Documentation
6. Software

D Maintenance Material Submittals

1. Provide one (1) copy of the following documents and manuals for the engine, the alternator, and the generator set:
 - a) Operation Manuals
 - b) Parts Catalogs
 - c) Wiring Diagrams.

1.3 Quality Assurance

A Regulatory Agency

1. The generator set shall conform to the requirements of the following codes and standards:
 - a CSA C22.2, No. 14-M91 Industrial Control Equipment.
 - b EN50082-2, Electromagnetic Compatibility-Generic Immunity Requirements, Part 2: Industrial.
 - c EN55011, Limits and Methods of Measurement of Radio Interference Characteristics of Industrial, Scientific and Medical Equipment.
 - d IEC8528 part 4, Control Systems for Generator Sets.
 - e IEC Std 61000-2 and 61000-3 for susceptibility, 61000-6 radiated and conducted electromagnetic emissions.
 - f IEEE446 Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications.
 - g NFPA 70, National Electrical Code, Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702.
 - h NFPA 99, Essential Electrical Systems for Health Care Facilities.
 - i NFPA 110, Emergency and Standby Power Systems. The generator set shall meet all requirements for Level 1 systems. Level 1 prototype tests required by this standard shall have been performed on a complete and functional unit. Component level type tests will not substitute for this requirement.
2. Qualifications
 - a The equipment shall be produced by a manufacturer who is ISO 9001 certified for the design, development, production and service of its complete product line.
 - b The power system shall be produced by a manufacturer who has produced this type of equipment for a period of at least 10 years and who maintains a service organization available twenty-four hours a day throughout the year.
3. Manufacturers
 - a The power system shall be furnished by a single manufacturer who shall be responsible for the design, coordination, and testing of the complete system. The entire system shall be installed as shown on the plans, drawings, and specifications herein.
 - b

1.4 Field or Site Conditions

A Ambient Conditions

1. Engine- generator set shall operate in the following conditions without any damage to the unit or its loads.
 - a Ambient Temperature: 100 °F
 - b Altitude : 500 ft
 - c Relative Humidity: 95%

B Existing Conditions

1.5 Warranty or Bond

A Manufacturer's Warranty

1. The generator set shall include a standard warranty covering one (1) year or 2000 hours, whichever occurs first, to guarantee against defective material and workmanship in accordance with the manufacturer's published warranty from the date of initial startup.
2. The generator set manufacturer and its distributor shall maintain a 24-hour parts and service organization. This organization shall regularly engage in maintenance contract programs to perform preventive maintenance and service on equipment similar to that specified. A service agreement shall be available and shall include system operation under simulated operating conditions; adjustment to the generator set, transfer switch, and switchgear controls as required, and certification in the owner's maintenance log of repairs made and functional tests performed on all systems.

PART 2 PRODUCTS

2.0 Acceptable Suppliers

1. Kohler (basis of design)

2. Cummins

3. Caterpillar

4 Pre Approved alternate manufacturers

2.1 Equipment

A Equipment

1. The generator set shall be a Kohler model 40REOZK with a 4P5X alternator. It shall provide 51.25 kVA and 41.00 kW when operating at 120/240 volts, 60 Hz, 0.80 power factor. The generator set shall be capable of a 130°C Standby rating while operating in an ambient condition of less than or equal to 100 °F and a maximum elevation of 500 ft above sea level. The standby rating shall be available for the duration of the outage.

B Engine

1. The minimum 3.4 liter displacement engine shall deliver a minimum of 67 HP at a governed engine speed of 1800 rpm, and shall be equipped with the following:
 - a. Mechanical governor capable of 0.5% steady-state frequency regulation
 - b. 12-volt positive-engagement solenoid shift-starting motor
 - c. 90-ampere automatic battery charging alternator with a solid-state voltage regulation
 - d. Positive displacement, full-pressure lubrication oil pump, cartridge oil filters, dipstick, and oil drain

- e. Dry-type replaceable air cleaner elements for normal applications
 - f. Engine-driven or electric fuel-transfer pump including fuel filter and electric solenoid fuel shutoff valve capable of lifting fuel
 - g. The turbocharged engine shall be fueled by diesel
 - h. The engine shall have a minimum of 4 cylinders and be liquid-cooled
2. The engine shall be EPA certified tier 3 from the factory
 3. The generator must accept rated load in one-step.

C Cooling System

1. The engine shall be liquid-cooled by a closed loop, unit mounted radiator rated to operate the generator set at full load at an ambient temperature of 50 degrees C (122 degrees F). The radiator fan and other rotating engine parts shall be guarded against accidental contact.

D Heavy Duty Air Cleaner

1. The air cleaner shall provide engine air filtration which meets the engine manufacturer's specifications under typical operating conditions.

E Battery

1. Each genset requires a maintenance free BCI group 24 battery which must meet the engine manufactures' specifications for the ambient conditions specified in Part 1 Project Conditions and shall comply with the NFPA requirements for engine cranking cycles. This battery shall be rated according to SAE Standards J-537 with a minimum cold cranking amp of 650 amps and a minimum reserve capacity of 120 Minutes at 80F. The battery plates shall be constructed of a Calcium-Lead alloy to provide long waterless operation and extended battery life. The battery must contain a handle to aid in lifting and the case must be constructed of polypropylene to resist breakage and extend service life.
2. Battery rack and battery cables capable of holding the manufacturer's recommended batteries shall be supplied.

F Housing

1. Level 2 Sound Attenuated Enclosure
 - a The generator set shall be supplied with a Level 2 Sound Attenuated Enclosure, providing a sound level of 63.9 dB(A) while the generator is operating at 100% load at 7 meters (23 feet) using acoustic insulation and acoustic-lined inlet hoods, and constructed from high strength, low alloy 14 gauge galvanized steel. The acoustic insulation used shall meet UL 94 HF1 flammability classification. The enclosure shall be manufactured from bolted panels to facilitate service, future modifications, or field replacement. The enclosure shall use external vertical air inlet and outlet hoods with 90 degree angles to discharge air up and reduce noise. The enclosure shall have an integral rodent guard and skid end caps and shall have bracing to meet 241 kph (150 mph) wind loading.
 - b The enclosure components and skid shall be cleaned with a two-stage alkaline cleaning process to remove grease, grit, and grime from parts. Components shall then be subjected to a Zirconium-based conversion coating process to prepare the metal for electrocoat (e-coat) adhesion. All enclosure parts shall receive an 100% epoxy primer electrocoat (e-coat) with high-edge protection. Following the e-coat process, the parts shall be finish coated with powder baked paint for superior finish, durability, and appearance with a Power Armor™ industrial finish that provides heavy duty durability in harsh conditions, and is fade-, scratch- and corrosion-resistant.
 - c The enclosure must surpass a 3,000 hour salt spray corrosion test per ASTM B-1117.
 - d Enclosures will be finished in the manufacturer's standard color.
 - e The enclosures shall allow the generator set to operate at full load in an ambient temperature of 50°C with no additional derating of the electrical output of the generator set.
 - f Enclosures shall be equipped with sufficient side and end doors to allow access for operation, inspection, and service of the unit and all options. Minimum requirements are two doors per side. When the generator set controller faces the rear of the generator set, an additional rear facing door is required. Access to the controller and main line circuit breaker shall meet the requirements of the National Electric Code.

- g Doors shall be fitted with hinges, hardware, and the doors shall be removable.
 - h Doors shall be equipped with lockable latches. Locks shall be keyed alike. Door locks shall be recessed to minimize potential of damage to door/enclosure.
 - i A duct between the radiator and air outlet shall be provided to prevent re-circulation of hot air.
 - j The complete exhaust system shall be internal to the enclosure.
 - k The critical silencer shall be fitted with a tailpipe and rain cap.
- G Fuel oil storage
1. Double Wall Secondary Containment Sub-base Fuel Tank
 - a The generator set shall be supplied with a sub-base fuel tank of sufficient capacity to hold 133 gallons of diesel fuel.
 - b The sub-base fuel system shall be listed under UL 142, subsection entitled Special Purpose Tanks EFVT category, and will bear their mark of UL Approval according to their particular classification.
 - c The above ground steel secondary containment rectangular tank for use as a sub base for diesel generators is manufactured and intended to be installed in accordance with the Flammable and Combustible Liquids Code—NFPA 30, the Standard for Installation and Use of Stationary Combustible Engine and Gas Turbines—NFPA 37, and Emergency and Standby Power Systems—NFPA 110.
 - d The primary tank shall be rectangular in shape and constructed in clam shell fashion to ensure maximum structural integrity and allow the use of a full throat fillet weld.
 - e Steel Channel Support System. Reinforced steel box channel for generator support, with a load rating of 5,000 lbs. per generator mounting hole location. Full height gussets at either end of channel and at generator mounting holes shall be utilized.
 - f Exterior Finish. The sub-base tank exterior finish shall be Power Armor Plus™, a polyurea-textured rubberized coating.
 - g Normal venting shall be sized in accordance with the American Petroleum Institute Standard No 2000, Venting Atmospheric and Low Pressure Storage Tanks not less than 1-1/4" (3 cm.) nominal inside diameter.
 - h The emergency vent opening shall be sized to accommodate the total capacity of both normal and emergency venting and shall be not less than that derived from NFPA 30, table 2-8, and based on the wetted surface area of the tank. The wetted area of the tank shall be calculated on the basis of 100 percent of the primary tank. The vent is to be spring-pressure operated: opening pressure is 0.5/psig and full opening pressure is 2.5 psig. The emergency relief vent is to be sized to accommodate the total venting capacity of both normal and emergency vents.
 - i There shall be a 2" NPT opening within the primary tank and lockable manual fill cap.
 - j A direct reading, UL listed, magnetic fuel level gauge with a hermetically sealed, vacuum tested dial, to eliminate fogging, shall be provided.
 - k A float switch for remote or local annunciation of a (50% standard) low fuel level condition shall be supplied.
- H Controller
1. Advanced Power Management 402 (APM402) Generator Set Controller
 - a. The generator set controller shall be a microprocessor-based control system that will provide automatic starting, system monitoring, and protection.
 - b. The controller shall be mounted on the generator set and shall have integral vibration isolation. The controller shall be prototype and reliability tested to ensure operation in the conditions encountered.
 2. Codes and Standards
 - a. The generator set controller shall meet NFPA 110 Level 1 requirements and shall include an integral alarm horn as required by NFPA.
 - b. The controller shall meet NFPA 99 and NEC requirements.

- c. The controller shall be UL 508 recognized.
3. Applicability
- a. The controller shall be a standard offering in the manufacturer's controller product line.
 - b. The controller's environmental specification shall be: -40°C to 70°C operating temperature range and 5-95% humidity, non-condensing.
4. Controller Buttons, Display, and Components
- a. The generator set controller shall include the following features and functions:
 - i. Master Control Push Buttons – the buttons shall be tactile-feel membrane with an indicator light to initiate the following functions:
 - 1. Run Mode – when in Run mode the generator set shall start.
 - 2. Off/Reset Mode – when in Off/Reset mode, the generator set shall not accept any remote start commands and shall be capable of resetting all faults, allowing for the restarting of the generator set after a shutdown.
 - 3. Auto Mode – when in Auto mode, the generator set shall be ready to accept a signal from a remote device.
 - ii. Emergency Stop Switch – the latch type stop switch shall be red in color with a “mushroom” type head. Depressing the stop button will immediately stop the generator set and lockout the generator set for any automatic remote starting.
 - iii. Alarm Horn – the horn sounds when any faults or warnings are present. The horn shall also sound when the controller is not in the Auto mode.
 - iv. Push Button/Rotary Selector Dial – the dial shall be used for selection of all menus and sub-menus. Rotating the dial moves through the menus, pushing the dial selects the menu and function/features in the menu.
 - v. Display – the digital display shall be alphanumeric, with 2 lines of data and approximately 24 characters. The display shall have back lighting for ease of operator use in high and low light conditions. The display shall enter a sleep mode to reduce the demand on the battery when the generator set is not running, and the rotary dial is not in use for a period of time. The generator will wake up from sleep mode when the generator set starts, or the rotary dial is in use.
 - vi. Fault Light – the controller shall have an annunciator fault light that glows red for faults and yellow for warnings. The warning light will also illuminate when not in Auto.
 - vii. Alarm Silence/Lamp Test Button – when this button is held, it shall test all controller lamps. This button will also silence the alarm horn when the unit is not Auto or has a fault.
 - viii. Mini-USB Connection – the controller shall have a mini-USB connection port for a PC connection that is accessible on the front of the control panel without having to open any electrical enclosure panels on the generator. This connection shall allow a certified technician to service the generator controller using a dedicated PC program. The program shall allow for servicing of generator set parameters, faults diagnostics and viewing of controller information. The program shall allow

for uploading of software and firmware as well as downloading of parameter settings and the event log.

5. Controller Engine Control Features and Functions
 - a. User-programmable time delay for engine start.
 - b. User-programmable time delay engine cool down.
 - c. Capability to start and run at user-adjustable idle speed during warm-up for a selectable time-period until engine reaches preprogrammed temperature.
 - d. The idle function including engine cooldown at idle speed.
 - e. Output with adjustable timer for an ether injection starting system.
 - f. Programmable cyclic cranking that can adjust on time, off time, and number of cycles.
6. Controller Alternator Control Features and Functions
 - a. Patented High-speed RMS Digital Voltage Regulation – the system shall have integral microprocessor-based voltage regulator system that provides $\pm 0.5\%$ voltage regulation no-load to full load with three phase sensing. A separate voltage regulator is not acceptable. The digital voltage regulator shall be applicable to single- or three-phase systems. The system shall be prototype tested and control variation of voltage to frequency. The voltage regulator shall be adjustable at the controller with maximum $\pm 10\%$ adjustable of nominal voltage.
 - b. Alternator Thermal Overload Protection – the system shall have integral alternator overload and short circuit protection matched to each alternator for the particular voltage and phase configuration.
7. Other Control Features and Functions
 - a. Event Logging – the controller keeps a record of up to 1,000 events with date and time locally for warning and shutdown faults. This event log can be downloaded onto a PC through the service program.
8. Control Monitoring Requirements
 - a. The generator controller shall display and monitor the following engine and alternator functions.
 - i. The following generator set functions shall be monitored:
 1. All output voltages - single phase, three phase, line to line, and line to neutral
 2. All single phase and three phase currents
 3. Output frequency
 4. kVA total and per phase
 5. kW hours
 - ii. Engine parameters listed below shall be monitored (engine dependent):
 1. Engine Speed
 2. Oil Pressure
 3. Coolant Temperature
 4. Battery Voltage
 5. Runtime Hours
 6. Fuel Pressure or Level

7. Fuel Consumption Rate
 - iii. Operational records shall be stored in the control beginning at system startup
 1. Total Run Time Hours
 2. Total Loaded Hours
 3. Total kW Hours
 4. Number of Starts
 - iv. For maintenance and service purposes, the controller shall store and display on demand the information:
 1. Generator Model
 2. Generator Serial Number
 3. Controller Serial Number
9. Generator Set Warning, Shutdown Alarm and Status
- a. The generator set shall have alarms and status indication lamps that show Non-Automatic Status, Warning, and Shutdown conditions. The controller shall indicate with a warning lamp and/or alarm, and on the digital display screen any shutdown, warning, or engine fault condition that exists in the generator set system.
 - b. Conditions, as a minimum, resulting in generator shutdown (engine dependent):
 - i. AC Sensing Loss
 - ii. Alternator Protection
 - iii. ECM Address Conflict
 - iv. ECM Communications Loss
 - v. ECM DTCs
 - vi. Emergence Stop
 - vii. Overspeed
 - viii. Underspeed
 - ix. High Coolant Temperature
 - x. kW Overload
 - xi. Locked Rotor
 - xii. Loss of Fuel
 - xiii. Low Coolant Level
 - xiv. Low Engine Oil Level
 - xv. Low Fuel Level
 - xvi. Low Oil Pressure
 - xvii. No Coolant Temperature Signal
 - xviii. No Oil Pressure Signal
 - xix. Overcrank
 - xx. Overfrequency
 - xxi. Underfrequency
 - xxii. Overvoltage
 - xxiii. Undervoltage
 - c. Conditions, as a minimum, resulting in generator warning (generator will continue to operate) (engine dependent):

- i. AC Sensing Loss (short period of time)
- ii. Battery Charger Communication Loss
- iii. Battery Charger Fault
- iv. Battery Fault
- v. Critical High Fuel Level
- vi. High Fuel Level
- vii. Low Fuel Level or Pressure
- viii. Fuel Tank Leak
- ix. Ground Fault
- x. High Battery Voltage
- xi. Low Battery Voltage
- xii. Low Cranking Voltage
- xiii. High Coolant Temperature
- xiv. Low Coolant Temperature
- xv. Low Engine Oil Level
- xvi. Low Oil Pressure
- xvii. Not in Auto
- xviii. Speed Sensor Fault
- xix. ECM DTCs

10. Inputs and Outputs

- a. Standard Dedicated User Inputs – the controller shall have dedicated inputs for:
 - i. Two-Wire Input
 - 1. Remote Engine Start
 - ii. Digital Input - Fixed
 - 1. Auxiliary Fault (Shutdown)
 - 2. Remote Emergency Stop
 - iii. Digital Input – Programmable
 - 1. 3 Dry Contact
- b. Standard Dedicated User Outputs – the controller shall have dedicated outputs for:
 - i. Relay Driver Output - Programmable
 - 1. 1 Relay
- c. Optional Configurable User Inputs and Outputs
 - i. User Configurable Inputs
 - 1. 2 Dry Contact Digital
 - ii. User Configurable Relay Outputs
 - 1. 5 NO/NC Relays

11. Communications

- a. CAN
 - i. If the generator set engine is equipped with an ECM, the controller shall communicate with the ECM for control, monitoring, diagnosis, and meet SAE J1939 standards.
- b. Modbus®

i. Isolated for Modbus devices

I Generator Overcurrent and Fault Protection

1. The generator shall be provided with a factory installed, 100% rated line circuit breaker rated at 100.00 amperes that is UL489 listed. Line circuit breakers shall be sized for the rated ampacity of the loads served by the breaker per the NEC.
2. The circuit breaker(s) shall incorporate an electronic trip device with the following characteristics:
3. Adjustable long time delay
4. Adjustable short time delay [*As applicable*]
5. Instantaneous
6. Load side lugs shall be provided from the factory. The line circuit breaker shall include auxiliary contacts, shunt trip, undervoltage trip, alarm switch, and overcurrent switch functionality. Load side breaker connections made at the factory shall be separated from field connections.
7. The shunt trip device shall be connected to trip the generator breaker when the generator-set is shut down by other protective devices.
8. When GFI is required per the NEC, additional neutrals shall be factory installed, and the alarm indication shall be integrated with the generator-set alarms.
9. Barriers to provide segregation of wiring from an emergency source to emergency loads from all other wiring and equipment, if required by the NEC, shall be provided.

J Alternator

1. The alternator shall be salient-pole, brushless, 2/3-pitch, with 4 bus bar provision for external connections, self-ventilated, with drip-proof construction and amortisseur rotor windings, and skewed for smooth voltage waveform. The ratings shall meet the NEMA standard (MG1-32.40) temperature rise limits. The insulation shall be class H per UL1446 and the varnish shall be a vacuum pressure impregnated, fungus resistant epoxy. Temperature rise of the rotor and stator shall be limited to 130°C Standby. The PMG based excitation system shall be of brushless construction controlled by a digital, three phase sensing, solid- state, voltage regulator. The AVR shall be capable of proper operation under severe nonlinear loads and provide individual adjustments for voltage range, stability and volts-per-hertz operations. The AVR shall be protected from the environment by conformal coating. The waveform harmonic distortion shall not exceed 5% total RMS measured line-to-line at full rated load. The TIF factor shall not exceed 50.
2. The alternator shall have a maintenance-free bearing, designed for 40000 hour B10 life. The alternator shall be directly connected to the flywheel housing with a semi-flexible coupling between the rotor and the flywheel.
3. The generator shall be inherently capable of sustaining at least 300% of rated current for at least 10 seconds under a 3-phase symmetrical short circuit without the addition of separate current-support devices.
4. Motor starting performance and voltage dip determinations shall be based on the complete generator set. The generator set shall be capable of supplying 138.00 LRKVA for starting motor loads with a maximum instantaneous voltage dip of 35%, as measured by a digital RMS transient recorder in accordance with IEEE Standard 115. Motor starting performance and voltage dip determination that does not account for all components affecting total voltage dip, i.e., engine, alternator, voltage regulator, and governor will not be acceptable. As such, the generator set shall be prototype tested to optimize and determine performance as a generator set system.

K Vibration Isolation

1. Vibration isolators shall be provided between the engine-alternator and heavy-duty steel base.

2.2 Accessories

- A. The generator set shall be supplied with a 10-ampere automatic float/equalize battery charger capable of charging both lead-acid and ni-cad type batteries, with the following features:
 - i. Automatic 3-stage float to equalization charge
 - ii. Voltage regulation of 1% from no to full load over 10% AC input line voltage variations
 - iii. Battery charging current Ammeter and battery voltage voltmeter with 5% full-scale accuracy
 - iv. LED lamp for power ON indication
 - v. Current limited during engine cranking, short circuit, and reverse polarity conditions
 - vi. Temperature compensated for ambient temperatures for -40°C to 60°C
 - vii. Alarm circuit board featuring alarm contacts for low battery voltage, high battery voltage, and battery charger malfunction.
 - viii. UL 1012 Listed
 - ix. CSA Certified
- B. Battery rack and battery cables capable of holding the manufacturer's recommended batteries shall be supplied.
- C. The generator shall be furnished with an externally mounted, recessed, emergency stop switch (break glass, pushbutton style) protected from accidental operation.
- D. The air cleaner restriction indicator shall indicate the need for maintenance of the air cleaners.
- E. Block Heater - The block heater shall be thermostatically controlled, 1,000 watt, 110-120 VAC - single phase, to maintain manufacturers recommended engine coolant temperature to meet the start-up requirements of NFPA 99 and NFPA 110, Level 1.
- F. Supply flexible fuel lines to provide a flexible connection between the engine fuel fittings and the fuel supply tank piping and for the fuel return lines from the injector pump per engine manufacturer's recommendations. Flex line shall have a protective steel wire braid to protect the hose from abrasion.
- G. The generator set shall be supplied with a 2 Input/5 Output Module kit to provide two additional analog inputs and 5 additional dry contact outputs. The analog inputs can be used for analog or digital input functions. They can be set up for 0-5VDC, ± 3 VDC resistive or relay contact sensor devices. The dry contact outputs shall be arranged as two 120VAC or 28VDC, 10A form C contacts and three 28VDC, 2A form C contacts. Input and output functions are user defined.
- H. The generator set shall be supplied with a means to manually adjust the speed of the generator.
- I. The generator set shall be supplied with a common failure relay to provide means of signaling fault and/or shutdown conditions.
 - i. The common failure relay shall remotely signal auxiliary faults, emergency stop, high engine temperature, low oil pressure, overcrank, and over speed via one single-pole, double-throw relay with 10 amps at 120 VAC contacts.
 - ii. The relay contacts shall be gold flashed to allow use of low current draw devices (100ma @ 28VDC min.).
 - iii. Once energized the relay shall remain latched until the system is reset by the main controller switch.

2.3 Source Quality Control

- A. Non-Conforming Work
 - 1. To ensure that the equipment has been designed and built to the highest reliability and quality standards, the manufacturer and/or local representative shall be responsible for three separate tests: design prototype tests, final production tests, and site tests.
 - a. **Design Prototype Tests.** Components of the emergency system, such as the engine/generator set, transfer switch, and accessories, shall not be subjected to prototype tests because the tests are potentially damaging. Rather, similar design prototypes and preproduction models shall be subject to the following tests:
 - i. Maximum power (kW)
 - ii. Maximum motor starting (kVA) at 35% instantaneous voltage dip.
 - iii. Alternator temperature rise by embedded thermocouple and/or by resistance method per NEMA MG1-32.6.
 - iv. Governor speed regulation under steady-state and transient conditions.

- v. Voltage regulation and generator transient response.
 - vi. Harmonic analysis, voltage waveform deviation, and telephone influence factor.
 - vii. Three-phase short circuit tests.
 - viii. Alternator cooling air flow.
 - ix. Torsional analysis to verify that the generator set is free of harmful torsional stresses.
 - x. Endurance testing.
- b. **Final Production Tests.** Each generator set shall be tested under varying loads with guards and exhaust system in place. Tests shall include:
- i. Single-step load pickup
 - ii. Safety shutdown device testing
 - iii. Rated Power @ 0.8 PF
 - iv. Maximum power
 - v. Upon request, a witness test, or a certified test record sent prior to shipment.
- c. **Site Tests.** The manufacturer's distribution representative shall perform an installation check, startup, and building load test. The engineer, regular operators, and the maintenance staff shall be notified of the time and date of the site test. The tests shall include:
- i. Fuel, lubricating oil, and antifreeze shall be checked for conformity to the manufacturer's recommendations, under the environmental conditions present and expected.
 - ii. Accessories that normally function while the set is standing by shall be checked prior to cranking the engine. These shall include: block heaters, battery chargers, alternator strip heaters, remote annunciators, etc.
 - iii. Generator set startup under test mode to check for exhaust leaks, path of exhaust gases outside the building, cooling air flow, movement during starting and stopping, vibration during operation, normal and emergency line-to-line voltage and frequency, and phase rotation.
 - iv. Automatic start by means of a simulated power outage to test remote-automatic starting, transfer of the load, and automatic shutdown. Prior to this test, all transfer switch timers shall be adjusted for proper system coordination. Engine coolant temperature, oil pressure, and battery charge level along with generator set voltage, amperes, and frequency shall be monitored throughout the test.

B 2 Hour Load Bank Test

END OF SECTION

SECTION 26 36 23
AUTOMATIC TRANSFER SWITCH

PART 1 GENERAL

1.1 SUMMARY

- A This section includes the following items from a single supplier:
 - 1. Automatic transfer switch
 - 2. Related Accessories as specified
- B Products Furnished or Supplied but not installed
- C Products Installed but not furnished or supplied
- D Related Requirements
 - 1. It is the intent of this specification to secure an automatic transfer switch that has been prototype tested, factory built, production-tested, and site-tested together with all accessories necessary for a complete installation as shown on the plans and drawings and specified herein.
 - 2. Any exceptions to the published specifications shall be subject to the approval of the engineer and submitted minimum 10 days prior to the closing of the bid with a line by line summary description of all the items of compliance, any items that have been omitted or have been taken exception to, and a complete description of all deviations.
 - 3. It is the intent of this specification to secure an automatic transfer switch that has been tested during design verification, in production, and at the final job site. The automatic transfer switch will be a commercial design and will be complete with all of the necessary accessories for complete installation as shown on the plans, drawings, and specifications herein. The equipment supplied shall meet the requirements of the National Electrical Code and applicable local codes and regulations.
 - 4. All equipment shall be new and of current production by an international, power system manufacturer of generators, transfer switches, and paralleling switchgear. The manufacturer shall be a supplier of a complete and coordinated system. There will be single-source responsibility for warranty, parts, and service through a factory-authorized representative with factory-trained technicians.

1.2 SUBMITTALS

- A Action Submittals
 - 1. Product Data
 - a The submittal shall include specification sheets showing all standard and optional accessories to be supplied; schematic wiring diagrams, dimension drawings, and interconnection diagrams identifying by terminal number each required interconnection between the generator set, the transfer switch, and the remote annunciator panel if it is included elsewhere in these specifications.
 - 2. Shop Drawings
 - 3. Samples
- B Informational Submittal
 - 1. Certificates
 - 2. Test and Evaluation Reports
 - 3. Manufacturer's Instruction
 - 4. Source Quality Control Submittals
 - 5. Field or Site Quality Control
 - 6. Manufacturer's Report
 - 7. Special Procedure Submittal
 - 8. Qualification Statement
- C Closeout Submittals

1. Maintenance Contracts
2. Operation And Maintenance Data
3. Bonds
4. Warranty Documentation
5. Record Documentation
6. Software

D Maintenance Material Submittals

1. Literature
2. Spare Parts
3. Extra Stock Materials
4. Tools

1.3 Quality Assurance

A Regulatory Agency

1. The automatic transfer switch shall conform to the requirements of the following codes and standards:
 - a UL 1008 - Standard for Transfer Switch Equipment
 - b IEC 947-6-1 Low-voltage Switchgear and Control gear; Multifunction equipment; Automatic Transfer Switching Equipment EN55011, Limits and Methods of Measurement of Radio Interference Characteristics of Industrial, Scientific and Medical Equipment.
 - c NFPA 70 - National Electrical Code
 - d NFPA 99 - Essential Electrical Systems for Health Care Facilities
 - e NFPA 110 - Emergency and Standby Power Systems
 - f IEEE Standard 446 - IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
 - g NEMA Standard ICS 10-2005, Electromechanical AC Transfer Switch Equipment.
 - h EN61000-4-4 Fast Transient Immunity Severity Level 4
 - i EN61000-4-5 Surge Immunity Class 4 (voltage sensing and programmable inputs only)
 - j IEEE 472 (ANSI C37.90A) Ring Wave Test
 - k IEC Specifications for EMI/EMC Immunity (CISPR 11, IEC 1000-4-2, IEC 1000-4-3, IEC 1000-4-4, IEC 1000-4-5, IEC 1000-4-6, IEC 1000-4-8, IEC 1000-4-11)
 - l CSA C22.2 No. 178 certification
2. Qualifications
 - a The automatic transfer switch shall be produced by a manufacturer who is ISO 9001 certified for the design, development, production and service of its complete product line.
 - b A manufacturer who has produced this type of equipment for a period of at least 10 years and who maintains a service organization available twenty-four hour a day throughout the year shall produce the automatic transfer switch.
3. Manufacturers
 - a The automatic transfer switch shall be furnished by a single manufacturer who shall be responsible for the design, coordination, and testing of the complete system. The entire system shall be installed as shown on the plans, drawings, and specifications herein.
 - b The manufacturer shall maintain a national service organization of employing personnel located throughout the contiguous United States. The Service center's personnel must be factory trained and must be on call 24 hours a day, 365 days a year.
 - c The manufacturer shall maintain records of each switch, by serial number, for a minimum of 20 years.
4. Suppliers
 - 1. Kohler (basis of design)**
 - 2. Cummins**

3. Caterpillar

4 Pre Approved equal manufacturer

1.4 Field or Site Conditions

A Ambient Conditions

1. Automatic transfer switch shall operate in the following conditions without any damage to the unit or its loads.
 - a Ambient Temperature: -4 to 110 Degrees F
 - b Relative Humidity: 5% to 95% noncondensing

1.5 Warranty or Bond

A Manufacturer's Warranty

1. The ATS shall include a standard warranty covering one (1) year to guarantee against defective material and workmanship in accordance with the manufacturer's published warranty from the date of initial startup.
2. The ATS manufacturer and its distributor shall maintain a 24-hour parts and service organization. This organization shall regularly engage in maintenance contract programs to perform preventive maintenance and service on equipment similar to that specified. A service agreement shall be available and shall include system operation under simulated operating conditions; adjustment to the generator set, transfer switch, and switchgear controls as required, and certification in the owner's maintenance log of repairs made and functional tests performed on all systems.

PART 2 PRODUCTS

2.1 Equipment

A Equipment

1. Furnish and install an automatic transfer switches system(s) with 4-Pole / 4-Wire, Switched Neutral, 100 Amps, 240V/60Hz. Each automatic transfer shall consist of an inherently double throw power transfer switch mechanism and a microprocessor controller to provide automatic operation. All transfer switches and controllers shall be the products of the same manufacturer.

B Manufacturer

1. Automatic transfer switches shall be Kohler Specific Breaker Rated - Standard Transition (KSS)/KSS-AFVC-0100S. Any alternate shall be submitted for approval to the consulting engineer at least 4 days prior to bid date. Alternate bids shall include a line-by-line clarification of the specification marked with "D" for deviation; "E" for exception, and "C" for comply.

C Construction

1. The transfer switch shall be electrically operated and mechanically held with double throw construction, and operated by a momentarily energized solenoid-driven mechanism.
2. All transfer switch sizes shall use only one type of main operator for ease of maintenance and commonality of parts.
3. The switch shall be positively locked and unaffected by momentarily outages, so that contact pressure is maintained at a constant value and contact temperature rise is minimized for maximum reliability and operating life.
4. All main contacts shall be silver composition. Switches rated 600 amperes and above shall have segmented, blow-on construction for high withstand and close-on capability and be protected by separate arcing contacts.
5. Inspection of all contacts shall be possible from the front of the switch without disassembly of operating linkages and without disconnection of power conductors. Switches rated 800 amperes and higher shall have front removable and replaceable contacts. All stationary and moveable contacts shall be replaceable without removing power conductors and/or bus bars.

6. Designs utilizing components of molded-case circuit breakers, contactors, or parts thereof, which are not intended for continuous duty, repetitive switching or transfer between two active power sources, are not acceptable.
7. For two and three pole switches, where neutral conductors are to be solidly connected as shown on the plans, a neutral conductor plate with fully rated AL-CU pressure connectors shall be provided.
8. For four pole switches with a switching neutral, where neutral conductors must be switched as shown on the plans, the contactor shall be provided with fully rated switched neutral transfer contacts. Overlapping neutral contacts may be used as an alternative.

D Enclosure

1. The ATS shall be furnished in a NEMA 3R enclosure.
2. All standard door mounted switches and indicating LEDs shall be integrated into a flush-mounted, interface membrane or equivalent in the enclosure door for easy viewing & replacement. The panel shall be capable of having a manual locking feature to allow the user to lockout all membrane mounted control switches to prevent unauthorized tampering. This cover shall be mounted with hinges and have a latch that may be padlocked. The membrane panel shall be suitable for mounting by others when furnished on open type units.

2.2 Operation

A Controls

1. A four line, 20 character LCD display and dynamic 4 button keypad shall be an integral part of the controller for viewing all available data and setting desired operational parameters. Operational parameters shall also be available for viewing and control through the communications interface port or USB. The following parameters shall only be adjustable via a password protected programming on the controller:
 - a Nominal line voltage and frequency
 - b Single or three phase sensing
 - c Operating parameter protection
 - d Transfer operating mode configuration (Standard transition, Programmed transition, or Closed transition)

B Voltage and Frequency

1. Voltage (all phases) and frequency on both the normal and emergency sources shall be continuously monitored. Voltage on both normal and emergency sources and frequency on the emergency sources shall be adjustable with the following pickup, dropout, and trip setting capabilities (values shown as % of nominal unless otherwise specified):

a	Parameter	Dropout/Trip	Pickup/Reset
b	Under voltage	75 to 98%	85 to 100%
c	Over voltage	06 to 135%	95 to 100% of trip
d	Under frequency	95 to 99%	80 to 95%
e	Over frequency	01 to 115%	105 to 120%
f	Voltage unbalance	5 to 20%	3 to 18%
2. Repetitive accuracy of all settings shall be within $\pm 0.5\%$ over an operating temperature range of -20°C to 70°C.
3. An adjustable dropout time for transient voltage and frequency excursions shall be provided. The time delays shall be 0.1 to 9.9 seconds for voltage and .1 to 15 seconds for frequency.
4. Voltage and frequency settings shall be field adjustable in 1% increments either locally with the display and keypad, remotely via the communications interface port or USB.
5. The controller shall be capable of sensing the phase rotation of both the normal and emergency sources. The source shall be considered unacceptable if the phase rotation is not the preferred rotation selected (ABC or BAC). Unacceptable phase rotation shall be indicated on the LCD; the

service required LED and the annunciation through the communication protocol and dry contacts. In addition, the phase rotation sensing shall be capable of being disabled, if required.

6. The controller shall be capable of detecting a single phasing condition of a source, even though a voltage may be regenerated by the load. This condition is a loss of phase and shall be considered a failed source.
7. Source status screens shall be provided for both normal & emergency to provide digital readout of voltage on all 3 phases (phase to phase and phase to neutral), frequency, and phase rotation.

C Time Delays

1. An adjustable time delay of 0 to 6 seconds shall be provided to override momentary normal source outages and delay all transfer and engine starting signals. Capability shall be provided to extend this time delay to 60 minutes by providing an external 12 or 24 VDC power supply.
2. A time delay shall be provided on transfer to the emergency source, adjustable from 0 to 60 minutes, for controlled timing of transfer of loads to emergency.
3. A time delay shall be provided on re-transfer to normal. The time delays shall be adjustable from 0 to 60 minutes. Time delay shall be automatically bypassed if the emergency source fails and the normal source is acceptable.
4. A time delay shall be provided on shut down of engine generator for cool down, adjustable from 0 to 60 minutes.
5. A time delay activated output signal shall also be provided to drive external relay(s) for selective load disconnect and reconnect control. The controller shall be capable of controlling a maximum of 9 individual output time delays to step loads on after a transfer occurs. Each output may be individually programmed for their own time delay of up to 60 minutes. Each sequence shall be independently programmed for transferring from normal to emergency and transferring from emergency to normal.
6. All time delays shall be adjustable in 1 second increments.
7. All time delays shall be adjustable by using the display and keypad, with a remote device connected to the communications interface port or USB.
8. Each time delay shall be identified and a dynamic countdown shall be shown on the display. Active time delays can be viewed with a remote device connected to the communications interface port or USB.

D Additional Features

1. The controller shall have 3 levels of security. Level 1 shall allow monitoring of settings and parameters only. The Level 1 shall be capable of restricted with the use of a lockable cover. Level 2 shall allow test functions to be performed and Level 3 shall allow setting of all parameters.
2. The display shall provide for the test functions, allowed through password security. The test function shall be load, no load or auto test. The auto test function shall request an elapsed time for test. At the completion of this time delay the test shall be automatically ended and a retransfer sequence shall commence. All loaded tests shall be immediately ended and retransfer shall occur if the emergency source fails and the normal source is acceptable.
3. A contact closure shall be provided for a low-voltage engine start signal. The start signal shall prevent dry cranking of the engine by requiring the generator set to reach proper output, and run for the duration of the cool down setting, regardless of whether the normal source restores before the load is transferred.
4. Auxiliary contacts shall be provided consisting of a minimum of two contacts, closed when the ATS is connected to the normal source and two contacts closed, when the ATS is connected to the emergency source.
5. LED indicating lights shall be provided; one to indicate when the ATS is connected to the normal source (green) and one to indicate when the ATS is connected to the emergency source (red).
6. LED indicating lights shall be provided and energized by controller outputs. The lights shall provide true source availability of the normal (green) and emergency sources (red), as determined by the voltage, frequency and phase rotation sensing trip and reset settings for each source.

7. A membrane switch shall be provided on the membrane panel to test all indicating lights and display when pressed.
8. Provide the ability to select "commit/no commit to transfer" to determine whether the load should be transferred to the emergency generator if the normal source restores before the generator is ready to accept the load.
9. Terminals shall be provided for a remote contact which opens to signal the ATS to transfer to emergency and for remote contacts which closes to inhibit transfer to emergency and/or retransfer to normal. Both of these inhibit signals can be activated through the keypad, communications interface port or USB. A "not-in-auto" LED shall indicate anytime the controller is inhibiting transfer from occurring.
10. An in-phase monitor shall be a standard feature in the controller. The monitor shall control transfer so that motor load inrush currents do not exceed normal starting currents, and shall not require external control of power sources. The in-phase monitor shall be specifically designed for and be the product of the ATS manufacturer. The in-phase monitor shall be capable of being enabled or disabled from the user interface, communications interface port or USB.
11. A time based load control feature shall be available to allow the prioritized addition and removal of loads based during transfer. This feature may be enabled for either or both sources. The user shall be able to control up to nine loads with independent timing sequences for pre and post transfer delays in either direction of transfer.
12. The controller shall provide 2 inputs for external controls that can be programmed from the following values:
 - a Common fault, Remote test, Inhibit transfer, Low battery voltage, Peak shave, Time delay bypass, Load shed forced to OFF position (Programmed transition only)
13. The controller shall provide two form "C" contact outputs rated for up to 12A @ 240VAC or 2A @ 480VAC that can be programmed from the following values:
 - a Aux switch open, Transfer switch aux contact fault, Alarm silenced, Alarm active, I/O communication loss, Contactor position, Exercise active, Test mode active, Fail to transfer, Fail to acquire standby source, Source available, Phase rotation error, Not in automatic mode, Common alarm, In phase monitor sync, Load bank control active, Load control active, Maintenance mode active, Non-emergency transfer, Fail to open/close, Loss of phase, Over/under voltage, Over/under frequency, Voltage unbalance, Start signal, Peak shave active, Preferred source supplying load, Standby source supplying load
14. The controller shall be capable of expanding the number of inputs and outputs with additional modules.
15. Optional input/output modules shall be furnished which mount on the inside of the enclosure to facilitate ease of connections.
16. Engine Exerciser - The controller shall provide an internal engine exerciser. The engine exerciser shall allow the user to program up to 21 different exercise routines based on a calendar mode. For each routine, the user shall be able to:
 - a Enable or disable the routine
 - b Enable or disable transfer of the load during routine.
 - c Set the start time, time of day, day of week, week of month (1st, 2nd, 3rd, 4th, alternate or every)
 - d Set the duration of the run.
 - e At the end of the specified loaded exercise duration the switch shall transfer the load back to normal and run the generator for the specified cool down period. All loaded exercises shall be immediately ended and retransfer shall occur if the standby source fails. The next exercise period shall be displayed on the main screen with the type of exercise, time and date. The type of exercise and the time remaining shall be display when the exercise is active. It shall be possible of ending the exercise event with a single button push.
17. Date and time - The date shall automatically adjust for leap year and the time shall have the capability of automatically adjusting for daylight saving and standard times.
18. System Status - The controller shall have a default display the following on:
 - a System status

- b Date, time and type of the next exercise event
 - c Average voltage of the preferred and standby sources
 - d Scrolling through the displays shall indicate the following:
 - i) Line to line and line to neutral voltages for both sources
 - ii) Frequency of each source
 - iii) Load current for each phase
 - iv) Single or three phase operation
 - v) Type of transition
 - vi) Preferred source
 - vii) Commit or no commit modes of operation
 - viii) Source/source mode
 - ix) In phase monitor enable/disable
 - x) Phase rotation
 - xi) Date and time
19. Controllers that require multiple screens to determine system status or display "coded" system status messages, which must be explained by references in the operator's manual, are not permissible.
 20. Self-Diagnostics - The controller shall contain a diagnostic screen for the purpose of detecting system errors. This screen shall provide information on the status input signals to the controller which may be preventing load transfer commands from being completed.
 21. Communications Interface - The controller shall be capable of interfacing, through a standard communications with a network of transfer switches and generators. It shall be able to be connected via an RS-485 serial communication (up to 4000 ft. direct connect or multi-drop configuration). This module shall allow for seamless integration of existing or new communication transfer devices and generators.
 22. The transfer switch shall also be able to interface to 3rd party applications using Modbus RTU open standard protocols utilizing Modbus register maps. Proprietary protocols shall not be acceptable.
 23. The controller shall contain a USB port for use with a software diagnostic application available to factory authorized personnel for downloading the controller's parameters and settings; exercise event schedules; maintenance records and event history. The application can also adjust parameters on the controller.
 24. Data Logging - The controller shall have the ability to log data and to maintain the last 2000 events, even in the event of total power loss. The following events shall be time and date stamped and maintained in a non-volatile memory. The controller shall be able to display up to the last 99 events. The remaining events shall be accessible via the communications interface port or USB.
 - a Event Logging
 - i) Data, date and time indication of any event
 - b Statistical Data
 - i) Total number of transfers*
 - ii) Total number of fail to transfers*
 - iii) Total number of transfers due to preferred source failure*
 - iv) Total number of minutes of operation*
 - v) Total number of minutes in the standby source*
 - vi) Total number of minutes not in the preferred source*
 - vii) Normal to emergency transfer time
 - viii) Emergency to normal transfer time
 - ix) System start date
 - x) Last maintenance date
 - xi) * The statistical data shall be held in two registers. One register shall contain data since start up and the second register shall contain data from the last maintenance reset.

25. External DC Power Supply - An optional provision shall be available to connect up to two external 12/24 VDC power supply to allow the LCD and the door mounted control indicators to remain functional when both power sources are dead for extended periods of time. This module shall contain reverse battery connection indication and circuit protection.

2.3 Source Quality Control

A Test and Inspection

1. Upon request, the manufacturer shall provide a notarized letter certifying compliance with all of the requirements of this specification including compliance with the above codes and standards. The certification shall identify, by serial number(s), the equipment involved. No exceptions to the specifications, other than those stipulated at the time of the submittal, shall be included in the certification.
2. The ATS manufacturer shall be certified to ISO 9001 International Quality Standard and the manufacturer shall have third party certification verifying quality assurance in design/development, production, installation and servicing in accordance with ISO 9001.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installation, procedures, materials, etc. shall be in conformance with the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications) except as modified by this Specification.

1.2 SUMMARY

- A. The CONTRACTOR shall furnish all labor, materials, equipment and means to clear and grub the project site as shown on Contract Drawings or required to permit the installation of the facilities, and dispose of the materials. CONTRACTOR shall pay for all permits required under this Specification.

1.3 QUALITY ASSURANCE

- A. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.

1.4 MATERIAL OWNERSHIP & CONSTRUCTION WASTE MANAGEMENT

- A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site in accordance with the Construction Waste Management practices required under Division 1.

1.5 UNDERGROUND FACILITIES

- A. The information and data shown or indicated in the Construction Drawings with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others. The OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data. The cost of all of the following will be included in the Contract Price and CONTRACTOR shall have full responsibility for: (i) reviewing and checking all such information and data, (ii) locating all Underground Facilities shown or indicated in the Contract Documents, (iii) coordinating the Work with the owners of such Underground Facilities during construction, and (iv) maintaining the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

1.6 PAYMENT

- A. All work required under this Section shall be paid for at the unit prices as found in the bid schedule. These unit prices shall include all work described in this Section and no additional compensation will be allowed for any cost incurred.

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PART 2 – PRODUCTS

2.1 MATERIALS

- A. The CONTRACTOR shall provide all materials and equipment required to complete all site clearing in accordance with this Section.

PART 3 – EXECUTION

3.1 CLEARING, TREE REMOVAL, & PROTECTION, CARE, & REPAIR OF EXISTING PLANTS

- A. Clearing, and grubbing, tree and hedge removal shall be performed in accordance with the Standard Specification Section 201 - Clearing and Grubbing, with the following exception: At locations where new structures will be constructed, the tree stumps and all roots within the limits of the proposed foundations shall be completely removed, instead of just being removed 12-inches below grade.

Remove stumps and roots over 3-inches within the limits of grubbing to the following depths:
Fill Areas: 12" below natural ground line Cut Areas: 18" below finish grade

3.2 DISPOSAL

- A. The CONTRACTOR shall dispose of all surplus, unstable and unsuitable materials and organic waste in accordance with Section 202.03 – “Removal and Disposal of Surplus, Unstable, and Unsuitable Materials and Organic Waste” of the Standard Specifications.

3.3 JOB CONDITIONS

- A. Protection of persons and property shall be provided throughout the progress of the work. Barricade open depressions and excavations occurring as part of this work, and post warning lights on property adjacent to or within public access. The work shall proceed in such a manner as to minimize the spread of dust and flying particles, and to provide safe working conditions and personnel.

Protect trees and shrubs, where indicated to remain, by providing a fence around the tree or shrub of sufficient height so trees and shrubs will not be damaged in any way as part of this work. CONTRACTOR shall employ a licensed Arborist to repair damage to any tree or shrub at no cost to the OWNER. Replace trees and shrubs that cannot be repaired and restored to full-growth status as determined by the Arborist.

- B. Blasting and fires will not be permitted.
- C. Before starting work, utilities shall be disconnected at the nearest sources of supply unless otherwise indicated or directed. Mains, sewers, and utilities shall be sealed in an approved manner acceptable to the utility involved.
- D. Protect curbs, structures, utilities, sidewalks, pavements, and other facilities within the project limits from damage. CONTRACTOR shall replace / repair damage in kind at no cost to OWNER.

END OF SECTION 311000

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installation, procedures, materials, etc. shall be in conformance with the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications) except as modified by this Specification.

1.2 SUMMARY

- A. Earthwork shall consist of all work required to construct the earth grade to the lines, grade, and cross sections called for on the Contract Drawings and Specifications. Earthwork shall consist of, but is not limited to, excavation, removal, and satisfactory disposal of all materials and seeding; and the removal and satisfactory disposal of unstable and unsuitable materials and the replacement with satisfactory materials where required. All costs for obtaining materials from an off-site borrow area, a site for dumping waste materials, the hauling of materials to and from these areas, and erosion control shall be the CONTRACTOR's responsibility. The CONTRACTOR shall pay for all permits required under this Specification.

1.4 QUALITY ASSURANCE

- A. The CONTRACTOR will provide staking to establish the grades and elevations indicated on the project grading plan.
- B. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.

1.5 WARRANTY

- A. The CONTRACTOR shall warrant all construction associated with the CONTRACT to be free from defects for a period of 1-year from the date of final acceptance by the OWNER.

1.6 PAYMENT

- A. All work required under this Section shall be considered incidental to the Contract Price and no additional compensation will be allowed for any cost incurred.

PART 2 – PRODUCTS

2.1 TOPSOIL

- A. Topsoil shall be relatively free from large roots, sticks, weeds, brush, or stones larger than 1 inch in diameter or other litter and waste products. It shall be a loamy mixture having at least 90%

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passing the No. 10 sieve. A sample, free from extraneous materials, shall comply with the following requirements:

1. It shall contain not less than 12% or more than 35% clay as determined in accordance with AASHTO T- 88.
2. The sand content shall not exceed 55% as determined in accordance with AASHTO T- 88.
3. The pH of the sample shall not be lower than 5.0 or higher than 8.0. The pH shall be determined with an acceptable pH meter, on the portion of the sample passing No. 10 sieve, in accordance with the "Suggested Methods of Tests for Hydrogen Ion Concentration (pH) of Soils" included in the procedures for Testing Soils issued December 1964 by the American Society for Testing Materials.

2.2 FILL AND BACKFILL MATERIALS

A. Earth Fill Materials

1. No sod, frozen material, organics, contaminated soil, or any material which may decay or otherwise might cause settlement shall be placed or allowed to be utilized as earth fill.
2. No rocks, stones, or broken concrete more than four (4) inches in largest dimensions shall be permitted within a vertical distance of 24 inches from the surface of the finished grade. In areas exterior to structural construction no stones, rocks, broken concrete, etc. will be allowed in the filled area larger than two (2) inches in diameter. Rock shall not exceed 15% of the fill material volume.

B. Granular Backfill for Sanitary Sewer, Water Mains, and Storm Sewers

Granular backfills for sanitary sewers, water mains, and storm sewers shall be crushed gravel or crushed stone gradation CA-6 Type A as specified in Section 1004 - COARSE AGGREGATE of the Standard Specifications.

C. Granular Backfill for Utilities

Granular backfill for utilities except as those specified above shall be sand gradation FA-6 as specified in Section 1003 - FINE AGGREGATE of the Standard Specifications.

2.3 SEEDING, FERTILIZING, & MULCHING

- A. See Section 329200 – Lawns and Grasses for finish lawn surfaces.

PART 3 – EXECUTION

3.1 NOTIFICATION OF START OF EARTHWORK

- A. The CONTRACTOR shall notify the ENGINEER at least 48 hours in advance of the start of the grading and/or excavation operations.

3.2 EXCAVATION SAFETY

- A. Excavation shall be properly supported in accordance with the requirements of the Occupational Safety and Health Administration (O.S.H.A.) and all state and local agencies governing safety and health on the work site. The support of all excavations shall be provided by the CONTRACTOR at no additional expense to the OWNER.

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3.3 STRIPPING TOPSOIL

- A. All topsoil and vegetation should be removed from the area of construction. Under no circumstances shall new construction obtain its structural support from topsoil
- B. Stockpiled topsoil shall be covered / stabilized in accordance with the Storm Water Pollution Prevention Plan.

3.4 SITE PREPARATION

- A. Care should be exercised to maintain the integrity of the subgrade when preparing the site for the placement of fill, making excavations, and other earth-related construction activities. If pumping and rutting occur, activity should be halted until the affected area can be stabilized. This can normally be accomplished with aeration and recompaction, the use of ground stabilization fabric, or a working mat of clean coarse crushed stone.

3.5 GENERAL EXCAVATION

- A. Excavation shall consist of the satisfactory removal and disposal of all materials taken from within the limits of the work contracted, meaning the material lying between the original ground line as shown on the Construction Drawings regardless of whether the original ground line is exposed to air or is covered by water. Excavation below existing ground line to enable any required construction or removal is included. It is distinctly understood that any reference to earth, rock, silt, debris, or other materials on the Construction Drawings or in the Specifications is solely for the OWNER'S information and shall not be taken as an indication of classified excavations or other quantity of earth, rock, silt, debris, or other material.
- B. Onsite structures and any underground structures (i.e., basements, footings, walls, slabs, pipes, utilities, etc.) and associated backfill must be removed entirely and the resulting excavation replaced with compacted fill. Replace the material in compacted lifts compacted to at least 98 percent of the material's standard Proctor maximum dry density.

3.6 PLACING CONTROLLED EARTH FILL AND BACKFILL

- A. Controlled cohesive earthwork materials shall be placed in layers not exceeding eight inches in depth (six inches when compacted by hand held equipment), properly moistened/dried to within three percent (wet or dry) of the optimum moisture content and compacted to a dry density of not less than 98% (95% for pavement) of the standard Proctor maximum dry density of the material as established by ASTM D698.
- B. Compacting equipment and compacting operations shall be coordinated with the rate of placing controlled earthfill so that the required density is obtained.

3.7 TOPSOIL PLACEMENT

- A. All areas disturbed by grading and construction operations, but not covered by structures, pavement, or trees, shall be covered with a minimum of four (4) inches of topsoil. After all excavated areas have been backfilled, the CONTRACTOR shall grade the areas disturbed by construction which changed the contour, allowing for and providing a four (4) inch minimum thickness of approved topsoil. All areas shall be graded to the elevations and contours as indicated by the Construction Drawings. The topsoil surface shall be trimmed and raked to true lines free from unsightly variations, humps, ridges, or depressions. The ground shall be sloped to provide positive drainage away from all buildings. Finish grading shall be left in a condition for grass seeding.

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3.8 EROSION CONTROL

- A. The CONTRACTOR shall use existing erosion control in accordance with the drawings, provide erosion control in any area the CONTRACTOR deems necessary to prevent erosion during construction, in any area which shows signs of erosion, or as directed by the ENGINEER. The CONTRACTOR shall use an erosion control method of his choice in any given area unless such a method has failed earlier at that location or a method has been specified on the drawings. The ENGINEER shall determine whether or not any specific erosion control method is successful.
- B. The CONTRACTOR shall be responsible for complying with the requirements of the IEPA NPDES storm water permit for construction activity for this project.

3.8 JOB CONDITIONS, DUST CONTROL AND MONITORING

- A. The CONTRACTOR shall conduct earthwork operations in a manner that will limit dust, noise, and other nuisances. If necessary, water shall be applied to the soil to limit dust, etc. All earthwork operations shall be conducted in accordance with local government regulations.
- B. The Contractor shall employ dust control measures to minimize the creation of airborne dust during the entire construction process. As a minimum, standard dust control techniques shall be employed where heavy equipment will be traveling such as watering-down the site.
- C. The Contractor shall not utilize dust control measures that change the disposal characterizations of the soils.
- D. Total Airborne Dust: The acceptable limit for total airborne dust will be based on the National Primary Ambient Air Quality Standard as promulgated by the U.S. Protection Agency. The Contractor shall immediately take measures to control dust if limits are exceeded. Visible dust shall be prevented from leaving the site limits.

3.9 SEEDING

- A. See Section 329200 – Lawns and Grasses for finish lawn surfaces.

END OF SECTION 312000

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installation, procedures, materials, etc. shall be in conformance with the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications) except as modified by this Specification.

1.2 SUMMARY

- A. The CONTRACTOR shall furnish all labor, materials, equipment and means to dewater the project site in the event dewatering is necessary. CONTRACTOR shall pay for all permits required under this Specification.

1.3 QUALITY ASSURANCE

- A. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.

1.4 PAYMENT

- A. All work required under this Section shall be considered incidental to the Contract Price and no additional compensation will be allowed for any cost incurred.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. In the event dewatering is necessary, CONTRACTOR will provide portable pump or other means of dewatering the project site.

PART 3 – EXECUTION

- 3.1 The dewatering of all areas where work must be performed is the responsibility of the CONTRACTOR and no additional sum will be allowed for any other expense incurred due to the occurrence of ground water, surface water or water from possible leakage of existing buildings, structures and piping in the vicinity of the CONTRACTOR's operations.

END OF SECTION 312319

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SECTION 321200 – ASPHALT PAVEMENT AND SURFACING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installation, procedures, materials, etc. shall be in conformance with the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications) except as modified by this Specification.

1.2 SUMMARY

- A. This work includes the furnishing of all labor, materials, and equipment necessary for the construction of the proposed Asphalt Pavement and Surfacing improvements in substantial accordance with the Contract Drawings and Specifications. Methods of construction will generally be left to the CONTRACTOR as long as satisfactory progress is made and good workmanship is produced. CONTRACTOR shall pay for all permits required under this Specification.
- B. Related Sections:
 - 1. Section 312000 - Earthwork for work pertaining to excavation and backfilling.

1.3 SUBMITTALS

- A. Qualification Data: The Asphalt Pavement shall be installed by a qualified contractor. Owner reserves right to accept or reject all bids if qualifications are deemed inadequate.

1.4 QUALITY ASSURANCE

- A. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.
- B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation for asphalt paving work.
 - 1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.5 WARRANTY

- A. The CONTRACTOR shall warrant all construction materials and workmanship associated with this CONTRACT to be free from defects for a period of one (1) year from the date of final acceptance by the OWNER. Any cracks, flaws, etc. in the paving or curb and gutter shall be sealed by the CONTRACTOR at his expense during the one (1) year guarantee period.

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1.6 PAYMENT

- A. All work required under this Section shall be paid for at the unit prices as found in the bid schedule. These unit prices shall include all work described in this Section and no additional compensation will be allowed for any cost incurred.

PART 2 - PRODUCTS

2.1 SUBGRADE

- A. Subgrade shall conform to the Standard Specifications Section 301. Subgrade shall be compacted to a dry density of not less than 95% of the standard Proctor maximum dry density of the material. Prior to placement of any paving materials, the subgrade shall be cleared of all loose materials. At any time that trucks cause rutting/displacement of the subgrade material, the subgrade shall be reshaped and compacted.

2.2 HOT MIX ASPHALT BASE COURSE

- A. Hot Mix Asphalt (HMA) base course shall conform to Section 355 – Hot-Mix Asphalt Base Course of the IDOT Standard Specifications. The pavement section shall have a compacted finish thickness as shown on the Contract Drawings typical section.

2.3 HOT MIX ASPHALT SURFACE COURSE

- A. Hot Mix Asphalt (HMA) surface course shall conform to Section 406 – Hot-Mix Asphalt Binder and Surface Course of the IDOT Standard Specifications. The pavement section shall have a compacted finish thickness as shown on the Contract Drawings typical section.

PART 3 - EXECUTION

3.1 GENERAL

- A. Placement, grading, compaction, construction, and maintenance of the subgrade, sub-base, aggregate base course, prime coat, bituminous concrete binder and surface courses, curbs, etc. shall conform to the respective sections of the Standard Specifications.

3.2 SUBGRADE PREPARATION

- A. At any time that trucks cause rutting or displacement of the subgrade material, the subgrade shall be reshaped and compacted. The subgrade shall be in a moist condition at the time the concrete is placed.

3.3 UTILITY TRENCH BACKFILLING

- A. In all pavement and curb and gutter areas, backfilling with CA-6 course aggregate or FA-6 fine aggregate where specified shall be undertaken and compacted to its maximum density.

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3.4 INSTALLATION TOLERANCES

- A. Pavement Thicknesses: Compact each course to produce the thickness indicated within the following tolerances:
1. Base Course: Plus or minus ½ inch (13 mm).
 2. Surface Course: Plus ¼ inch (6 mm), no minus.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency:
1. CONTRACTOR shall engage a qualified independent testing and inspecting company to perform field tests and inspection and prepare test reports as required by the ENGINEER.
- B. Hot Mix Asphalt Pavement
1. The Base Course and Surface Course shall be compacted to an average density of not less than ninety-three percent (93%) of the maximum theoretical density as determined by AASHTO T-209.

END OF SECTION 321200

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SECTION 321313 – CONCRETE PAVEMENT AND SURFACING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installation, procedures, materials, etc. shall be in conformance with the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications) except as modified by this Specification.

1.2 SUMMARY

- A. This work includes the furnishing of all labor, materials, and equipment necessary for the construction of the proposed Site Pavement and Surfacing improvements in substantial accordance with the Contract Drawings and Specifications. Methods of construction will generally be left to the CONTRACTOR as long as satisfactory progress is made and good workmanship is produced. CONTRACTOR shall pay for all permits required under this Specification.
- B. Related Sections:
 - 1. Section 312000 – Earthwork for work pertaining to excavation and backfilling.

1.3 SUBMITTALS

- A. Qualification Data: The Rigid Pavement shall be installed by a qualified contractor. Owner reserves right to accept or reject all bids if qualifications are deemed inadequate.

1.4 QUALITY ASSURANCE

- A. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.
- B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation for rigid paving work.
 - 1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.5 WARRANTY

- A. The CONTRACTOR shall warrant all construction associated with this CONTRACT to be free from defects for a period of one (1) year from the date of final acceptance by the OWNER. Any cracks, flaws, etc. in the paving or curb and gutter shall be sealed by the CONTRACTOR at his expense during the one (1) year guarantee period.

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1.6 PAYMENT

- A. All work required under this Section shall be paid for at the unit prices as found in the bid schedule. These unit prices shall include all work described in this Section and no additional compensation will be allowed for any cost incurred.

PART 2 - PRODUCTS

2.1 SUBGRADE

- A. Subgrade shall conform to the Standard Specification Section 301 - Subgrade Preparation. Subgrade shall be compacted to a dry density of not less than 95% of the standard Proctor maximum dry density of the material. Prior to placement of any paving materials, the subgrade shall be cleared of all loose materials. At any time that trucks cause rutting/displacement of the subgrade material, the subgrade shall be reshaped and compacted.

2.2 CRUSHED AGGREGATE BASE COURSE

- A. Crushed Aggregate Base Course shall conform to Section 351 – “Aggregate Base Course” of the Standard Specifications. Base course shall be to the compacted thickness as shown on the Contract Drawings of CA-6.

2.3 PORTLAND CEMENT CONCRETE PAVEMENT

- A. All rigid pavement shall consist of steel-reinforced Portland Cement concrete pavement and shall conform to Section 420 –“Portland Cement Concrete Pavement” of the Standard Specifications. The rigid pavement shall have a compacted finish thickness as shown on the Contract Drawings.
 - 1. Pavement Joints and Fabric shall be constructed in accordance with the Standard Specifications and the Contract Drawings.

2.4 STEEL REINFORCEMENT

- A. Welded wire reinforcement and dowel bars shall conform to Section 1006 of the Standard Specifications and Contract Drawings. Furnish fabric in flat sheets, not rolls. Provide supports for reinforcement including chairs or spacers as necessary for spacing, supporting and fastening reinforcing bars and welded wire fabric in place.

PART 3 - EXECUTION

3.1 GENERAL

- A. Placement, grading, compaction, construction, and maintenance of the subgrade, sub-base, aggregate base course, prime coat, bituminous concrete binder and surface courses, curbs, etc. shall conform to the respective sections of the Standard Specifications.

3.2 SUBGRADE PREPARATION

- A. At any time that trucks cause rutting or displacement of the subgrade material, the subgrade shall be reshaped and compacted. The subgrade shall be in a moist condition at the time the concrete is placed.

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3.3 AGGREGATE BASE COURSE

- A. The base course shall be placed in two layers not exceeding four (4) inches compacted to the thickness shown on the drawings. The base shall be kept clean and free of foreign matter.

3.4 UTILITY TRENCH BACKFILLING

- A. In all pavement and curb and gutter areas, backfilling with CA-6 course aggregate or FA-6 fine aggregate where specified shall be undertaken and compacted to its maximum density.

3.5 FIELD QUALITY CONTROL

A. Testing Agency:

- 1. CONTRACTOR shall engage a qualified independent testing and inspecting company to perform field tests and inspection and prepare test reports as requested by the ENGINEER.

B. Rigid Concrete Pavement

- 1. During the progress of the work, compression test specimens shall be made and cured in accordance with "Standard Method Specimens in the Field" ASTM C31. Not less than four (4) specimen cylinders shall be made for each test. Once test shall be made for each daily or area concrete placement.

Cylinders shall be tested 7, 14, and 28 days after the concrete is placed. The fourth cylinder shall not be tested unless the 28 days test fails to meet the minimum required strength. Specimens shall be tested in accordance with "Standard Method of Test for Compression Strength of Molded Concrete Cylinders" ASTM C39. One copy of the report for each cylinder test shall be submitted for each daily or area concrete placement. The ENGINEER may waive the testing requirement when small amounts of concrete are placed.

If the strength of the laboratory tests on any portion of the structure fall below the minimum compressive strength call for, the ENGINEER may request that the contractor test the substandard concrete in accordance with "Standard Methods of Securing, Preparing and Testing Specimens of Hardened Concrete for Compressive and Flexural Strength" ASTM C42. From the results of the test, the ENGINEER will decide what changes or removals are necessary and the CONTRACTOR shall provide all requested removals and replacements at no expense to the OWNER.

END OF SECTION 321313

SECTION 323113 – CHAIN LINK FENCES AND GATES

1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installation, procedures, materials, etc. shall be in conformance with the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications) except as modified by this Specification.

1.2 SUMMARY

- A. The CONTRACTOR shall provide all work associated with furnishing and installing chain link fence and gates at the locations shown on the plans.
- B. Related Sections
 - 1. Section 311000 – Site Clearing for work pertaining to removal and disposal
 - 2. Section 312000 – Earthwork for work pertaining to excavation and backfilling

1.3 QUALITY ASSURANCE

- A. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: Construct Chain Link Fences and Gates in accordance with Sections 664 of the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation, including all addenda except as modified by the plans and these specifications. Method of measurement and basis of payment do not apply.

1.5 SUBMITTALS

- A. Submit product data illustrating fence height, sizes of post, rails, braces, footings and accessories for review and approval by Engineer.

1.5 PAYMENT

- A. All work required under this Section shall be paid for at the unit prices as found in the bid schedule. These unit prices shall include all work described in this Section and no additional compensation will be allowed for any cost incurred.

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2. PRODUCTS

2.1 CHAIN LINK FENCE FABRIC

- A. Steel Chain-Link Fence Fabric shall be a height of 6-feet unless otherwise indicated on drawings. Provide fabric fabricated in one-piece widths for fencing in height of 12-feet and less. The fabric shall be twisted at the top and bottom selvages. Comply with CLFMI's "Product Manual" and with requirements indicated below:
1. Mesh and Wire Size: 2-inch diamond mesh.
 2. Fabric: Black Vinyl-Coated.
 3. Selvage: Knuckled at both selvages.
 4. Height: 6-feet

2.2 FENCE FRAMING

- A. Black Round Steel Pipe: Standard weight, Schedule 40, galvanized steel pipe complying with ASTM F1083-13. Comply with ASTM F1043-13, Material Design Group IA, external and internal coating Type A, consisting of not less than 1.8-oz./sq. ft. zinc; and the requirements for Heavy Industrial Fence.
- B. End, Corner, and Pull Posts: 2.375 inch actual OD, Type I or II steel pipe.
- C. Line, and Intermediate Rails: 1.9 inch actual OD, Type I or II steel pipe.
- D. Post Brace Rails: Comply with ASTM F 1043

2.3 TENSION WIRE

- A. General: Provide horizontal tension wire at the following locations:
1. Location: Extended along bottom of fence fabric.
 2. Color: Match chain-link fabric.

2.4 GATES

- A. General: ASTM F 900 for gate posts and single / double swing gate types.
1. Hinges: Fabricate gates to permit 180-degree swing.
 2. Color: Match chain-link fabric.
 3. Latch: Permit operation by one person from both sides of gate with provision for padlocking accessible from both sides of gate.

2.5 FITTINGS

- A. General: Provide fittings for a complete fence installation, including special fittings for corners. Comply with ASTM F 626-14.
- B. Post and Line Caps: Hot-dip galvanized pressed steel or hot-dip galvanized cast iron. Provide weathertight closure cap for each post.
1. Provide line post caps with loop to receive tension wire.

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- C. Rail and Brace Ends: Hot-dip galvanized pressed steel or hot-dip galvanized cast iron. Provide rail ends or other means for attaching rails securely to each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Rail Clamps: Hot-dip galvanized pressed steel. Provide line and corner boulevard clamps for connecting intermediate or bottom rails in the fence line to line posts.
- E. Tension and Brace Bands: Hot-dip galvanized pressed steel.
- F. Tension Bars: Hot-dip galvanized steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Tie Wires, Clips, and Fasteners: Provide the following types according to ASTM F 626-14:
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:
 - a. Hot-Dip Galvanized Steel: 0.106-inch-diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.
- H. Pipe Sleeves: For posts set into concrete, provide preset hot-dip galvanized steel pipe sleeves complying with ASTM A53/A53M-12, not less than 6 inches long with inside dimensions not less than 1/2 inch more than outside dimension of post, and flat steel plate forming bottom closure.

2.6 POST SETTING MATERIALS

- A. Portland cement Concrete Mixes: Normal-weight concrete air entrained with not less than 3000-psi compressive strength (28 days), 3-inch slump, and 1-inch maximum size aggregate.

3. EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance.
 - 1. Do not begin installation before final grading is completed, unless otherwise permitted by Engineer.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 INSTALLATION, GENERAL

- A. General: Install chain-link fencing to comply with ASTM F567-14a and more stringent requirements specified.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacing indicated, in firm, undisturbed or compacted soil.
- C. Post Setting: Hand-excavate holes for post foundations in firm, undisturbed or compacted soil. Set terminal post, corner post, pull post (bracing post) and gate operator-mounting posts in concrete footing; drive all other posts (line posts) into the ground to required depths. Protect portion of posts aboveground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation. Using mechanical devices to set line posts per ASTM F567-14a is permitted. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during placement and finishing operations until concrete is sufficiently cured.
 - 1. Dimensions and Profile: As indicated on drawings.
 - 2. Exposed Concrete Footings: Extend concrete 1 inches above grade, smooth, and shape to shed water.
 - 3. Posts Set into Concrete in Sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, and finished sloped to drain water away from post.

3.4 CHAIN-LINK FENCE INSTALLATION

- A. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567-14a and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.
- B. Line Posts: Space line posts uniformly at 10 feet o.c., unless otherwise directed.
- C. Post Bracing Assemblies: Install according to ASTM F 567-14a, maintaining plumb position and alignment of fencing. Install braces at end and gate post and at both sides of corner and pull posts. Locate horizontal braces at mid-height of fabric on fences with top rail and at two-thirds fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- D. Tension Wire: Install according to ASTM F 567-14a, maintaining plumb position and alignment of fencing. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric.
 - 1. Top Tension Wire: Install tension wire through post cap loops.
- E. Intermediate Rails: Install in one piece at post-height center span, spanning between posts, using fittings, special offset fittings, and accessories.
- F. Chain-Link Fabric: Apply fabric to inside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage, unless otherwise indicated. Pull

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fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.

- G. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15" o.c.
- H. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626-14. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts 12 inches o.c. and to braces 24" o.c.
- I. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

END OF SECTION 323113

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installation, procedures, materials, etc. shall be in conformance with the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications) except as modified by this Specification.

1.2 SUMMARY

- A. Furnish material, labor, equipment and service required to establish lawns, including all work necessary for seeding operations described herein and on accompanying drawings. Work includes restoration of lawns damaged by construction, storage, and vehicles.
- B. Related Sections:
 - 1. Section 311000 - Site Clearing for work pertaining to removal and disposal.
 - 2. Section 312000 - Earthwork for work pertaining to excavation and backfilling.

1.3 SUBMITTALS

- A. Submit the dealer's guaranteed statement of the composition of the mixture and the percentages of purity and germination and submit a copy of the State Certification for the seed.

1.4 QUALITY ASSURANCE

- A. The OWNER will employ a GEOTECHNICAL ENGINEER to observe and test excavations and compacted fill.
- B. The CONTRACTOR will provide staking to establish the grades and elevations indicated on the project grading plan.
- C. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.

1.5 WARRANTY

- A. The CONTRACTOR shall warrant lawns through the maintenance period and until final acceptance.

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1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.
- B. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

1.7 PAYMENT

- A. All work required under this Section shall be paid for at the unit prices as found in the bid schedule. These unit prices shall include all work described in this Section and no additional compensation will be allowed for any cost incurred.

PART 2 – PRODUCTS

2.1 MATERIALS AND RATE OF APPLICATION

- A. Fertilizer: A starter fertilizer contained in available form by weight of 18%nitrogen, 18% phosphoric acid, and 18% potash, plus trace elements. Fertilizer shall be delivered to the site in original unopened containers which bear the manufacturer's guaranteed statement of analysis.
 - 1. Rate of application shall be in accordance with the manufacturer's written recommendation.
 - 2. Apply at rate of two pounds / 1000 square feet
- B. Turf Grass (Permanent Seed) - "Sports Turf" Grass Seed: Mix: 95% / 5% Turf-Type Tall Fescue / Bluegrass. Mix to comply with the standards of the Official Seed Analysis of North America for 90% purity and 85% germination, recommended by producer for partial-sun exposure of lawns in the geographic location of project.
 - 1. Rate of application shall be seven pounds per 1000 square feet
- C. Mulch: hay or straw, not chopped in short lengths.
 - 1. Application rate shall be 4000 lb./acre.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Inspect the site to determine its suitability for seeding and sodding operations.
 - 1. Do not proceed until unsatisfactory conditions have been corrected.

3.2 AREAS TO RECEIVE PERMANENT SEED

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- A. All areas disturbed during construction; all earth surfaces within the construction limits; and, areas outside the construction limits where noted on the drawings.

3.3 JOB CONDITIONS

A. Protection

- 1. Protect adjacent construction and plants. Replace or repair damaged construction and plants at no expense to the Owner.
- 2. Protect newly seeded areas by barricades and warning signs.
 - a. Maintain barricades during the maintenance period.

B. Planting Time

- 1. Sow lawn seed only during normal planting seasons.
- 2. Correlate planting with specified maintenance periods after date of Substantial Completion.

C. Coordination

- 1. Coordinate the schedule of seeding activities with other trades prior to commencing operations.

3.4 PREPARATION

A. Prepare areas which will be planted immediately before planting.

- 1. Remove stones over 1 inch in any direction, and sticks, roots, rubbish, and other extraneous material.
- 2. Grade lawn areas to a smooth, even surface, with loose, uniformly fine texture.
- 3. Roll and rake, removing ridges and filling depressions.

3.5 APPLICATION OF FERTILIZER

A. Mix lime / fertilizer, at specified rates of application and work into surface.

- 1. Lime and fertilizer may be applied and incorporated in same operation.

3.6 SEEDING

A. MOISTURE CONTROL

- 1. If lawn area is dry, water the area to be seeded thoroughly and allow to dry until surface is slightly damp.

B. MECHANICAL SEEDING

- 1. Sow evenly with an approved mechanical seeder at the rate indicated.
 - a. Sow one-half the seed in one direction and the other half at right angles to the first seeding.

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- b. Lightly roll with a cultipacker.
 - 1) In areas inaccessible to cultipacker, lightly rake and roll in two directions with a water ballast roller.
 - 2) Do not rake seed from one spot to another.
- 2. Do not change the finished grades.
- 3. If a large mechanical seeder which works the seed into the soil and at the same time rolls the seed bed is used, it is not necessary to roll the seed bed separately.

C. MULCHING

- 1. After sowing, spread evenly at the rate of 2 tons per acre over newly seeded areas.
- 2. Apply in a uniform layer, loose enough to allow sunlight to penetrate and air to circulate, yet sufficient to shade the soil and reduce erosion.
- 3. Secure mulch in place by crimping, cultipacking, spraying with asphalt emulsion or any other means satisfactory to the Owner.

3.7 MAINTENANCE FOR GROW-IN

- A. Begin maintenance immediately after seeding.
- B. Maintenance includes:
 - 1. Protection
 - 2. Watering thoroughly and evenly following each seeding.
 - 3. Rolling
 - 4. Fertilizing
 - 5. Re-seeding
 - 6. Mowing, weeding, and trimming – Contractor shall mow the site when the developing turf reaches a height of 6-inches, and mow to a height of 3-inches. At least one mowing shall be completed prior to acceptance.
- C. Repair: During the maintenance period, repair or rework washouts, dry areas, erosion or damage by vandalism.
- D. Time: Continue maintenance for not less than 60 days, or if not considered acceptable.

3.9 ACCEPTANCE OF LAWNS

- A. Upon written request from the CONTRACTOR, at least ten days before the date of inspection, and no earlier than 60 days after completion of seeding, the ENGINEER will perform an inspection of seeded areas.
- B. After inspection, the ENGINEER shall prepare a list of any deficiencies or omissions (punch list).
 - 1. Replant and make repairs itemized on the Punch List.
 - 2. Continue maintenance of that portion of the lawn which has not been accepted by the Owner.

END OF SECTION 329200

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installations, procedures, materials, and testing of the work performed under this Section shall conform to the latest edition of the Standard Specifications for Water and Sewer Main Construction in Illinois (hereinafter referred to as the Standard Specifications) and the City of Mascoutah requirements and regulations, except as modified by this Specification. Where reference is made to an ASTM, AWWA, or AASHTO designation, it shall be the latest revision at the time of bidding, except as noted on these plans or in these specifications.
- C. All work, installation, procedures, materials and testing of sanitary sewer pipe, manholes, service lateral piping, and sewer appurtenances shall conform to the requirements of the Illinois Environmental Protection Agency (IEPA) permit associated with this project, and all pertinent state and local codes and permits applicable to this project.

1.2 SUMMARY

- A. This work shall consist of the furnishing of all labor, materials and equipment necessary for the construction of the proposed Sanitary Sewer improvements in accordance with the Contract Drawings and Specifications. CONTRACTOR shall pay for all permits required under this Specification.
- B. Related Sections:
 - 1. Section 311000 - Site Clearing for work pertaining to removal and disposal.
 - 2. Section 312000 - Earthwork for work pertaining to excavation and backfilling.

1.3 SUBMITTALS

- A. The CONTRACTOR shall submit to the ENGINEER four (4) copies of manufacturer's information for the sanitary sewer pipe, manholes, cleanouts, and appurtenances to be utilized for the construction of this project. The CONTRACTOR shall submit to the ENGINEER four (4) copies of the test results as required by this Specification.
- B. The CONTRACTOR shall submit a hard copy of "As-Built" drawings after Substantial Completion.
- C. Record drawings shall note all elements of the system denoting locations of the mainline and laterals.

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1.4 QUALITY ASSURANCE

A. Contractors Organization

1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.

1.5 WARRANTY

- A. The CONTRACTOR shall warrant all construction materials and workmanship associated with this CONTRACT to be free from defects for a period of one (1) year from the date of final acceptance by the OWNER.

1.6 PAYMENT

- A. All work required under this Section shall be paid for at the unit prices as found in the bid schedule. These unit prices shall include all work described in this Section and no additional compensation will be allowed for any cost incurred.

PART 2 - PRODUCTS

2.1 THERMOPLASTIC SANITARY SEWER PIPE

- A. Except where otherwise noted, sanitary sewer pipe shall be PVC pipe in conformance with ASTM D-3034 SDR-26, type PSM for sizes 4"-15". The pipe shall be made of PVC plastic having a minimum cell classification of 12454-c, and shall have a minimum pipe stiffness of one hundred and fifteen (115) pounds per inch per inch.
- B. Sanitary sewer pipe and fittings shall be of the same material as the pipe, fittings for service laterals shall be Wyes and shall be six (6) inches inside diameter. All terminal fittings shall be fitted with a plug of the same material as the pipe and gasketed with the same gasket material as the pipe joint. The plug shall be secured to withstand standard air testing pressures as described herein.

2.2 FORCE MAIN PIPING

A. Poly-vinyl Chloride Pipe Force Main

1. The force main piping shall be in conformance with ASTM D2241, and have a dimension ratio of 21 (Class 200) or shall be in accordance with AWWA C-905 with a standard dimension ratio of 25, as noted on the Drawings. Joints for this pipe shall be in conformance with ASTM D3139 and shall be flexible elastomeric gaskets. Fittings utilized on the PVC force main shall be ductile iron.

B. PVC – Restrained Joint

1. PVC pipe utilized for directional boring applications shall be restrained joint, conforming to AWWA C900/C905. The pipe, couplings, and all thrust restraint components shall be completely non-metallic to eliminate corrosion.
2. Pipe and couplings shall be made from unplasticized PVC compounds having a cell classification of 12454-B, as defined in ASTM D1784. The compound shall qualify for a Hydrostatic Design Basis (HDB) of 4000 psi for water at 73.4 degrees Fahrenheit, in accordance with requirements of ASTM D2837.

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2.3 MANHOLES

- A. Manholes shall be constructed of pre-cast concrete and conform to ASTM C-478. Cones and sections shall be substantially free from fractures, large or deep cracks, and surface roughness.
- B. Joints between pre-cast sections shall be designed for rubber gaskets or bituminous joint material as shown on the sanitary sewer detail drawings.
- C. Manholes shall be constructed with silica fume admixture specifically to prevent hydrogen sulfide corrosion of the pre-cast concrete, submittals detailing the type of silica fume admixture and its suitability for this application shall be submitted to the engineer for approval. Rheomac SF100 and Rheobuild 1000 or approved equals shall be used in the manufacture of the manhole component sections.
- D. The pre-cast base section shall be monolithically constructed with a pre-cast invert to align all sewer pipes to the elevations as shown on the plans.
- E. Manholes steps shall be furnished and installed and shall be polypropylene coated steel reinforcing rods with load and pullout ratings meeting OSHA standards.
- F. Pipe connections shall be flexible watertight connections conforming to ASTM C-923, for resilient connectors between reinforced concrete and pipe.
- G. Casting shall conform to the requirements of gray iron castings ASTM A-48 and shall be of the manufacturer detailed on the plans.

2.4 SANITARY SEWER JOINTS

- A. PVC sanitary sewer pipe joints shall be in conformance with ASTM D-3212 with the elastomeric gasket glued in place.

2.5 SANITARY SEWER GASKETS

- A. Gaskets shall be molded from a high-grade, vulcanized elastomeric compound consisting of either a basic natural or synthetic rubber. Gaskets for PVC pipe shall meet the requirements of ASTM F477 and be molded into a circular form or extruded to the proper section, then spliced into circular form, and shall be made of a properly cured high grade elastomeric compound.
- B. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe, field installed gaskets and field cut beveled lengths of pipe shall not be allowed, except to provide a field adjusted pipe to allow placement of a manhole. This procedure shall be undertaken in strict conformance with the manufacturer's instructions and recommended equipment and materials.

2.6 LUBRICANT

- A. Lubricant shall be suitable for lubricating the joint component. It shall have no deteriorating effect on the gasket or pipe material and no detrimental effect on the quality of wastewater to be carried by the pipe.

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2.7 BEDDING, HAUNCHING, AND INITIAL BACKFILL FOR SANITARY SEWER PIPE

- C. Bedding, haunching, and initial backfill for the sanitary sewer pipe shall be CA-7 aggregate conforming to the latest edition of the Illinois Department of Transportation, "Standard Specifications for Road and Bridge Construction."

2.8 FINAL BACKFILL

- D. Backfill material shall consist of earth excavated material or select granular material. Final backfill for trenches and excavation made in existing or proposed pavements, and for all trenches outside of existing or proposed pavements where the inner edge of the trench is within two (2) feet of the edge of pavement curb, gutter, curb and gutter, stabilized shoulder or sidewalk shall be made with select granular backfill. The select granular backfill shall be CA-6 aggregate conforming to the latest edition of the Illinois Department of Transportation, "Standard Specifications for Road and Bridge Construction."

PART 3 - EXECUTION

3.1 INSTALLATION OF SANITARY SEWER

- A. All sanitary sewer lines shall be installed as per the Standard Specifications using a laser provided by the CONTRACTOR capable of aligning the sanitary sewer to the proper grades as specified on the Contract Drawings. In the event field conditions dictate deviation from the plan drawings, no change shall be made without written authorization from the engineer.
- B. All excavations shall be in conformance with the United States Department of Labor, Occupational Safety, and Health Administration (OSHA) regulations "construction standards for excavations, 29 CFR, part 1926, subpart P, and all applicable OSHA standards.
- C. The CONTRACTOR shall provide all shoring and temporary bank stabilization as necessary to install the sanitary sewer at all creek crossings. This shall include any required dewatering in order to establish an acceptable working surface for which to install the Creek Crossing/Pipe Encasement systems.
- D. The CONTRACTOR shall provide all shoring and trench stabilization at all utility crossings as necessary in order avoid damage to the existing utilities. The CONTRACTOR shall be responsible to repair or replace in kind any utility damaged as a result of this work at no cost to the OWNER.

3.2 RECONNECTION OF EXISTING SANITARY SEWER LINES

- A. The CONTRACTOR shall reconnect all existing sanitary sewer lines as shown on the contract drawing and in accordance with the typical sanitary sewer connection detail. The work required to reconnect the existing sanitary sewer lines shall be incidental to the sanitary manhole and no additional compensation will be allowed for any cost incurred.

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3.3 BYPASS SEWAGE PUMPING

- A. The CONTRACTOR shall provide for the flow of sewage around the section or sections of pipe designated for replacement. Plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Owner may require a detail of the bypass plan to be submitted.
- B. The CONTRACTOR shall be responsible for continuity of sewer service to each facility connected to the main sewer during the execution of work under this contract. In the event that a sewer back up occurs and enters dwellings, the CONTRACTOR shall be responsible for cleanup, repair and property damage costs and claims.

3.4 WYE FITTINGS

- A. The CONTRACTOR shall maintain a log of all wye fittings which shall record the upstream distance of the wye from the downstream manhole, the distance the service lateral has been extended from the main and the depth below finished ground elevation at the terminus point of the lateral. A legible and reproducible copy of such log shall be turned over to the OWNER at the completion of the project. Wyes shall be eight (8) inches inside diameter. All fittings shall be capped with a plug the same material as the sewer pipe and shall be capable of withstanding air testing of the sanitary sewer system.

3.5 BEDDING AND HAUNCHING

- E. Bedding material shall be placed at a minimum depth of six (6) inches beneath the pipe, haunching material shall be placed from the top of the bedding to the centerline of the pipe, initial backfill shall be placed from the haunching to minimum of one foot above the top of the pipe, bedding haunching and initial backfill aggregate shall be placed in layers not exceeding six (6) inches in depth and compacted to maximum density.

3.6 FINAL BACKFILL

- A. Final backfill material shall be placed from one (1) foot above the top of the pipe to the pavement sub-grade or finished surface grade. The material shall be deposited in uniform layers not exceeding six (6) inches in thickness (loose measure) and each layer shall be compacted by ramming or tamping. Fill shall be compacted in eight (8) inch loose lifts to a minimum dry density of 95% of the material's standard proctor minimum dry density as determined by ASTM D 698. Backfill under pavement, parking, sidewalk, or similar structural areas shall be accomplished utilizing CA-6 Type A granular aggregate from the point of initial pipe backfill to the subgrade.

3.7 TESTING

- A. Infiltration of ground water into the completed system shall under no circumstances exceed 200 gallons per inch of pipe diameter per mile per day. This requirement applies to laterals, sewer mains and manholes.
- B. Testing shall be performed by the CONTRACTOR and shall be undertaken in accordance with the latest ASTM standards. All testing shall be in conformance with the Standard Specifications.
- C. All sewer lines shall be tested for excess deflection by pulling a "go-no go" mandrel through the pipe from manhole to manhole. The outside diameter of the test mandrel shall be equal to ninety-

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five percent (95%) of the original inside diameter of the pipe being used. The individual lines to be tested shall be so tested no sooner than 30 days after they have been installed.

Wherever possible and practical the testing shall initiate at the downstream lines and proceed towards the upstream lines.

Where deflection is found to be in excess of 5% of the original pipe diameter, the contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall be re-tested for deflection. However, should the deflected pipe fail to return to the original size (inside diameter) after the corrective measures, the line shall be replaced. In the event that deflection occurs beyond the 5% limit in any section on 10% or more of the reaches tested, the entire system shall be tested. Deflection testing and possible repair and replacement, as stated above, shall be incidental to the construction of sewer pipe and no additional compensation will be provided.

- D. Manholes shall also be tested for acceptability using the Negative Air Pressure (Vacuum) Test in accordance with ASTM C1244.
- E. All sewer lines shall undergo a jet cleaning procedure that is pre-approved by the ENGINEER. The CONTRACTOR shall submit the cleaning schedule to the ENGINEER with a 48 hour advanced notice. Upon the completion of the sewer cleaning, all lines must be televised using simulated flow conditions. The CONTRACTOR shall submit a video and written report to the ENGINEER for review.
- F. CONTRACTOR shall submit written proof of testing results shall be submitted to the ENGINEER and the City of Mascoutah.

3.8 RECORD DRAWINGS

- A. Record drawings shall be submitted to the ENGINEER and the City of Mascoutah indicating the installed top and invert elevation of each manhole; all pipe size and invert elevations entering the manhole; stationing of wyes or tees from the nearest downstream manhole.

END OF SECTION 333000

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SECTION 334000 - SUBMERSIBLE WASTEWATER PUMP WITH INTEGRATED PUMP CONTROL
SYSTEM FOR SEWAGE LIFT STATION

PART 1. GENERAL

1.1. SCOPE OF WORK

- A. The work in this section shall include furnishing and placing into operation two (2) stationary submerged mounted sewage pump system(s) complete with submersible motor, submersible cable, discharge connection, lifting chains and guide rails as specified herein and as indicated on the drawings. The complete pump system shall be submersible up to 65 feet.

1.2. RELATED SECTIONS

- A. Section 333000 – Sanitary Sewer for work pertaining to force main and sanitary sewer

1.3. REFERENCES

- A. American Society for testing and material (ASTM) International
 - 1. A 48: Standard Specification for Gray Iron Castings.
 - 2. A743: Standard Specification Iron-Chromium Nickel, Corrosion Resistant,
- B. American National Standards Institute (ANSI):
 - 1. B16.1: Standard for Cast Iron Pipe Flanges and Flanged Fittings, 125 lb.
- C. Hydraulic Institute: Current Standards.
 - 1. HI 14.6: Hydrodynamic Pumps for Hydraulic Performance Acceptance Tests.
 - 2. HI 11.6: Submersible Pump Tests
- D. Standard Specifications for Water and Sewer Main Construction in Illinois for all work, installation, procedures, materials, and testing of sanitary sewers, manholes, cleanouts, laterals, etc.

1.4. SUBMITTALS

- A. Submittal data shall be provided to show compliance with these specifications, plans or other specifications that will influence the proper operation of the pump(s).
- B. Standard submittal data for approval must consist of:
 - 1. Pump Performance Curves.
 - 2. Pump Outline Drawing.
 - 3. Station Drawing for Accessories.
 - 4. Electrical Motor Data.
 - 5. Typical Installation Guides.
 - 6. Technical Manuals.
 - 7. Parts List.
 - 8. Printed Warranty.
 - 9. Management system certificate ISO 9001.
 - 10. Manufacturer's Equipment Storage Recommendations.
 - 11. Manufacturer's Standard Recommended Start-Up Report Form.
- C. Lack of the above requested submittal data is cause for rejection.

1.5. QUALIFICATION REQUIREMENTS

- A. The manufacturer shall provide data on alternate equipment manufacturer's experience. Only Manufacturers with 20 or more years of experience who have furnished at least 5 similar lift stations shall be considered.
- B. After installation, a pump station start-up shall be performed by the installing contractor under the supervision of the manufacture's authorized representative. 8 hours of field service shall be provided by an authorized, factory trained representative of the pump manufacturer. Services shall include, but not be limited to, inspection of the completed pump station installation to ensure that it has been performed in accordance with the manufacturer's instructions and recommendations, supervision of all field-testing and activation of the Pump Manufacturer's Warranty. The test shall demonstrate to the satisfaction of the Owner that the equipment meets all specified performance criteria, is properly installed and anchored, and operates smoothly without exceeding the full load amperage rating of the motor. The Contractor shall be responsible for coordinating the required field services with the Pump Manufacturer.

1.6. OPERATIONAL REQUIREMENTS AND WARRANTY

- A. The pump station shall be equipped with submersible sewage pump(s) with an integrated pump control system.
- B. It shall be possible to lift and lower the pump on parallel guide bars and connect it to wet well mounted discharge connection. There shall be no need for personnel to enter the wet well when removing or reinstalling the pumps.
- C. Sealing of the pump unit to the discharge connection shall be accomplished by a machined metal to metal watertight contact. Sealing of the pump discharge interface with an O-ring, diaphragm or profile gasket is not acceptable.
- D. The impeller shall be a semi open multi vane self-cleaning impeller designed to transport wastewater with fibrous materials like wet wipes. It shall be wear resistant against sand and grit which is expected to enter the pump station with the sewage or the storm water.
- E. Each pump shall be capable to lift 80.4 US gpm at a total dynamic head of 15 feet.
- F. The NPSH_{re} shall be below 3.0 feet.

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- G. The pump manufacturer shall furnish the owner with a written warranty to cover the pump(s) and motor(s) against defects in workmanship and material for a period of five (5) years or 10,000 hours of operation under normal use and service. The pump manufacturer will pay the following portion of the cost of all replacement parts and repair labor from the date of shipment of the pump unit. Pumps repaired under warranty will be returned to the owner freight prepaid.

Months	0-18	19-39	40-60
Hours	0-3,000	3,000 - 6,500	6,500 - 10,000
Warranty	100%	50%	25%

The warranty shall be in printed form as the manufacturer's standard warranty for all similar units manufactured.

Panel warranty: 24 months from date of manufacture. The warranty shall apply to being free from defects in material and workmanship.

- H. The level sensing probe shall be covered by the manufacturer's ten-year warranty.

1.7. CONTRACTOR'S ORGANIZATION

The CONTRACTOR shall have a competent supervisor on the site during the progress of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive directions and to act upon directions from the OWNER.

1.8. PAYMENT

All work required under this Section shall be paid for at the Lump Sum Contract Price.

1.9. RECORD DATA

Four copies of as-built wiring diagrams shall be provided for all control panels. Interconnection wiring diagrams shall also be provided when applicable. Final as-built drawings shall be full-size printed on 11" x 17" paper, using multiple sheets as required.

A waterproof reduced copy of the master "as built" wiring diagram shall be laminated in clear plastic and permanently fastened to the inside of the panel door. A set of as-built drawing shall be placed in the panel.

All available operation and maintenance manuals for control panel components shall be provided.

A description of operation shall be provided for each control panel.

As-built wiring diagrams and panel layout drawings shall be provided in AutoCAD format (dwg) on CD media.

PART 2. PRODUCTS / PUMPS

2.1. SUBMERSIBLE SEWAGE PUMP(S) WITH INTEGRATED CONTROL SYSTEM FOR WET WELL INSTALLATION - FLYGT NP 6020 N100-800.

- A. The pump shall be equipped with a 3.0 HP submersible synchronous electric motor, capable to operate on a 480 volt, 3 phases, 60 hertz voltage supply. The starting current shall not exceed 14 A.

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- B. The hydraulic end of the pump shall be capable of handling raw domestic wastewater with fibrous cloth-like materials.
- C. The impeller blades shall be self-cleaning upon each rotation as they pass across a sharp relief groove in the Insert ring and shall keep the impeller blades clear of debris. The insert ring shall have a guide pin which moves fibers from the center of the impeller to the leading edges of the impeller. The impeller shall move axially upwards to allow larger debris to pass through and immediately return to normal operating position. The clearance between the insert ring and the impeller leading edges shall be adjustable.
- D. Due to the likely presence of sand and or grit the impeller and the cutting ring shall be made of ASTM A-532 Alloy III A with 25% chrome. Impellers that have surface hardening or coating will not be allowed.
- E. The pump the motor and the integrated control system shall be submersible a minimum of 65 feet (20m) according IEC 60034 and protection class IP 68. Motors which only can be submerged for a limited time (IP 67) shall not be considered as equal.
- F. The motor shall capable to operate the pump at continuous duty (S1) in an ambient temperature up to 104°F. Operational restrictions or the demand of auxiliary cooling systems like fans or blowers are not acceptable.
- G. The pump shall be operated by a synchronous motor and an integrated control system and be capable to run at constant power at any point of the performance field without being overloaded. Motor shall utilize a permanent magnet rotor to maintain synchronous speed.
- H. The motor shall withstand at least 60 starts per hour.
- I. The discharge flange of the pump shall be 4"and drilled according ANSI B16.1-89; tab.5.
- J. The impeller shall be mounted on the motor shaft. Couplings shall not be accepted.
- K. An integrated pump control system installed in the pump/motor housing shall start the pump by gradually increasing the pump speed. The starting current shall not be higher than the rated current.
- L. An integrated pump control system installed in the pump/motor housing shall secure that the direction of the impeller rotation is always correct. There shall be no need for any human intervention to ensure that the impeller is rotating in the correct direction within the volute. The integrated control system shall be inside the motor and encapsulated to protect it against moisture ingress, and vibration.
- M. The motor and the pump control system shall receive sufficient cooling from the pumped liquid to operate the pump at continuous duty in a liquid with a temperature with 104°F. Operational restrictions on the liquid temperature below 104°F or the demand of auxiliary cooling systems like fans or blowers are not acceptable. The Stator shall be inverter duty rated in accordance with NEMA MG1, Part 31 and be insulated according class H (356°F).
- N. Motor, pump and control system shall be designed and supplied by the pump manufacturer.
- O. The control system shall continuously monitor the leakage sensor in the stator housing and the temperature of the motor. It shall be impossible to overload the motor. If the motor temperature is too high, the pump shall continue to operate at reduced power until conditions are normalized. External trips or overload devices for motor protection shall not be required.

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- P. The operator shall be able to modify the setting of the control system to decide if the active leakage signal shall stop or not stop the pump.
- Q. The pump shall incorporate a "pump-cleaning" function to remove debris from the impeller. The cleaning function shall be initiated when the integral control system senses an increase in current draw due to debris in the pump. The cleaning function shall consist of forced stopping, reversal and forward runs timed to allow for debris to fall from the impeller. After cleaning cycle is complete, the pump shall resume to automatic operation. If the pump impeller/volute does not clear itself after the programmed number of attempts, the control shall initiate an alarm to notify that the pump inlet / volute is blocked by large debris.
- R. It shall be possible to access and adjust the pump system with a Human Machine Interface (HMI) ranging from basic monochrome displays to full-color touch screen units and smartphone or tablet. It shall enable the operator to view and control entire pump system and logged operational data like number of starts, avoided clogging instances, pump run-time, motor power, motor current, power factor, temperature, pump leakage etc.
- S. The shaft shall rotate on two bearings. The motor bearings shall be sealed and permanently grease lubricated with high temperature grease. The upper motor bearing shall be a single row ball bearing to handle radial loads. The lower bearing shall be a double row angular contact ball bearing to handle the thrust and radial forces. Single row lower bearings are not acceptable. The minimum L10 bearing life shall be 50,000 hours at any usable portion of the pump performance field.
- T. The shaft shall be sealed by a tandem mechanical shaft seal system consisting of two seals, each having an independent spring system. The seals shall require neither maintenance nor adjustment and shall be capable of operating in either clockwise or counter clockwise direction of rotation without damage or loss of seal function.
- U. Where a seal cavity is present in the seal chamber, the area about the exterior of the lower mechanical seal in the cast iron housing shall have cast in an integral concentric spiral groove. This groove shall protect the seals by causing abrasive particulate entering the seal cavity to be forced out away from the seal due to centrifugal action
- V. The Materials of construction shall be as follows:
Pump housing: ASTM A-48, Class 35B
Impeller and insert ring: A 532 ALLOY III A (25% chrome)
Stator housing: GD-AL SI 12 or ASTM B85A 413
Shaft: ASTM A479 S43100-T.
Shaft seal: Pump side: - Corrosion resistant Tungsten carbide WCCR
Shaft seal Motor side: - Corrosion resistant Tungsten carbide WCCR
- W. All castings must be blasted before coating. All wet surfaces are to be coated with two-pack oxyrane ester Duasolid 50. The total layer thickness should be at least 120 microns. Zink dust primer shall not be used.
- X. The motor shall be equipped with 50 feet of screened cable S3x6+3x6/3+S(4x0,5) suitable for submersible pump applications. The power cable shall be sized according to NEC and ICEA standards. The outer jacket of the cable shall be oil resistant chlorinated polyethylene rubber. The cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet.
- Y. Each completed and assembled pump/motor unit shall undergo the following factory tests at the manufacturer's plant prior to shipment:
a. Hydraulic performance test

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b. No-Leak seal integrity test

- Z. In the event the pump manufacturer cannot meet the specified performance and control functions with a pump model, the control panel shall be equipped with Adjustable Speed Drives (ASD) with bypass starters and a PLC programmed to meet the above specified performance field, housed in an enclosure equipped with fans, louvers sized to ensure proper ASD operation. Five (5) spare louver filters and one (1) spare fan shall be provided per panel.

2.2. VOLUTE

Pump volutes shall be single-piece grey cast iron, ASTM A-48, Class 35B, non-concentric design with smooth passages large enough to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified.

2.3. INSTALLATION & LIFTING EQUIPMENT FOR PUMP(S)

- A. Each pump shall be supplied with a mating cast iron discharge connection. The pumps shall be automatically and firmly connected to the discharge connection, guided by no less than two stainless steel guide bars extending from the top of the station to the discharge connection to ensure pump stability when installing or removing the machine. There shall be no need for personnel to enter the wet well to access the pump. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal watertight contact. Sealing off the discharge interface with a diaphragm, O-ring or profile gasket shall not be acceptable. No portion of the pump shall bear directly on the wet well floor.
- B. The guide rail system shall consist of two parallel 2" guide bars, supported by pump manufacturer supplied upper guide rail brackets. Guide bars and guide brackets shall be type 304 Stainless Steel.
- C. Each pump shall be fitted with stainless steel lifting chain. Lifting chain shall be connected to the lifting handle of the pump and be long enough to reach the top elevation of the station. Lifting chain shall be compatible with the Grip-Eye Pump Lift System. The working load of the lifting system shall be 50% greater than the pump unit weight.

2.4. PROTECTION

All stators shall incorporate thermal switches in series to monitor the temperature of each phase winding. At 260°F (125°C) the thermal switches shall open, stop the motor and activate an alarm.

A leakage sensor shall be available as an option to detect water in the stator chamber. The Float Leakage Sensor (FLS) is a small float switch used to detect the presence of water in the stator chamber. When activated, the FLS will stop the motor and send an alarm both local and/or remote. USE OF VOLTAGE SENSITIVE SOLIDSTATE SENSORS AND TRIP TEMPERATURE ABOVE 260°F (125°C) SHALL NOT BE ALLOWED.

The thermal switches and FLS shall be connected to a Mini CAS (Control and Status) monitoring unit. The Mini CAS shall be designed to be mounted in any control panel.

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2.5. CONTROL PANEL

A. Scope

The contractor shall furnish and install with each pump station a Model 331 Lift Station Control Panel as manufactured by PRIMEX controls. The pump station control panel shall house the complete electrical system to operate a duplex pump station with the incoming power being 208, 230 or 460 VAC three-phase.

The panel shall be a standard pre-engineered panel that shall be offered in a stainless steel enclosure with a red alarm light and a single power feed. It should also have an offering, from the manufacture, to allow for an amber alarm light with a separate alarm circuit. See section 2.03, OPTIONAL EQUIPMENT, for option details.

The control panel shall be manufactured by an UL certified panel facility and shall meet all UL508A standards (Industrial control equipment). The panel shall be built to meet Type 4X ratings and shall in all respects conform to the National Electric Code and all other state and local codes which may apply.

The Utility Meter Base shall be provided by the installing Contractor and shall meet utility company standards.

B. Quality Assurance

The Pump Control System shall be fabricated by a current UL 508A Listed industrial control panel manufacturer. The panel manufacturer shall show its UL follow-up Service Procedure file number on submittal drawings. All devices within the panel shall be UL listed and/or recognized and shall be mounted and wired in accordance with the most current edition of UL508 and NFPA. All pump and control conduits entering or exiting the Pump Control Panel shall have explosion proof conduit seals suitable for Class I, Division 1 or 2, Group D environments. The conduit seals and hubs shall be provided and installed by the Pump Control Panel manufacturer. Refer to the enclosure and junction box section of these specifications for further information. The panel manufacturer shall have a minimum of ten (10) years experience manufacturing systems specifically for water and wastewater applications.

The panel shall be designed with the following features to operate one (1) Flygt Model NP-6020 N100-800, 3 HP, 480V, 3-phase submersible sewage pump.

In addition to the label requirements of UL 508A, an engraved legend plate shall be permanently affixed on the inside of the exterior door with the name, address and telephone number of the service representative for the pumps and control panel.

The Pump Control Systems shall be fully tested by the factory prior to shipment. It shall include testing of both power and control devices as well as for all control functions. A final inspection shall be performed prior to shipment and a copy of this form shall be provided with the panel.

C. Basic Operation

The control system shall be controlled via a Multitrode Level Sensing Probe.

The probe shall be furnished with the control panel. It shall be a standard product of Multitrode.

When the HAND-OFF-AUTO switch is in the HAND position, the corresponding pump will run, bypassing the float control until the operator turns the switch to the OFF position. If the motor heat sensor is faulted or an overload is present, the motor will not be permitted to run.

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When the HAND-OFF-AUTO switch is in the OFF position, the corresponding pump will be off and not permitted to run.

When both HAND-OFF-AUTO switches are in "Auto" position, the pumps shall be controlled via a probe. When the water level rises to the "Lead Pump On" level, the lead pump shall be called, and shall run until the water level goes below the "Pumps Off Level". When the lead pump shuts down, the alternating relay shall index to the other pump for the next pumping cycle. If the water level continues to rise to the "Lag Pump On/Alarm" level, the lag pump will be called to run along with the lead pump. Both pumps will run until the water level reaches the "Pumps Off Level". The "Lag Pump On/Alarm Level" level shall override the "Lead Pump On" level in case of a lead level sensor failure.

If the pump motor heat sensor fault and/or an overload is present, the corresponding motor will not be permitted to run.

If the water level rises to the "Lag Pump On/High Level", a flashing alarm beacon and audible alarm shall be activated. The beacon and audible alarm shall remain active until the water level goes below the "Lag Pump On/High Level".

There shall be an external "Silence/Test" pushbutton that will; when pressed in normal condition, test the audible and alarm light, and when pressed in a high-level condition, silence the audible alarm.

2.6. COMPONENT AND REQUIREMENTS

A. Indicators and switches.

1. Indicator to be 22 mm LED industrial devices.
2. There shall be a Green pump running light for each pump.
3. There shall be a Red seal fail light for each pump.
4. There shall be three position HAND-OFF-AUTO selector switch for each pump.
5. All indicators and switches are to be labeled with a white legend plate with black lettering. Labels are to be mechanically fastened; labels with adhesive are not acceptable.
6. Components shall be Square D, XB4 series.

B. ETM

1. There shall be an individual elapsed time meter for each pump.
2. The ETM's shall have a 7-digit display which includes two decimal spaces and shall not be resettable.

C. Combination Starter

1. The combination starter shall offer short circuit protection while being utilized as a motor starter with integrated overload protection in a single frame.
2. Overload Modules
 - a. The overload modules may be exchangeable to provide a large overload range. The overloads should offer a type Class 10 protection.
 - b. Components shall be Square D, LUCA series.
3. The motor starter shall be sized to accommodate up to 10 HP maximum at 208 or 230 VAC, and 20 HP maximum at 460 VAC.
4. Combination Starter to be Square D, TeSys U Simple Motor Starter.

D. Control Transformer

1. The control transformer shall have multiple taps to allow 208, 230 or 460 VAC primary operation. The secondary voltage shall be 115 VAC.

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2. The control transformer shall be sized to supply the proper power requirements for the control circuit components.
 3. Component shall be Square D, Class 9070T.
- E. Alternating Relay
1. An alternating relay and circuitry shall be provided to cycle between pumps to allow for even pump use. The alternator shall index to the next pump as the lead pump is turned off.
 2. Component shall be Diversified, ARA-120-ABA.
- F. Control Relay
1. Control relays shall be plug-in style, SPDT.
 2. Relay contacts should be rated for a minimum 12amp @ 250VAC or 28VDC.
 3. Component shall be Square D, RSB1A120F7.
- G. Timer Relay
1. The timer relay shall be plug-in style, 4 pole relay.
 2. The time range shall be adjustable from .1 seconds to 100 hours
 3. Relay contacts should be rated for a minimum 3amp @ 250VAC.
 4. Component shall be Square D, REXL4TMF7.
- H. Flasher
1. The flasher shall be solid-state with totally encapsulated circuitry.
 2. Timing range shall be factory set at 75 flashes per minute.
 3. Component shall be Diversified, ETN-120-AFT-75
- I. Auxiliary Dry Contact
1. There shall be an auxiliary, non-energized, Form-A contact wired to terminal blocks to indicate the "High Level" float status.
 2. Contact rating shall be 3amp, 30vdc or 240vac minimum.
- There shall be individual terminal blocks to allow for connections to Thermal Heat Sensor switches and dual Seal Fail probes from each pump.
- J. Level Control Relay
1. Level control relay shall be Multitrode MTR and Multitrode MTRA level relays with alarm.
 2. Intrinsically Safe Barrier shall be MultiTrode MTISB10
- K. Level Sensing Probe
1. Level sensing probe shall be manufactured by Multitrode.
 2. The probe shall be constructed from uPVC 32mm tubing with molded sensor units at regular intervals along the probe. Each sensor unit will be PVC injected to prohibit ingress of moisture, and the sensor material will be Avesta SMO254 stainless steel.
 3. The probe shall be covered by the manufacturer's ten-year warranty (conditions apply).

2.7. CONTROL PANEL ENCLOSURE

The enclosure shall be Type 4X rated stainless steel.

1. Stainless Steel
 - a. The material to be 16-gauge Type 304 stainless steel.

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- b. Seams to be continuously welded and ground smooth.
- c. The random dimensions of the enclosure should not be greater than 20" tall, 16" wide, and 8" deep.
- d. The enclosure shall come with mounting feet to allow for wall mounting.
- e. Entry shall be via a quarter-turn latch.
- f. A hasp shall be installed to allow for the ability to padlock the enclosure.

Inner Door

- 1. The enclosure shall be provided with an aluminum inner door to provide mounting of the selector switches, indicators, and ETM's. The door shall also provide cut-outs to allow access to the combination Starter.
- 2. The inner door shall be connected via a continuous hinge.
- 3. The inner door shall be provided with quarter turn latches to securely hold the door in a closed position against a doorstop.
- 4. The following conditions shall activate the alarm light:
 - High Level
 - Power Fail
- 5. The following conditions shall activate the alarm siren:
 - High Level

Data Pocket

- 1. The control panel shall be provided with a data pocket mounted to the inside surface of the enclosure door.

Alarm Light

- 1. A Type 4X flashing Alarm Light shall be provided and should be mounted on the top center of the enclosure.
- 2. The alarm light shall be a flashing 40watt Red light with an option of being Amber.

Audible Horn

- 1. The Audible Horn shall be a piezo type that is rated Type 4X and should be mounted on the top left side of the enclosure.
- 2. The horn shall be a minimum of 95dB sound output at two feet.

SILENCE/TEST pushbutton

- 1. The SILENCE/TEST pushbutton should be Type 4X rated and mounted on the top left side of the enclosure below the Audible Horn.
- 2. The pushbutton should have an integrated printed label insert stating "SILENCE". The label shall be white with black lettering.

2.8. ACCESSORIES

1. Service Entrance Disconnect

A NEMA Type 1 enclosed, 100 Amp, 200 Volt, 3-Phase service entrance disconnect shall be provided complete with grounding facilities. This will be fused and supplied mounted and wired to the Pump Control Panel. Back panel integral to the enclosure and provided by the panel manufacturer.

2. Junction Box

A UL Listed NEMA 7 Outdoor, Explosion Proof enclosure shall be provided for connection of the floats and pumps. It shall contain tubular screw type terminal blocks for floats, pump power and control leads. In addition, it shall have intrinsically safe circuit provisions per NEC Article 504 of and ANSI/ISA-RP12.6 and be provided complete with heavy-wall fittings and sealing compound.

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This will be supplied mounted and wired to the Pump Control Panel in the Equipment Housing. The appropriate seal packing and compound shall be provided loose for the installing contractor. The conduits between the Pump Control Panel and the Junction Box shall be sealed by the installing contractor AFTER start-up and field verification of proper operation. The installing contractor must seal the conduit below the junction box with a re-enterable duct seal (provided by others).

2.9. WET WELL

The wet well shall be five (5) feet in diameter and be constructed of a base monolithically pre-cast with six (6) feet of concrete barrel followed by pre-cast concrete barrel sections in conformance with ASTM C-478. The wet well shall be equipped with steps constructed of ½" Grade 60 steel reinforcing rods encapsulated with polymer polypropylene. The base pad of the wet well shall be grouted or pre-cast to create a sloped trough to the pump volute to prevent deposition of solids at the corners of the wet well. A ductile iron vent pipe in conformance with AWWA C151 with screen shall be provided to ventilate the wet well. Resilient connectors between barrel sections of the wet well shall be in conformance with ASTM C923. Influent into the wet well shall be sealed utilizing "cast in" elastomeric sealing gaskets to seal the pipe/wet well interface. A portable hoist mounting bracket with 1" diameter anchor bolts shall be cast into the lid of the wet well as shown on the drawings.

2.10. ACCESS DOORS AND GUIDE BARS

Furnish and install 1 access frame and skid proof door (as shown on the drawings), of aluminum material, rated 300 lbs/sq. ft., complete with hinged and flush locking mechanism, upper guide bar brackets, guide bar, galvanized chain, and float cable holder. Each door shall have a safety handle to maintain the door in the open position. Frame shall be securely placed, mounted above the pumps and as shown on the drawings. Frame shall be provided with sliding nut rails to attach the accessories required. The sliding nut tray shall be located on three (3) sides of the frame to facilitate the mounting and moving of the upper guide bar, bracket, and cable holder.

All access openings into the wet well shall be fitted with a permanently installed Hinged Hatch Safety Grate fall through prevention system. The Hinged Hatch Safety Grate shall smoothly rotate 90 degrees to its open position and lock in place by a hold-open rod. The aluminum grate has an OSHA safety orange finish. Hardware components are made of 316 stainless steel to withstand corrosive wastewater environments.

The fall through protection system shall consist of a grate made of 6061-T6 aluminum and be designed to withstand a minimum pedestrian load of 300 lbs. per square foot. The grate shall operate independent of the cover's reinforcing so that the cover will continue to meet specified load and deflection requirements, even if the grate is damage or removed. The grate openings shall be 4" x 6" to allow both visual inspection and limited accessibility for maintenance purposes when the grate is closed. The grate will pivot on an aluminum hinge device with 316 SS hardware that permits it to rotate upward 90 degrees and automatically lock in place. An aluminum pull rod will be attached to the grate so the operator is positioned with the grate between him and the hatch's opening whenever he pulls on it to raise the grate. A 316 SS rod will automatically engage to secure the grate in its open position, and can be lifted upward to permit the grate to close. The hatch cover will not be able to shut until the grate is closed—thereby insuring the grate is in position when the next operator opens the hatch cover. The grate shall have an OSHA safety orange finish to increase visual awareness of the safety hazard.

Lower guide bars holder shall be integral with the discharge connection. Guide bars shall be of at least standard weight stainless steel pipe of the size indicated on the drawings. The guide bars shall not support any portion of the weight of the pumps.

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2.11. LEVEL CONTROL SYSTEM

The level control system shall consist of a multitrode level system, a duplex alternator and various supplemental components such as relays and timers as needed to provide the specified operation.

When the water level in the sump rises to the lead pump start elevation, the level control system shall start the lead pump. If the water level continues to rise to the lag pump start elevation, the level control system shall start the lag pump. When the water level falls to the pump stop elevation, the level control system shall stop all pumps. Relay logic and an alternator shall be utilized to provide level control operation of the pumps. Controllers with integral alternators that are only available from the original equipment manufacturer are not to be used on this project.

The multitrode level system shall be capable of providing alarm initiation during a power outage.

Each pump shall be controlled through a "Hand-Off-Auto" switch mounted on the control section dead front door. The automatic level control system shall operate the pump when the switch is in the auto position. The pump shall operate manually when the switch is in the hand position.

The pump(s) shall not operate in either position if any of the following conditions exist:

1. Motor over temperature
2. Motor starter overload.

2.12. LEVEL SENSING PROBE

A. Description

The probe shall be constructed from uPVC 32mm tubing with molded sensor units at regular intervals along the probe. Each sensor unit will be PVC injected to prohibit ingress of moisture, and the sensor material will be Avesta SMO254 stainless steel.

B. Mounting

The probe will be mounted in a turbulent area of the wet well, suspended on its own cable and connected to a 6mm stainless steel hook which would hang from a 30mm stainless steel angle containing a polyurethane squeegee pad positioned in the opening into the wet well, so that the probe can be removed without entering the wet well. The squeegee will have a 30mm hole and slot, enabling the probe to be pulled through and cleaned. Probe cable shall be run in a separate conduit away from any high voltage cables.

C. Sensors

10 sensors will be spaced along the length of the probe assembly, and each will be individually connected to a correspondingly numbered PVC/PVC .75mm flexible cable. The moulded sensor unit will contain two Avesta sensors mounted on opposite sides of sensor unit. Each Avesta sensor will be 24mm high and no wider than 2mm, and will protrude from the surface of the PVC. The probe shall be pressure injected with an epoxy resin to encapsulate all internal components and connections to form a rigid, homogenous unit. Each sensor unit containing the two Avesta sensors will be rotated 90 degrees to the previous sensor unit to eliminate tracking between sensors.

D. Cable

The cable will be encoded with number and text along the entirety of the cable and at intervals not greater than 200mm, for identification. This cable will be dark blue in colour, with the cores light blue. The flexible cables shall be capable of supporting the weight of the probe and cable, without the need for additional support. The cable shall be secured to the top of the probe by a synthetic rubber compression fitting.

2.13. STRAIN RELIEF DEVICES

Stainless steel strain relief devices shall be installed on all pump power and control cables such that the cables are properly supported and that stress on the cable at the connection to the motor is minimal.

Mounting

The probe will be mounted in a turbulent area of the wet well, suspended on its own cable and connected to a 6mm stainless steel hook which would hang from a 30mm stainless steel angle containing a polyurethane squeegee pad positioned in the opening into the wet well, so that the probe can be removed without entering the wet well. The squeegee will have a 30mm hole and slot, enabling the probe to be pulled through and cleaned. Probe cable shall be run in a separate conduit away from any high voltage cables.

C. Sensors

10 sensors will be spaced along the length of the probe assembly, and each will be individually connected to a correspondingly numbered PVC/PVC .75mm flexible cable. The moulded sensor unit will contain two Avesta sensors mounted on opposite sides of sensor unit. Each Avesta sensor will be 24mm high and no wider than 2mm, and will protrude from the surface of the PVC. The probe shall be pressure injected with an epoxy resin to encapsulate all internal components and connections to form a rigid, homogenous unit. Each sensor unit containing the two Avesta sensors will be rotated 90 degrees to the previous sensor unit to eliminate tracking between sensors.

D. Cable

The cable will be encoded with number and text along the entirety of the cable and at intervals not greater than 200mm, for identification. This cable will be dark blue in color, with the cores light blue. The flexible cables shall be capable of supporting the weight of the probe and cable, without the need for additional support. The cable shall be secured to the top of the probe by a synthetic rubber compression fitting.

PART 3. EXECUTION

3.1. GENERAL

- A. Perform installation in accordance with Contract Documents and manufacturers specifications.
- B. Contractor shall provide field wiring terminations to the control panel.
- C. Ground equipment as recommended by the control panel manufacturer.

3.2. EXAMINATION

- A. A factory trained technician shall examine the work area prior to beginning work and check the following:
 - 1. The environment is safe to begin working in
 - 2. All surfaces are ready to receive work
 - 3. All tools are in the proper location and are in good condition
 - 4. Grounding of the system

3.3. FIELD QUALITY CONTROL

- A. The following field tests shall be performed by a factory trained technician
 - 1. Point to point wiring verification
 - 2. Utility power verification
 - 3. Site acceptance testing
 - 4. System demonstration
- B. Point to Point I/O Verification
 - 1. After installation of the pumps and the control panel, a factory trained technician shall prepare the I/O checklist. The checklist shall include the following:
 - a. All inputs and outputs connected to the control panel
 - b. All alarms that can be generated by the control panel
 - 2. The technician shall follow a test procedure to test all I/O and alarms.
 - a. All digital inputs shall be tested from point of origin unless it is unsafe.
 - b. All digital outputs shall be tested by running a simulation test from the controller or by simulating the fault condition.
 - c. All analog inputs shall be tested from the point of origin where possible and by use of a signal generator otherwise.
 - d. All analog outputs shall be tested by running a simulation program or by forcing the output to a value.
 - 3. The technician shall follow a test procedure to insure the system operation parameters are met.
- C. Configuration Verification
 - 1. The factory trained technician shall document the settings using a factory provided configuration checklist. Each parameter shall be verified prior to the beginning of testing and then again after testing is completed.
 - 2. The configuration of the pump station manager as well as the IPS gateways shall be documented.
 - 3. The pump station manager configuration shall be saved to a factory provided SD card after testing is completed.

3.4. FACTORY TRAINED SUPERVISION

- A. The contractor shall procure a factory trained technician to check over equipment prior to putting the equipment into operation.
- B. Point to point test of all wiring
- C. Functional test of all equipment alarms and controls.

3.5. CERTIFICATION OF TESTING

- A. All tests shall be performed in the presence of a duly authorized representative of the Owner. If the presence is waived, certified results shall be provided by the Contractor.
- B. Written notice of all test shall be given two weeks in advance.

3.6. TEST EQUIPMENT

- A. All test equipment shall be provided by the Contractor.

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3.7. TRAINING

- A. Training shall be a minimum of 2 (2) hour and cover the complete Pumping System and related controls.

3.8. INSTALLATION

All equipment shall be installed in accordance with approved drawings, the manufacturer's written instructions, and local and state codes. All wiring shall be run parallel to side walls of panels and/or in covered wiring troughs. Wires passing across hinged areas shall be protected by abrasion resistant cabling material. All conductors shall be color coded to match submittal data sheets and all wiring terminations shall be identified by the component terminal numbers as shown on the appropriate panel drawings.

3.02 Start-up Service

The equipment manufacturer shall furnish the services of a qualified factory trained field service engineer for one 8-hour working day at the site to inspect the installation and instruct maintenance personnel on the operation and maintenance of the pumping units. After the pumps have been completely installed and wired, the contractor shall have the manufacturer do the following:

- a. Megger stator and power cables.
- b. Check seal lubrication.
- c. Check for proper rotation.
- d. Check power supply voltage.
- e. Measure motor operating load and no-load current.
- f. Check level control operation and sequence.

During this initial inspection, the manufacturer's service representative shall review recommended operation and maintenance procedures with maintenance personnel.

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installations, procedures, materials, and testing of the work performed under this Section shall conform to the latest edition of the Standard Specifications for Water and Sewer Main Construction in Illinois (hereinafter referred to as the Standard Specifications) and the City of Mascoutah requirements and regulations, except as modified by this Specification. Where reference is made to an ASTM, AWWA, or AASHTO designation, it shall be the latest revision at the time of bidding, except as noted on these plans or in these specifications.
- C. All work, installation, procedures, materials, etc. shall be in conformance with the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications) except as modified by this Specification.

1.2 SUMMARY

- A. This work shall consist of the furnishing of all labor, materials and equipment necessary for the construction of the proposed Storm Sewer improvements in accordance with the Contract Drawings and Specifications. CONTRACTOR shall pay for all permits required under this Specification.
- B. Related Sections:
 - 1. Section 311000 - Site Clearing for work pertaining to removal and disposal.
 - 2. Section 312000 - Earthwork for work pertaining to excavation and backfilling.

1.1 RELATED WORK

- A. Specified elsewhere:
 - 1. 31 23 00 - Excavation and Fill

1.2 SUBMITTALS

- A. Submit product data for review and approval by Engineer.

1.3 QUALITY ASSURANCE

- A. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.

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1.4 WARRANTY

- A. The CONTRACTOR shall warrant all construction materials and workmanship associated with this CONTRACT to be free from defects for a period of one (1) year from the date of final acceptance by the OWNER.

2. PRODUCTS

2.1 CONCRETE INLETS AND MANHOLES

- A. Concrete Inlets and Manholes shall be pre-fabricated concrete units conforming to Section 602 "Catch Basin, Manhole, Inlet, Drainage Structures And Valve Vault Construction, Adjustment And Reconstruction" of the Standard Specifications and as detailed on the Contract Drawings.

2.2 PIPE END TREATMENTS

- A. Precast Reinforced Concrete Flared End Sections shall conform to Section 542 "Pipe Culverts" of the Standard Specifications and as detailed on the Contract Drawings.

2.3 STORM SEWER PIPE

- A. Storm sewer pipe shall be as shown on the Contract Drawings of:
1. Reinforced Concrete Pipe conforming to Section 550 "Storm Sewers" of the Standard Specifications and as detailed on the Contract Drawings.
 2. Polyvinyl Chloride (PVC) Pipe in conformance with ASTM D-3034 SDR-35. Joints shall be in conformance with ASTM D-3212 with the elastomeric gasket glued in place. Gaskets shall be molded from a high grade properly vulcanized elastomeric compound consisting of either a basic natural or synthetic rubber.
 3. High Density Polyethylene Pipe (HDPE) in conformance with AASHTO M 294. Pipe shall be corrugated exterior with smooth interior.

2.4 STORM SEWER TRENCH BACKFILL

- A. Trench backfill shall be used in areas of pavement, curb and gutter and sidewalks. Conform to Section 208 of the Standard Specifications.

3. EXECUTION

3.1 INSTALLATION

- A. Inlets shall be founded on six (6) inches CA-6 aggregate material. To permit proper compaction of the backfill material, the excavation shall be made a distance of at least six (6) inches greater than the wall of the structure.

The space between the sides of the excavation and the outer surface of the catch basin, manhole, or inlet shall be backfilled with sand or stone screenings, if these structures are in the subgrade or if the nearest point of the excavation for these structures falls within

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two (2) feet of the pavement edge. If the structure falls beyond these limits, other backfilling material may be used provided it meets with the approval of the ENGINEER.

All catch basins, manholes, inlets and similar structures newly constructed, adjusted or reconstructed, shall be cleaned of any accumulation of silt, debris or foreign matter of any kind, and shall be free from such accumulations at the time of final acceptance.

3.2 CONNECTION TO EXISTING STRUCTURES

- A. The CONTRACTOR shall verify elevations of existing structures prior to construction. Sawcut and grout existing structures as necessary to accommodate proposed pipe connections. If damage to existing structure is excessive due to sawcutting, contractor shall replace existing structure in kind.

END OF SECTION 33 41 00

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PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General & Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All work, installation, procedures, materials, etc. shall conform to the Manual on Uniform Traffic Control Devices for streets and highways and the Standard Specifications for Road and Bridge Construction, adopted April 1, 2016 by the Illinois Department of Transportation (herein referred to as the Standard Specifications), except as modified by this Specification.

1.2 SUMMARY

- A. The CONTRACTOR shall furnish, erect, maintain and remove all warning signs, flags, barricades and lights in accordance with Article 107.14 of the Standard Specifications and/or as directed by the ENGINEER to provide Traffic Control for the project as required to permit the installation of facilities, and dispose of materials. CONTRACTOR shall pay for permits required under this Section.
- B. Related Sections:
 - 1. Section 311000 - Site Clearing for work pertaining to removal and disposal.
 - 2. Section 312000 - Earthwork for work pertaining to excavation and backfilling.
 - 3. Section 331200 - Asphalt Pavement and Surfacing.
 - 4. Section 333000 - Sanitary Sewers

1.3 SUBMITTALS

- A. Contractor shall notify the Governing Authority at least 72 hours before work is to be performed within public right-of-way that requires lane closure or obstruction of traffic.

1.4 QUALITY ASSURANCE

- A. Contractors Organization
 - 1. CONTRACTOR shall have a competent supervisor onsite during the process of the work who shall act for the CONTRACTOR in all matters concerning the work. He shall have the authority to receive and to act upon directions from the OWNER.

1.5 BASIS OF PAYMENT

- A. Any additional cost to the CONTRACTOR, due to furnishing, erecting, maintaining and removing all warning signs, flags, barricades and lights as required by the Traffic Control Standards, Article 107.14 of the Standard Specifications, the *Manual of Uniform Traffic Control Devices for Highways and Streets*, or as directed by the ENGINEER will be considered included in the price of the various items of work involved and no additional compensation will be allowed, except as described herein.
- B. The CONTRACTOR shall conduct his operations to insure local access to all properties

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throughout the project limits in accordance with Article 107.09, except that the cost incurred by the CONTRACTOR for providing and maintaining an acceptable surface of aggregate for temporary roads and approaches for access to driveways, streets or field entrances shall be considered included in the cost of the contract.

- C. The cost of furnishing, placing, and maintaining during construction the signs and barricades shown on the Traffic Control Plan Sheets and those not covered in a pay item in the Special Provisions shall be considered included in the various items of work involved.

1.6 PAYMENT

- A. All work required under this Section shall be paid for at the unit prices as found in the bid schedule. These unit prices shall include all work described in this Section and no additional compensation will be allowed for any cost incurred.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. The CONTRACTOR shall provide all materials and equipment required to provide the Traffic Control for the project site in accordance with this Specification.

PART 3 – EXECUTION

3.1 TRAFFIC MANAGEMENT

- A. Excavations for pipe laying shall be conducted to cause the least interruption to traffic. The CONTRACTOR shall provide suitable bridges at street and driveway crossings where traffic must cross open trenches. Hydrants under pressure, valve pit covers, valve boxes, curb stop boxes, fire or police call boxes or other utility controls shall be unobstructed and accessible during the construction period.
- B. CONTRACTOR shall be solely responsible for providing and installing any and all traffic barricades, markers, signs, flagman, traffic police, and/or other facilities as may be required by the city, township, county or state to protect the general public. Signs and protective devices shall conform to the "Manual on Uniform Traffic Control Devices" for streets and highways. Vehicular traffic shall be maintained at all times.
- C. Competent uniformed traffic directors shall be employed at every location where the CONTRACTOR's equipment is working immediately adjacent to, or is entering, leaving or crossing active traffic lines. The traffic directors shall be employed continuously for the full time such conditions exist.
- D. Special attention shall be given for the protection of pedestrians. Access to properties affected due to construction shall be maintained at all times.
- E. The CONTRACTOR shall have the responsibility of notifying the local police, ambulance services and fire departments of daily traffic diversions.
- F. The CONTRACTOR will be permitted to submit an alternative traffic control plan that would expedite construction and still maintain traffic control. No additional compensation will be allowed if his plan is approved.

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3.2 TRAFFIC DIVERSION

- A. Whenever it is necessary to divert traffic from its normal channel into another channel, such diversion shall be clearly marked by cones, drums, barricades or temporary guard rail. If the markers are left in place at night, suitable lights shall be provided.

3.3 OWNER REQUIREMENTS

- A. If proper maintenance of traffic facilities and provision for traffic control are not being provided in accordance with local regulations and the safety of the public is thus endangered, the OWNER may take the necessary steps to place them in proper condition and the cost of such services will be deducted from any payment which may be due or become due the CONTRACTOR.

END OF SECTION 344116

LAKESIDE ESTATES PUMP STATION AND FORCE MAIN
MASCOUTAH ILLINOIS

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