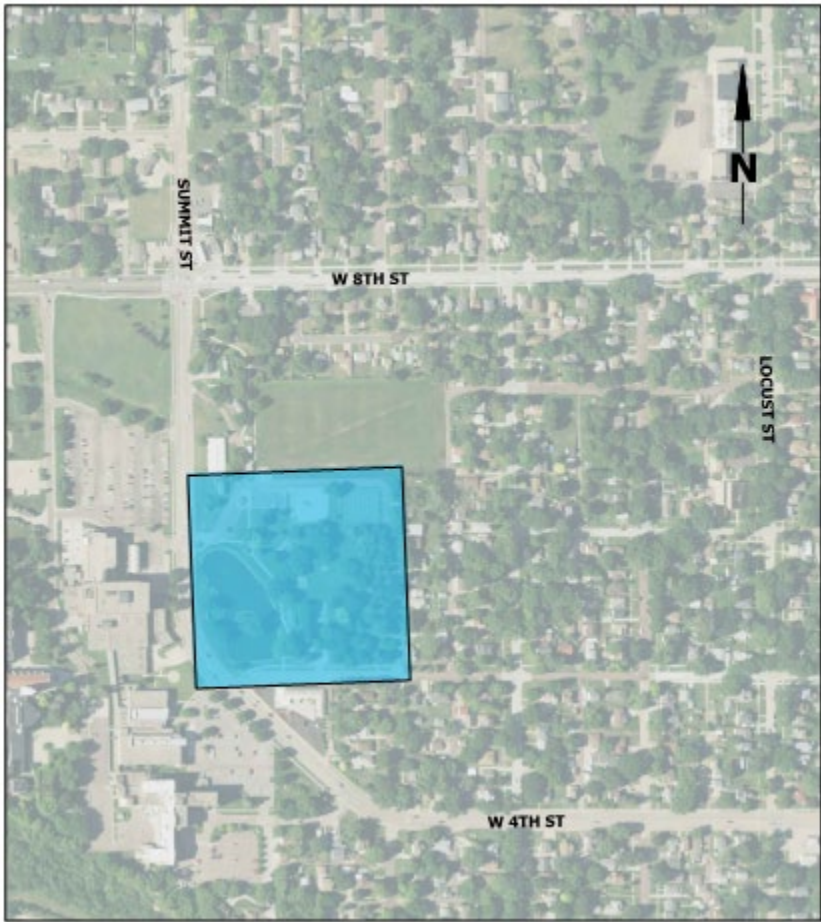


# PROJECT MANUAL

## Westside Park Pond Improvements Yankton, SD



**STOCKWELL**  
STOCKWELL ENGINEERS, INC.  
801 N. PHILLIPS AVE., SUITE 100  
SIOUX FALLS, SD 57104  
PH: 605.338.6668  
FAX: 605.338.8750



**Owner:**  
City of Yankton  
416 Walnut Street  
Yankton, SD 57078  
Ph (605) 668-5221

**City Commission:**  
Mayor Stephanie Moser  
Amy Miner  
Mason Schramm  
Jerry Weber  
Ben Brunick  
Tony Maibaum  
Bridget Benson  
Nathan Johnson  
Michael Villanueva

**City Staff:**  
Amy Leon  
Al Viereck  
Todd Larson  
Adam Haberman



I, David Christian Locke, hereby certify that this Project Manual was prepared by me, or under my direct supervision, except where indicated as prepared by other design professionals of record, and that I am a duly registered landscape architect under the law of the State of South Dakota.

Bid Set

SEI No: 21289

# Design Professionals of Record

Westside Park  
Pond Improvements  
Yankton, SD  
SEI No: 21289

---

Landscape Architect:

I, David Christian Locke, hereby certify that this Project Manual was prepared by me, or under my direct supervision, except where indicated as prepared by other design professionals of record, and that I am a duly registered landscape architect under the law of the State of South Dakota.



David Christian Locke, PLA

(SD No. 11267)

3/18/02

Date



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Yankton, SD  
SEI No: 21289

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# Notice to Bidders

Westside Park  
Pond Improvements  
Yankton, SD  
SEI No: 21289

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Sealed bids shall be received for the City Commission of the City of Yankton, South Dakota, at the office of the City Finance Officer of said City until 3:00 PM or may be hand delivered to the place of opening at **3:00 PM on the 14<sup>th</sup> day of April 2022**, at which time they will be publicly opened and read immediately thereafter in the second floor Meeting Room A, of City Hall, located at 416 Walnut Street in Yankton, South Dakota. Disposition of said bids is expected to be held on the 25th day of April 2022, after 7:00 PM, in the City of Yankton Community Meeting Room located in the Career Manufacturing Technical Education Academy at 1200 W. 21st Street, Yankton, South Dakota.

This project consists of improvements to the park and pond at Westside Park in Yankton. Improvements include pond regrading, an updated outlet structure, riprap bank stabilization, retaining walls, concrete sidewalks, an updated pedestrian bridge, seeding, and landscaping in the project limits, as well as other work as identified in the technical drawings.

Bidding documents may be examined at the following locations:

City Engineer's Office  
416 Walnut Street  
Yankton, SD 57078  
605-668-5251

Stockwell Engineers  
201 Walnut Street  
Yankton, SD 57078  
605-665-8092

Prospective bidders may download complete electronic bidding documents at no charge at <https://www.cityofyankton.org/how-do-i/bid-rfp-posts-list>. Upon request from a bidder residing in the State of South Dakota who intends, in good faith, to bid upon the project, one paper copy of the bidding documents will be furnished at no charge.

Bids shall be submitted on the prescribed form. Bids will be rejected if they show any conditions or uncalled for alternative bids. All bids shall be on the basis of cash payment according to the terms of the bidding documents.

The submittal of a Bid will constitute an incontrovertible representation by Bidder that the Bidder has examined carefully the bidding documents, visited the site, is familiar with the local conditions under which the work is to be performed, and correlated Bidder's observations with the requirements of the bidding documents.

The Bidder to whom the contract is awarded will be required to furnish a construction performance bond and a construction payment bond to the City of Yankton in the amount of one hundred percent (100%) of the contract award for each bond, in conformance with the requirements of the Contract Documents. The construction performance bond and construction payment bond shall remain in full force until the completion of the Contract as specified in the General Conditions.

Each Bid must be accompanied by a certified check, cashier's check or draft in the amount of 5% of the base bid and all add alternates and drawn on a State or National Bank or a 10% bid bond issued by a surety authorized to do business in the State of South Dakota and made payable to the City of Yankton.

The bid guarantee will be retained by the OWNER as liquidated damages if the successful bidder refuses or fails to enter into an Agreement within ten (10) days after Notice of Award or fails at time of executing the contract to furnish a construction performance bond and construction payment bond guaranteeing the faithful performance of the work.

# Notice to Bidders

Westside Park  
Pond Improvements  
Yankton, SD  
SEI No: 21289

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The City of Yankton reserves the right to retain the bid security of the three lowest bidders for a period not to exceed 30 days after the date and time set for opening of the bids. The City of Yankton reserves the right to reject any or all bids or any parts thereof.

Adam Haberman  
Public Works Director

Published twice at the approximate cost of \_\_\_\_\_.

Publish: March 22, 2022  
March 29, 2022

# SUGGESTED INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACTS

Prepared by

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and

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# INSTRUCTIONS TO BIDDERS

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## **ARTICLE 1 – DEFINED TERMS**

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office* – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

## **ARTICLE 2 – COPIES OF BIDDING DOCUMENTS**

- 2.01 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 the Issuing Office. The deposit will be refunded to each document holder of record who returns a complete set of Bidding Documents in good condition within 30 days after opening of Bids.
- 2.02 Complete sets of Bidding Documents shall 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.
- 2.03 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 authorize or confer a license for any other use.

## **ARTICLE 3 – QUALIFICATIONS OF BIDDERS**

- 3.01 To demonstrate Bidder's qualifications to perform the Work, within 5 days of Owner's request, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.
- A. Evidence of Bidder's authority to do business in the state where the Project is located.
- 3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

## **ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE**

- 4.01 *Subsurface and Physical Conditions*
- A. No subsurface explorations were completed for this project.
- 4.02 *Underground Facilities*
- A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 *Hazardous Environmental Condition*

A. No Hazardous Environmental Conditions reports were completed for this project.

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

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

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

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

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

A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

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

been identified in the Paragraph 4.06 of the Supplementary Conditions as containing reliable "technical data";

- E. consider the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;
- F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

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

## **ARTICLE 5 – PRE-BID CONFERENCE**

5.01 A pre-Bid conference will not be held.

## **ARTICLE 6 – SITE AND OTHER AREAS**

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required

for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

## **ARTICLE 7 – INTERPRETATIONS AND ADDENDA**

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. 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 ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

## **ARTICLE 8 – BID SECURITY**

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price and in the form of a certified check, bank money order, or a Bid bond in an amount of 10 percent (on the form attached) of Bidder's maximum Bid price issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 31 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

## **ARTICLE 9 – CONTRACT TIMES**

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

## **ARTICLE 10 – LIQUIDATED DAMAGES**

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

## **ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS**

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those substitute or “or-equal” materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed

substitute or “or-equal” item. No item of material or equipment will be considered by Engineer as a substitute or “or-equal” unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

## **ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS**

- 12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.
- 12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no 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.
- 12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

## **ARTICLE 13 – PREPARATION OF BID**

- 13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from the Engineer.
- 13.02 All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each [section, Bid item, alternative, adjustment unit price item, and unit price item] listed therein. In the case of optional alternatives the words “No Bid,” “No Change,” or “Not Applicable” may be entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate

seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.

- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.06 A Bid by an individual shall show the Bidder's name and official address.
- 13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.08 All names shall be printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

#### **ARTICLE 14 – BASIS OF BID; COMPARISON OF BIDS**

##### 14.01 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. 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.

##### 14.02 *Allowances*

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any,

named in the Contract Documents, in accordance with Paragraph 11.02.B of the General Conditions.

## **ARTICLE 15 – SUBMITTAL OF BID**

15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the following documents:

A. Required Bid security;

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation “BID ENCLOSED.”

## **ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID**

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

## **ARTICLE 17 – OPENING OF BIDS**

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

## **ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

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

## **ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT**

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



Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.
- 19.07 If the base bid is within the amount of funds available to finance the construction contract and the Owner wishes to accept alternate bids, then contract award will be made to that responsible bidder submitting the low combined bid, consisting of the base bid and any combination of add or deduct alternative bids found to be most advantageous to the Owner. Under this procedure, if the Owner wishes to make award on low base bid only, then contract award will be made to that responsible bidder submitting the low base bid. If the low bid exceeds the funds available to finance the construction, the Owner may negotiate with the low bidder to produce a bid amount within the availability of funds.

## **ARTICLE 20 – CONTRACT SECURITY AND INSURANCE**

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

## **ARTICLE 21 – SIGNING OF AGREEMENT**

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter,

Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

## **ARTICLE 22 – SALES AND USE TAXES**

22.01 Bidder is responsible to include all local, state and federal taxes within their bid.

## **ARTICLE 23 – RETAINAGE**

23.01 Provisions concerning Contractor's rights to deposit securities in lieu of retainage are set forth in the Agreement.

# **BID FORMS**

# BID FORM FOR CONSTRUCTION CONTRACTS

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



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ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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**BID FORM**

Westside Park – Pond Improvements

SEI # 21289

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**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is submitted to:

*City of Yankton  
416 Walnut Street  
Yankton, SD 57078*

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

**ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS**

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 30 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

**ARTICLE 3 – BIDDER’S REPRESENTATIONS**

3.01 In submitting this Bid, Bidder represents that:

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

<u>Addendum No.</u>	<u>Addendum 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, and performance of the Work.

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

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

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained

from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- 1. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

#### **ARTICLE 4 – BIDDER'S CERTIFICATION**

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;



3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

#### **ARTICLE 5 – BASIS OF BID**

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

## PROPOSAL FORM

PROJECT: Westside Park  
Pond Improvements

SEI NO. 21289

DATE: April 14, 2022

The undersigned being familiar with all the details, conditions, and requirements hereby proposes to furnish all labor, tools, materials, and equipment necessary to fully complete the work for the City of Yankton, South Dakota, as advertised in accordance with the specifications therefore furnished by the City for the following price(s):

Item No.	Item Description	Unit	Approx Qty	Unit Bid Price	Amount Bid
1	Project Lump Sum	LS	1		
<b>Total Gross Base Bid</b>					

If there is a discrepancy between unit bid prices and extensions, the unit bid price shall govern. This request will be evaluated and a contract award made to the lowest bid, inclusive of selected alternates if applicable, from a responsive and responsible bidder deemed to be in the best interest of the Owner and as allowed by project budget.

### Unit Prices:

Unit prices are for changing quantities of work items from those indicated by the contract drawings upon written instruction from the Engineer and City of Yankton only. The following unit prices shall prevail if additional work is requested.

Item No.	Item Description	Unit	Unit Bid Price
2	Add and/or Deduct Class B Rip Rap & Geotextile Fabric, Furnish & Install	Ton	
3	Add and/or Deduct Precast Modular Block Gravity Retaining Wall, Drainage Stone, & Geotextile Fabric, Furnish & Install	SF	

It is understood and agreed that the quantities of material to be furnished and work to be done may be varied on construction as may be deemed advisable by the City of Yankton. It is further understood and agreed that the City of Yankton may, at its option, delete items from the contract.

The bid includes all local, state, and federal taxes that would affect the amount of the bid.

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

**ARTICLE 6 – TIME OF COMPLETION**

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

**ARTICLE 7 – ATTACHMENTS TO THIS BID**

- 7.01 The following documents are submitted with and made a condition of this Bid:
  - A. Required Bid security in the form of \_\_\_\_\_;

**ARTICLE 8 – DEFINED TERMS**

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

**ARTICLE 9 – BID SUBMITTAL**

9.01 This Bid is submitted by:

If Bidder is:

An Individual

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

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

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

A Partnership

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

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

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

A Corporation

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

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

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

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

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

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

Attest \_\_\_\_\_

Date of Qualification to do business in [State where Project is located] is  
\_\_\_\_ / \_\_\_\_ / \_\_\_\_.

A Joint Venture

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

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

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

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

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

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

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

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

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

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

Bidder's Business Address \_\_\_\_\_

\_\_\_\_\_

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

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

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

State Contractor License No. \_\_\_\_\_. *[If applicable]*

**BID BOND**

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

\_\_\_\_\_  
BIDDER (*Name and Address*):

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

OWNER (*Name and Address*):

**BID**

Bid Due Date:

Description (*Project Name and Include Location*):

**BOND**

Bond Number:

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

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

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

**BIDDER**

**SURETY**

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

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

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

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

# **CONTRACT FORMS**

# Notice of Award

---

Project: Westside Park – Pond Improvements

---

Owner: City of Yankton

---

Owner's Contract No.:

---

Contract:

---

Engineer's Project No.: 21289

---

Bidder:

---

Bidder's Address:

---

---

---

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for \_\_\_\_\_

The Contract Price of your Contract is \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

\_\_\_\_\_ copies of the proposed Contract Documents (except 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 [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [\_\_\_\_\_] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:  
\_\_\_\_\_

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

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

---

Owner

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

---

Title

---

Date

Copy to Engineer



# SUGGESTED FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



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**AGREEMENT  
BETWEEN OWNER AND CONTRACTOR  
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between \_\_\_\_\_ City of Yankton \_\_\_\_\_ (“Owner”) and  
\_\_\_\_\_  
\_\_\_\_\_ (“Contractor”).

Owner and Contractor hereby agree as follows:

**ARTICLE 1 – WORK**

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

*This project consists of improvements to the park and pond at Westside Park in Yankton. Improvements include pond regrading, an updated outlet structure, riprap bank stabilization, retaining walls, concrete sidewalks, an updated pedestrian bridge, seeding, and landscaping in the project limits, as well as other work as identified in the technical drawings.*

**ARTICLE 2 – THE PROJECT**

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

*Westside Park – Pond Improvements*

**ARTICLE 3 – ENGINEER**

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

**ARTICLE 4 – CONTRACT TIMES**

- 4.01 *Time of the Essence*

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

4.02 *Dates for Substantial Completion and Final Payment*

- A. The Work will be substantially completed on or before October 14, 2022, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before 14 calendar days after Substantial Completion.

4.02 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$950.00 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$300.00 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

**ARTICLE 5 – CONTRACT PRICE**

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

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

**ARTICLE 6 – PAYMENT PROCEDURES**

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 20th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of

units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
  - a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
  - b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

### 6.03 *Final Payment*

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

## **ARTICLE 7 – INTEREST**

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of 8% percent per annum.

## **ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS**

- 8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
  - A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
  - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
  - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
- E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. 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.
- H. 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.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **ARTICLE 9 – CONTRACT DOCUMENTS**

### **9.01 *Contents***

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 1 to   , inclusive).
  - 2. Performance bond
  - 3. Payment bond
  - 4. General Conditions
  - 5. Supplementary Conditions

6. Specifications as listed in the table of contents of the Project Manual.
  7. Drawings as listed in the table of contents of the Project Manual.
  8. Addenda (numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive).
  9. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor's Bid
    - b. Documentation submitted by Contractor prior to Notice of Award
  10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    - a. Notice to Proceed
    - b. Work Change Directives.
    - c. Change Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## **ARTICLE 10 – MISCELLANEOUS**

### *10.01 Terms*

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

### *10.02 Assignment of Contract*

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

### 10.03 *Successors and Assigns*

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

### 10.04 *Severability*

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

### 10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.



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

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

OWNER:

CONTRACTOR

\_\_\_\_\_

\_\_\_\_\_

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

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

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

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

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

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

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

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

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

Address for giving notices:

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

License No.: \_\_\_\_\_  
(Where applicable)

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

Agent for service of process:

\_\_\_\_\_

# Notice to Proceed

Date: \_\_\_\_\_

Project: Westside Park – Pond Improvements	
Owner: City of Yankton	Owner's Contract No.:
Contract:	Engineer's Project No.: 21289
Contractor:	
Contractor's Address:	

You are notified that the Contract Times under the above Contract will commence to run on \_\_\_\_\_. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is October 14, 2022, and the date of readiness for final payment is 14 calendar days after Substantial Completion.

_____	Owner
_____	Given by:
_____	Authorized Signature
_____	Title
_____	Date

Copy to Engineer

## PERFORMANCE BOND

<p><b>Contractor</b></p> <p>Name: <b>[Full formal name of Contractor]</b></p> <p>Address <i>(principal place of business)</i>:  <b>[Address of Contractor's principal place of business]</b></p>	<p><b>Surety</b></p> <p>Name: <b>[Full formal name of Surety]</b></p> <p>Address <i>(principal place of business)</i>:  <b>[Address of Surety's principal place of business]</b></p>
<p><b>Owner</b></p> <p>Name: <b>[Full formal name of Owner]</b></p> <p>Mailing address <i>(principal place of business)</i>:  <b>[Address of Owner's principal place of business]</b></p>	<p><b>Contract</b></p> <p>Description <i>(name and location)</i>:  <b>[Owner's project/contract name, and location of the project]</b></p> <p>Contract Price: <b>[Amount from Contract]</b></p> <p>Effective Date of Contract: <b>[Date from Contract]</b></p>
<p><b>Bond</b></p> <p>Bond Amount: <b>[Amount]</b></p> <p>Date of Bond: <b>[Date]</b></p> <p><i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form:  <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.</p>	
<p>Contractor as Principal</p>	<p>Surety</p>
<p style="text-align: center;"><i>(Full formal name of Contractor)</i></p> <hr/> <p>By: _____  <i>(Signature)</i></p> <p>Name: _____  <i>(Printed or typed)</i></p> <p>Title: _____</p> <p>Attest: _____  <i>(Signature)</i></p> <p>Name: _____  <i>(Printed or typed)</i></p> <p>Title: _____</p>	<p style="text-align: center;"><i>(Full formal name of Surety) (corporate seal)</i></p> <hr/> <p>By: _____  <i>(Signature)(Attach Power of Attorney)</i></p> <p>Name: _____  <i>(Printed or typed)</i></p> <p>Title: _____</p> <p>Attest: _____  <i>(Signature)</i></p> <p>Name: _____  <i>(Printed or typed)</i></p> <p>Title: _____</p>
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor 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 when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
  - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
  - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
  - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. 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:
  - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
  - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
  - 5.3. Obtain bids or negotiated 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 a contractor selected with the Owners 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 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
  - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
  - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven 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 Paragraph 5.4, and the Owner refuses the payment, 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.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
  - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
  - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
  - 7.3. 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.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. 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 will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. 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.
11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of 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 periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
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 this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

- 14.1. *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 allowance for the Contractor for 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.
  - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
  - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
  - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
  - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

SAMPLE

## PAYMENT BOND

<p><b>Contractor</b></p> <p>Name: <b>[Full formal name of Contractor]</b></p> <p>Address (<i>principal place of business</i>):  <b>[Address of Contractor's principal place of business]</b></p>	<p><b>Surety</b></p> <p>Name: <b>[Full formal name of Surety]</b></p> <p>Address (<i>principal place of business</i>):  <b>[Address of Surety's principal place of business]</b></p>
<p><b>Owner</b></p> <p>Name: <b>[Full formal name of Owner]</b></p> <p>Mailing address (<i>principal place of business</i>):  <b>[Address of Owner's principal place of business]</b></p>	<p><b>Contract</b></p> <p>Description (<i>name and location</i>):  <b>[Owner's project/contract name, and location of the project]</b></p> <p>Contract Price: <b>[Amount, from Contract]</b></p> <p>Effective Date of Contract: <b>[Date, from Contract]</b></p>
<p><b>Bond</b></p> <p>Bond Amount: <b>[Amount]</b></p> <p>Date of Bond: <b>[Date]</b></p> <p><i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form:  <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and 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, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
  - 5.1. Claimants who do not have a direct contract with the Contractor
    - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
    - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
  - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
  - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
  - 7.2. Pay or arrange for payment of any undisputed amounts.
  - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.



8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will 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 satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. 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 the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. 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.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, 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 will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. 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 will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
  - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
    - 16.1.1. The name of the Claimant;
    - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
    - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
    - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
  - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
  - 16.1.7. The total amount of previous payments received by the Claimant; and
  - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *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 Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the 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.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

# ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
	INSURERS AFFORDING COVERAGE	NAIC #
INSURED	INSURER A:	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	

## COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
		<b>GENERAL LIABILITY</b> <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE	\$
						DAMAGE TO RENTED PREMISES (Ea occurrence)	\$
						MED EXP (Any one person)	\$
						PERSONAL & ADV INJURY	\$
						GENERAL AGGREGATE	\$
						PRODUCTS - COMP/OP AGG	\$
		<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident)	\$
						BODILY INJURY (Per person)	\$
						BODILY INJURY (Per accident)	\$
						PROPERTY DAMAGE (Per accident)	\$
		<b>GARAGE LIABILITY</b> <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT	\$
						OTHER THAN AUTO ONLY: EA ACC	\$
						AGG	\$
		<b>EXCESS/UMBRELLA LIABILITY</b> <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE  <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE	\$
						AGGREGATE	\$
							\$
							\$
		<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below <b>OTHER</b>				WC STATU-TORY LIMITS	OTH-ER
						E.L. EACH ACCIDENT	\$
						E.L. DISEASE - EA EMPLOYEE	\$
						E.L. DISEASE - POLICY LIMIT	\$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER	<b>CANCELLATION</b>
	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL _____ DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE

## **IMPORTANT**

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

## **DISCLAIMER**

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

# **GENERAL CONDITIONS**

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

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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).
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.
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.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by 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.

### 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.

### *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.

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 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 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.
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 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) 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 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 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
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, 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.
- 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 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:
    - 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.
- 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 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 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.

## 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).

#### 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. 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 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.
- 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.

### 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.



### 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.

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 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 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:
    - 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.



- 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.

## 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.

### *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.
- 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.
- 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 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 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.

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 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:
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:
  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.



**SUPPLEMENTAL GENERAL  
CONDITIONS**

## SUPPLEMENTAL CONDITIONS TO THE GENERAL CONDITIONS

Refer to the Standard General Conditions of the Construction Contract and modify as instructed hereinafter.

ARTICLE 1 Add: Abbreviations - The following listed letter or abbreviations shall be interpreted as indicated:

A.C.I. shall mean the American Concrete Institute.

A.S.T.M. shall mean the American Society of Testing Materials.

A.I.S.C. shall mean the American Institute of Steel Construction.

A.S.A. shall mean American Standards Association.

A.S.C.E. shall mean the American Society of Civil Engineers.

A.A.S.H.T.O. shall mean the American Association of State Highway Transportation Officials.

A.W.W.A. shall mean the American Water Works Association.

A.W.S shall mean the American Welding Society.

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

Add - In the event any error, omission or discrepancy in or between drawings and specifications exist or appear to exist, the Contractor shall not attempt to profit from such obviously unintentional error but shall have same explained or adjusted by the Engineer before submitting his Proposal. In the event such clarification is not obtained, the Contractor shall be deemed to have estimated the work as follows:

Discrepancies between the drawings and specifications, the specifications shall govern.

Discrepancies between schedule and other drawings, the schedules shall govern.

Discrepancies between plan drawings and other drawings, the plan drawings shall govern.

Discrepancies between drawings, the drawings at the larger scale shall govern.

Materials shown on drawings but not described in specifications, the drawings shall govern.

Discrepancies between manufacturer's printed installation instructions and the project specifications, the manufacturer's installation instructions shall govern.

Add - Where reference is made in the Detailed Specifications to specifications or standards of any technical society, association, governmental agency, et cetera, it is understood and agreed that such specifications or standards are a part of the Detailed Specifications as though fully referred to; terms such

as "Purchases", "Owner", and the like shall be understood to mean the person, firm or body contracting to have the work done; terms such as "Manufacturer", "Supplier", and the like shall mean the Contractor.

It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in his possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

Add - Errors and Claims for Extra Cost:

If the Contractor claims that any instructions by Drawings or otherwise involves extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Owner, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.

Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall at once be reported to the Owner and work shall not proceed except at the Contractor's risk until written instructions have been received by him from the Owner.

ARTICLE 5 - BONDS AND INSURANCE

Article 5, Paragraph 5.03B shall be deleted in its entirety and replaced with the following - Prior to delivery of the executed Agreement by Owner to Contractor, Owner may require Contractor to furnish such other Bonds and such additional insurance, in such form and with such sureties or insurers as Owner may require. If such other Bonds or such other insurance are specified by written instructions given prior to opening of Bids, the premiums shall be paid by Contractor; if subsequent thereto, they shall be paid by Owner.

Article 5, Paragraph 5.04.B.2 shall be as follows:

Commercial General Liability Insurance

Each Occurrence Limit	\$ 500,000
General Aggregate	\$1,000,000
Products/Completed Operations Aggregate	\$1,000,000

Personal and Advertising Injury Limit \$ 500,000

Comprehensive Automobile Liability Insurance

Combined Single Limit Bodily Injury  
and Property Damage Each Occurrence \$ 500,000  
OR  
Bodily Injury Each Person \$ 500,000  
Each Occurrence \$ 500,000  
Property Damage Aggregate \$ 500,000

Worker's Compensation Statutory Limits

All such insurance shall contain a provision that the coverage afforded will not be canceled, materially changed or renewal refused until at least fifteen days prior written notice...

Add - The Owner will not provide property insurance on this Project. The Contractor shall be responsible to repair and replace all work damaged prior to final acceptance at no cost to the Owner. The Contractor shall purchase "all risk" insurance at his own discretion.

Add - The Contractor shall be required to furnish a Certificate of Insurance to the Owner as evidence of sufficient and satisfactory coverage. The Certificate of Insurance will suffice that there are no exclusions, including x, c and u exclusions.

All liability policies shall name the Owner and Engineers as additional insured's.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

Add - Contractor shall rebuild, repair, restore, and replace all work that is injured or damaged prior to final acceptance at no additional cost to the Owner. Damage to work due to causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, shall be restored by the Contractor.

Add - The Owner shall employ the Engineer for construction staking purposes. The Engineer shall consult with the Contractor to determine acceptable staking operations and methods. The Contractor shall safeguard all such stakes to prevent loss which may necessitate restaking. All restaking efforts required as a result of the Contractor's operations, shall be charged back to the Contractor and deducted from the contract amount.

Add - The Contractor shall be free to secure the approved materials and equipment from sources of his own selection. However, if the Engineer finds that the work will be delayed or adversely affected in any way because of selected source of supply cannot furnish a uniform product in sufficient quantity; or the product is not suitable for the work, the Engineer shall have the right to require that the original source of supply be changed by the Contractor. The Contractor shall have no claim for damage for additional compensation because of this requirement.

## ARTICLE 7 - OTHER WORK AT THE SITE

Add - No Contractor shall delay any other Contractor by neglecting to perform his work at the proper time. The time limitations set forth are for the benefit of both the Owner and other separate Contractors who have entered into separate construction contracts with the Owner in reliance on the time limitations set forth. Any costs caused by defective or ill-timed work, including liquidated damages if same are prescribed, shall be borne by Contractor responsible therefore.

If any Contractor shall cause damage to any other Contractor, the Contractor causing such damage shall upon notice for any claim settle with such Contractor by agreement or arbitration. The Contractor shall bring no claim against the Owner resulting from a delay caused by the failure of another Contractor to progress the work on the project in accordance with its contract.

Subcontractors shall not be considered as the third party beneficiary under the provisions of this section.

## ARTICLE 8 - OWNER'S RESPONSIBILITY

Add - The Owner may require the Contractor to dismiss from the work such employee or employees as the Owner or the Engineer may deem incompetent, or careless, or insubordinate.

## ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIME

Add - The work which the Contractor is required to perform under this Contract shall be commenced at any time following the date of the Notice to Proceed to the Contractor and shall be fully completed by the date as specified in the Bid Form.

Add - As actual damages for any delay in completion of the work which the Contractor is required to perform under this contract are impossible to determine, the Contractor and his Sureties shall be liable for and shall pay to the Owner the sum as specified in the SD DOT Standard Specifications for Roads and Bridges, most current edition, per calendar day as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated for completion, until such work is satisfactorily completed and accepted.

## ARTICLE 13 - TESTS AND INSPECTION; CORRECTIONS, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

Add - Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibilities for faulty materials or workmanship.

Add - The Contractor shall furnish, without extra cost to the Owner, all samples of materials necessary for tests as determined by the Engineer. All samples taken for analysis and tests shall be taken in such a manner as to be truly representative of the entire lot under test and shall not be worked on in any way to alter the quality before the analysis and testing. The Contractor shall furnish such assistance and facilities as the Engineer may require for collecting, storing and forwarding the samples.

Add - Except as otherwise specifically stated in the Contract, the Contractor shall assume all costs of

sampling and testing as follows:

Initial testing to demonstrate to the Engineer that all materials proposed for use meet the required specifications when tests are defined and stated elsewhere.

Retesting materials which fail to meet contract requirements.

Testing materials offered in substitution for those found deficient.

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

Add - Monthly or partial payments made by the Owner to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

Add - All disputes arising under this Contract or its interpretations except those disputes covered under General Conditions whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall within ten (10) days of commencement of the dispute be presented by the Contractor to the Owner for decision. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify the claim, together with its character and scope. In the meantime the Contractor shall proceed with the work as directed. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the Owner of notice thereof.

The Contractor shall submit in detail his claim and his proof thereof. Each decision by the governing body of the Owner will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested, directed to his last known address.

If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest and he may then except the matter in question from the final release.

#### ARTICLE 17 - MISCELLANEOUS

Add - The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered and materials, tools and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools or equipment.

# **GEOTECHNICAL REPORT**



**GEOTEK ENGINEERING  
& TESTING SERVICES, INC.**

909 East 50<sup>th</sup> Street North  
Sioux Falls, South Dakota 57104  
Phone 605-335-5512 Fax 605-335-0773

March 7, 2022

City of Yankton  
416 Walnut Street  
PO Box 176  
Yankton, South Dakota 57078

Attn: Adam Haberman

Subj: Geotechnical Exploration  
Proposed Pedestrian Bridge & Retaining Walls  
Westside Park  
W. 5<sup>th</sup> Street & Summit Street  
Yankton, South Dakota  
GeoTek #22-070

This correspondence presents our written report of the geotechnical exploration program for the referenced project. Our work was performed in accordance with your authorization. We are transmitting an electronic copy of our report for your use. An additional copy of our report is also being sent as noted below.

We thank you for the opportunity of providing our services on this project and look forward to continued participation during the design and construction phases. If you have any questions regarding this report, please contact our office at (605) 335-5512.

Respectfully Submitted,  
GeoTek Engineering & Testing Services, Inc.

*Nick Bierle*

Nick Bierle, PE  
Project Engineer

Cc: Stockwell Engineers, Inc. Attn: David Locke, PLA



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**GEOTECHNICAL EXPLORATION  
PROPOSED PEDESTRIAN BRIDGE & RETAINING WALLS  
WESTSIDE PARK  
W. 5<sup>TH</sup> STREET & SUMMIT STREET  
YANKTON, SOUTH DAKOTA  
GEOTEK #22-070**

**INTRODUCTION**

**Project Information**

This report presents the results of the recent geotechnical exploration program for the proposed replacement of an existing pedestrian bridge and 2 new retaining walls located at Westside Park for the City of Yankton in Yankton, South Dakota.

**Scope of Services**

Our work was performed in accordance with the authorization of Adam Haberman with the City of Yankton. The scope of work as presented in this report is limited to the following:

1. To perform 2 standard penetration test (SPT) borings to gather data on the subsurface conditions at the site.
2. To perform laboratory tests that include moisture content, dry density, Atterberg limits (liquid and plastic limits) and unconfined compressive strength.
3. To prepare an engineering report that includes the results of the field and laboratory tests as well as our earthwork and foundation recommendations for design and construction.

The scope of our work was intended for geotechnical purposes only. This scope of work did not include determining the presence or extent of environmental contamination at the site or to characterize the site relative to wetlands status.

## **SITE & SUBSURFACE CONDITIONS**

### **Site Location & Description**

The site is located at the existing pond within Westside Park in Yankton, South Dakota. Westside Park is located directly northeast of the intersection of W. 5<sup>th</sup> Street and Summit Street. A site location map (Figure 1) is attached showing the relative location of the site. The site currently consists of an existing pedestrian bridge that spans the pond, a couple structures, pavement areas, trees, landscaping and vegetated areas (grass).

### **Ground Surface Elevations & Test Boring Locations**

The ground surface elevations at the test boring locations were provided by Stockwell Engineers and were 1,246.2 feet at test boring 1 and 1,246.4 feet at test boring 2. A test boring location map (Figure 2) is attached showing the location of the test borings.

### **Subsurface Conditions**

Two (2) test borings were performed at the site on January 18, 2022. The subsurface conditions encountered at the test boring locations are illustrated by means of the boring logs included in Appendix A.

The subsurface profile at the test boring locations consisted of the following layers: existing fill materials, fine alluvium soils, Niobrara marl, glacial till soils and Pierre shale. The existing fill materials were encountered at the surface of the test borings and extended to a depth of 4 ½ feet. The fine alluvium soils were encountered at test boring 2 and extended to a depth of 10 feet. The Niobrara marl was encountered below the glacial till soils at test boring 1 and extended to a depth of 44 ½ feet (thickness of 31 feet). The glacial till soils were encountered at each test boring. At test boring 1, the glacial till soils extended to a depth of 13 ½ feet and extended to the termination depth of test boring 2 (shallow test boring). The Pierre shale was encountered below the Niobrara marl at test boring 1 and extended to the termination depth of the test boring.

The consistency or relative density of the soils is indicated by the standard penetration resistance (“N”) values as shown on the boring logs. A description of the soil consistency or relative

density based on the “N” values can be found on the attached Soil Boring Symbols and Descriptive Terminology data sheet.

We wish to point out that the subsurface conditions at other times and locations at the site may differ from those found at our test boring locations. If different conditions are encountered during construction, then it is important that you contact us so that our recommendations can be reviewed.

## **Soil Types**

### **Existing Fill Materials**

The existing fill materials consisted of lean clay (CL). The moisture condition of the existing fill materials was frozen and moist.

### **Fine Alluvium Soils**

Fine alluvium soils are clay soils that have been deposited by moving water. The fine alluvium soils consisted of sandy lean clay (CL). “N” values within the fine alluvium soils ranged from 6 to 9 (consistency of firm and stiff). The moisture condition of the fine alluvium soils was moist.

### **Niobrara Marl**

The Niobrara Marl is marine sediment deposited in the Western Interior Seaway during the Late Cretaceous period. The Niobrara Marl consisted of elastic silt (MH). “N” values within the Niobrara Marl ranged from 8 to 11 (consistency of firm and stiff). The moisture condition of the marl was wet.

### **Glacial Till Soils**

Glacial till soils are soils that have been deposited by a glacier. The glacial till soils consisted of lean clay with sand (CL) and sandy lean clay (CL). “N” values within the glacial till soils ranged from 6 to 14 (consistency of firm and stiff). The moisture condition of the glacial till soils was dry and moist.

### **Pierre Shale**

Pierre Shale is a fine-grained, laminated sedimentary rock consisting of silt and clay sized particles that were deposited by slow moving water. The Pierre Shale consisted of fat clay (CH). “N” values within the Pierre Shale ranged from 40 to 50/0.4’ (consistency of hard). The moisture condition of the Pierre Shale was moist.

### **Water Levels**

Measurements to record the groundwater levels were made at the test boring locations. Groundwater was measured at a depth of 21 feet (elevation 1,225.2 feet) at test boring 1. Groundwater did not enter the other borehole at the time of our measurements.

Seasonal and yearly fluctuations of the groundwater table should be taken into account along with the water level of the pond. Fluctuations occur due to varying seasonal and yearly rainfall amounts and snowmelt, as well as other factors.

## **ENGINEERING REVIEW & RECOMMENDATIONS**

### **Project Design Data**

We understand that the project will consist of constructing a new pedestrian bridge and retaining walls. The new pedestrian bridge will be a single-span with an abutment on the east side of the pond and on the island (center of pond). The new pedestrian bridge will be a 90-foot long, 8-foot wide steel truss structure with a concrete deck. We assume that no major grade changes are planned for the project. The retaining walls will be located around the center island as well as on the east side of the pond (existing east bridge abutment). The retaining walls will have a height of 6 feet and will consist of Redi-Rock. In addition, a new pond liner will also be constructed.

### **Pedestrian Bridge**

#### **Discussion**

The test boring at the location of the pedestrian bridge (east end) indicate that existing fill materials extend to a depth of 4 ½ feet. It is our opinion that the existing fill materials are not

suitable for support of the pedestrian bridge. The test borings also indicate that Niobrara Marl extended to a depth of 44 ½ feet (elevation 1,202.2 feet). The results of the field and laboratory tests indicate that the Niobrara Marl has varying strength characteristics. With that said, it is our opinion that the Niobrara Marl would not provide uniform support for the new pedestrian bridge. Therefore, it is our opinion that the pedestrian bridge should be supported by driven piles.

### **Piles**

In our opinion, pipe piles or H-piles could be used for support of the new pedestrian bridge. The H-piles could consist of HP 10x42 piles and the pipe piles could consist of 7-inch diameter (wall thickness of 0.453 inch) pipe piles or 10.75-inch diameter (wall thickness of 5/16 inch) pipe piles. Alternative pile sizes could also be considered. Also, the pipe piles should be driven with a closed end so that visual inspection could be performed at the completion of driving. The pipe piles should also be filled with concrete (minimum compressive strength of 3,000 pounds per square inch (psi)). The piles would be end-bearing and should be supported by the Pierre Shale. Again, the Pierre Shale was encountered at an elevation of 1,201.7 feet. We expect that the piles will extend a minimal amount into the Pierre Shale. Some variations in the pile lengths should be expected.

For the HP 10x42 piles an allowable compression capacity of up to 70 tons per pile could be achieved by driving the piles down to the Pierre Shale. For the 10.75-inch diameter pipe piles, an allowable compression capacity of up to 60 tons per pile could be achieved by driving the piles down to the Pierre Shale. For the 7-inch diameter pipe piles, an allowable compression capacity of up to 50 tons per pile could be achieved by driving the piles down to the Pierre Shale. Regarding uplift, the following uplift capacities could be used for the piles: 20 tons (HP 10x42 pile), 15 tons (10.75-inch diameter pipe pile) and 12 tons (7-inch diameter pipe pile). The uplift capacities are based on the piles extending down to the Pierre Shale. The allowable compression and uplift capacities are based on a safety factor of 2.0. The piles should have minimum yield strengths of 50 ksi (H-piles) or 45 ksi (pipe piles). During installation, we recommend exercising caution to avoid overdriving and potentially damaging the piles.

For the piles, we recommend that the center-to-center pile spacing be at least 2.5 pile diameters or 30 inches, whichever is greater. If a closer spacing is used, then we recommend evaluating the magnitude of the group effect to determine the extent to which the allowable capacities should be reduced. We recommend using a pile driving formula, such as Gates Formula or the Engineering News Record Formula, to verify the allowable capacities and to establish the pile driving criteria. Additionally, Figure 3 shows the recommended design parameters to be used for the LPile soil profile at the site (if needed).

The use of a pile driving hammer that has a manufacturer's rated energy that is compatible to the pile type/size and the allowable capacities is vital for successful installation of the piles. If the pile driving hammer is either under-sized or over-sized, then it could be detrimental to the installation of the piles. With that said, we performed a drivability analysis using the GRLWEAP program. The GRLWEAP program is a one-dimensional wave equation analysis program that simulates pile response to pile driving equipment. Please refer to Table 1 that summarizes the results of the analysis. The analysis was based on various pile driving hammers (manufacturer's cushion recommendations) with the piles. If the contractor desires to use a pile driving hammer that is not listed in Table 1, then we recommend determining if the proposed pile driving hammer is acceptable.



**Table 1. GRLWEAP Analysis Results – Piles**

<b>Pile Hammer</b>	<b>7-Inch Pipe Piles Allowable Capacity – 50 tons</b>	<b>10.75-Inch Pipe Piles Allowable Capacity – 60 tons</b>	<b>HP 10x42 Piles Allowable Capacity – 70 tons</b>
APE D19-42	Yes (Lowest)	Yes (Second)	Yes (Maximum)
Delmag D 12-42	Yes (Maximum)	Yes (Maximum)	Yes (Maximum)
Delmag D 16-32	Yes (Third)	Yes (Third)	Yes (Maximum)
Delmag D 19-32	Yes (Second)	Yes (Second)	Yes (Maximum)
Delmag D 19-42	Yes (Second)	Yes (Second)	Yes (Maximum)
Delmag D 25-32	No	No	No
Delmag D 30-32	No	No	No
Delmag D 46-32	No	No	No
FEC 1500	No	No	Yes (Maximum)
ICE 180	No	No	No
ICE 42-S	No	No	No
MKT DE 35	Yes (Maximum)	Yes (Maximum)	Yes (Maximum)
MKT DE 42	Yes (Maximum)	No	Yes (Maximum)
MVE M-19	Yes (Lowest)	Yes (Lowest)	Yes (Maximum)
SPI D30-32	No	No	No

Notes: A “No” indicates that the hammer should not be used for the project. A “Yes” indicates that the hammer can be used for the project but may need to be operated at a lower fuel setting to prevent overstressing the pile during driving operations. The lower fuel setting is shown in the parentheses. The ranking of the fuel settings from lowest to highest is: lowest, second, third and maximum. The hammer should not be operated higher than the fuel setting shown in the parentheses. The fuel reductions should only be considered theoretical estimates. Actual fuel settings should be determined in the field during driving.

**Additional Pile Review**

Additional pile review will likely be needed if the piles become obstructed at an abnormal depth due to cobbles or boulders.

**Settlement**

For the piles, we estimate total settlement to be less than ½ inch and the differential settlement to be approximately one-half of the estimated total settlement. Unknown soil conditions at the site that are different from those depicted at the test boring locations could increase the amount of expected settlement.

### **Bridge End Backfill**

We recommend that the abutment walls be designed to resist at-rest lateral earth pressures. The lateral earth pressure used for the design of the abutment walls will depend on the material used to backfill the walls. It is our opinion that the Niobrara marl is not suitable to be used as backfill. However, the glacial till soils could be used as backfill; however, moisture conditioning will likely be needed in order to get the soils to a level that will facilitate the specified compaction requirement. With that said, importing a backfill may be a better alternative than using the on-site soils. The material should be approved before hauling to the site. If granular soils are used, then we recommend protecting/capping the granular soils with a sufficient layer of clay material to minimize infiltration of water and to prevent erosion of the granular soils. A tabular listing of the equivalent fluid unit weight values is shown in Table 2.

**Table 2. Equivalent Fluid Unit Weight Values.**

Soil Type	At-Rest, pcf	
	Drained	Submerged
Lean Clay (CL)	95	110
Free-Draining Sand (SP)	50	90

We recommend that the backfill be placed in uniform thin lifts (6-inch maximum lifts) and compacted to a minimum of 95 percent of standard Proctor density (ASTM:D698). Large compaction equipment should not be used adjacent to the walls. Only hand-operated compaction equipment should be used directly adjacent to the walls.

### **Site Observations**

We recommend that a geotechnical engineer or a geotechnical engineering technician working under the direct supervision of a geotechnical engineer monitor the installation of the production piles. Detailed records should be kept on all production piles.

### **Frost Movement of the Sidewalk**

If movement of the sidewalk leading up to the pedestrian bridge cannot be tolerated, then we recommend placing free-draining sand beneath the sidewalk. The free-draining sand should

extend to a depth of 4 feet below the finished exterior grade. If it is desired to reduce (but not eliminate) the amount of potential frost heave, then we recommend consideration be given to placing approximately 2 feet of free-draining sand beneath the sidewalk.

## **Retaining Walls**

### **Discussion**

It is our opinion that the existing fill materials are not suitable for support of the retaining walls. Regarding the fine alluvium soils and glacial till soils, it is our opinion that these soils have suitable strength for support of the retaining walls.

No test borings were performed on the island; therefore, we recommend that observations be performed at the bottom of the excavations. With that said, the site preparation may vary from what is recommended in the following section.

### **Site Preparation**

The site preparation for the retaining walls should consist of removing any foundations, debris, pavements, gravel base materials, vegetation (grass, trees, etc.), topsoil materials and existing fill materials in order to expose the fine alluvium soils or glacial till soils.

Following the removals, we recommend that an overexcavation be performed to a minimum depth of 12 inches below the bottom-of-block elevation. We recommend that the overexcavated areas be backfilled with a minimum of 12 inches of drainage rock. The thickness of the drainage rock may exceed 12 inches in areas where the removals extend deeper than 12 inches. However, we recommend that the bottom of the excavation is level as well as the drainage rock have a uniform thickness across the width of the excavation. We also recommend placing a geogrid beneath the drainage rock. Regarding the geogrid, we recommend using Tensar BX1200 (biaxial grid), Mirafi BXG120 (biaxial grid) or Tensar TX7 (tri-axial grid) or an approved alternative.

### **Excavation**

All excavations should be performed with a track backhoe with a smooth edge bucket. The soils are vulnerable to disturbance and can experience strength loss caused by construction traffic

and/or additional moisture. If any soils become disturbed during construction, then the disturbed soils will likely need to be removed.

### **Dewatering**

Dewatering will be needed during construction. We anticipate that the groundwater level will be above most of the recommended excavation depths necessary to remove the unsuitable soils. It is our opinion that an extensive dewatering system may be needed to handle the anticipated volume of water. The contractor should perform and provide appropriate dewatering methods and equipment.

### **Foundation Loads & Settlement**

If our recommendations are followed during site preparations, then it is our opinion that the retaining walls can be sized for a net allowable soil bearing pressure of up to 2,000 pounds per square foot (psf). It is our opinion that the recommended bearing pressure should provide a minimum safety factor of 3.0 against shear or base failure.

With the recommended site preparation and net allowable soil bearing pressure, total settlement of the retaining walls should be less than 1 inch and differential settlement should be less than ½ inch over 50 feet. Unknown soil conditions at the site that are different from those depicted at the test boring locations could increase the amount of expected settlement.

### **Coefficient of Friction**

It is our opinion that a friction factor of 0.45 can be used between the blocks and the drainage rock (12-inch minimum below the blocks). The friction value is considered an ultimate value. We recommend applying a theoretical safety factor of at least 2.0.

### **Retaining Wall Backfill**

We recommend backfilling the retaining walls with granular fill. The zone of the granular fill backfill should extend a minimum of 2 feet outside the bottom of the block and then extend upward and outward at a slope no steeper than 1:1 (horizontal to vertical). We also recommend capping the granular backfill with 1 foot to 2 feet of clayey soil in areas that will not have asphalt

or concrete surfacing to minimize infiltration of surface waters. We assume that a geogrid will be incorporated into the backfill. In addition, we assume that a layer 12-inch-wide layer of drainage rock will be placed directly behind the retaining walls.

### **Design Parameters**

Please refer to Table 3 for a summary of the design parameters for the various soil types at the site.

**Table 3. Design Parameters – Retaining Walls**

<b>Description</b>	<b>Wet Unit Weight, pcf</b>	<b>Friction Angle, Degrees</b>	<b>c, psf</b>	<b>Soil Type</b>
Reinforced Soil	125	35	0	Granular Fill
Retained Soil	125	22	0	Existing Fill, Fine Alluvium, Glacial Till
Foundation Soil	125	22	0	Fine Alluvium, Glacial Till

### **Drainage System**

We recommend that a backfill drainage system be provided for the retaining walls to collect and remove water and to prevent hydrostatic pressure on the retaining wall. The drainage system should consist of slotted or perforated drainage pipes located at the bottom of the overexcavation. The drainage pipes should be wrapped in a geotextile filter fabric to minimize clogging. The geotextile filter fabric should consist of Mirafi FW402, US 120NW, US 205NW or an approved equivalent. The drainage system should be connected to a suitable means of discharge.

### **Pond Liner**

#### **Discussion**

No test borings were performed within the existing pond; however, we would expect that fine alluvium soils, glacial till soils and/or Niobrara marl would be encountered in the pond area. In addition, we understand that the maximum seepage requirement for the proposed pond is 1/16

inch per day. With this requirement, we assume that the pond elevation will be managed during and after construction (pond outlet structure, etc.).

In our opinion, the Niobrara marl should not be used as liner material. Regarding the fine alluvium soils and glacial till soils, it is our opinion that these soils would likely be suitable for liner materials. However, we recommend that permeability tests be performed on the fine alluvium soils and glacial till soils prior to and after construction of the pond liner. Based on water levels at the project site, the water will affect the site preparation procedures. With that said, the fine alluvium soils and glacial till soils will likely need to be moisture conditioned prior to use.

We would also like to point out that an off-site borrow material could be used for the pond liner. The off-site borrow material should consist of a lean clay (CL) or fat clay (CH) soil. With that said, we would also recommend that permeability tests be performed on the off-site borrow material prior to and after construction of the pond liner.

### **Site Preparation**

The site preparation for the new pond liner, should consist of removing 12 inches of materials from the bottom of the existing pond elevation or to an elevation that is 12 inches below the new bottom-of-pond elevation, whichever is greater. Following the removals, we recommend that the liner soils be placed in uniform lifts (6-inch maximum) and moisture conditioned to a moisture content level between the optimum moisture content level and 3 percent above the optimum moisture content level as determined by standard Proctor (ASTM:D698). However, it may be necessary to adjust the moisture content closer to the optimum moisture content to achieve the specified compaction level. Once the moisture content level of the fill soils is within the recommended range, the liner soils should be compacted to a minimum of 95 percent of standard Proctor density (ASTM:D698).

The on-site soils (especially the glacial till soils) may randomly contain “pockets” of sand soils. We recommend the bottom of the pond excavations be observed by a geotechnical engineer or technician to help identify sand pockets that will require removal and replacement with suitable clay liner material.

The pond should be pre-filled as soon as possible to minimize drying and shrinkage cracking of the completed liner. Consideration should be given to protecting the liner on slopes of the embankment from erosion. A suitable riprap layer or shallow root vegetation could be used.

In regards to the water in the existing pond, it is our understanding that the pond will be drained prior to construction of the new clay liner. However, if groundwater is encountered, then we recommend dewatering methods be used both prior to and during construction to cut off and/or remove groundwater within the proposed liner areas. The contractor should provide appropriate dewatering methods and equipment.

### **Erosion Control, Slopes & Slope Stability**

Again, we recommend that the slopes of the pond, abutments and around the retaining walls be properly protected from erosion. A suitable riprap layer or shallow root vegetation could be used. We recommend that the side slopes of the new embankment sections (including in front of retaining walls) be sloped no steeper than 3:1 (horizontal:vertical). With that said, we would like to point out that our scope of work did not include a slope stability analysis of the pond embankment or retaining walls.

### **Material Types & Compaction Levels**

**Drainage Rock** – The drainage rock should be crushed, washed and meet the gradation specifications shown in Table 4.

**Table 4. Drainage Rock Gradation Specifications**

<b>Sieve Size</b>	<b>Percent Passing</b>
1 ½-inch	100
1-inch	70 – 90
¾-inch	25 – 50
3/8-inch	0 – 5

**Free-Draining Sand** – The free-draining sand should have a maximum particle size of 1 inch with less than 5 percent by weight passing the #200 sieve. The free-draining sand should be placed in lifts of up to 1 foot in thickness.

**Granular Fill** – The granular fill should consist of a pit-run or processed sand or gravel meeting the gradation specifications shown in Table 5.

**Table 5. Granular Fill Gradation Specifications**

Sieve Size	Percent Passing
2-inch	100
¾-inch	75 – 100
No. 4	20 – 90
No. 40	0 – 60
No. 200	0 – 12

**Subgrade Fill** – The subgrade fill should consist of either a granular or clay material. Debris, organic material, or over-sized material should not be used as subgrade fill. If a granular material is used, then it should consist of a pit-run or processed sand or gravel having a maximum particle size of 3 inches. The granular material can be placed in lifts of up to 1 foot in thickness. If a clay material is selected, then it should consist of a non-organic clay. Scrutiny on the clay material’s moisture content should be made prior to the acceptance and use. The clay fill should be placed in lifts of up to 6 inches in thickness. The majority of the on-site soils could be used as subgrade fill (except the Niobrara Marl). Some moisture adjustment (wetting or drying) may be needed with the on-site soils. Organic materials should not be used as subgrade fill.

**Aggregate Base Course Material** – We recommend that the aggregate base course materials meet the requirements of Sections 260 and 882 of the SDDOT Standard Specifications.

**Recommended Compaction Levels** – The recommended compaction levels listed in Table 6 are based on a material’s maximum dry density value, as determined by a standard Proctor (ASTM: D698) test.



**Table 6. Recommended Compaction Levels**

<b>Placement Location</b>	<b>Compaction Specifications</b>
Below Retaining Wall	97%
Behind Retaining Walls	95% - 98%
Subgrade Fill in Pavement Areas	95%
Aggregate Base Course in Pavement Areas	97%
Non-Structural Areas	90%

Notes: Compaction specifications are not applicable with the drainage rock.

**Recommended Moisture Levels** – The moisture content of the clay backfill materials, when used as backfill around the exterior of a foundation should be maintained within a range of plus 1 percent to minus 4 percent of the materials’ optimum moisture content. When the clay backfill materials are used below a pavement area, or as site grading, the materials’ moisture content should be maintained within a range of minus 1 percent to minus 4 percent of the materials’ optimum moisture content. The moisture content of the trench backfill soils should be adjusted to a moisture level that is within plus or minus 2 percent of the optimum moisture content. The optimum moisture content should be determined using a standard Proctor (ASTM: D698) test.

The moisture content of the granular backfill materials should be maintained at a level that will be conducive for vibratory compaction.

### **Drainage**

Proper drainage should be maintained during and after construction. The general site grading should direct surface run-off waters away from the excavations. Water which accumulates in the excavations should be removed in a timely manner.

## **CONSTRUCTION CONSIDERATIONS**

### **Groundwater & Surface Water**

Water will likely enter the excavations due to subsurface water, precipitation or surface run off. Extensive dewatering techniques will likely be necessary depending upon the subsurface water

levels present during construction. The volume of dewatering could be extremely high. The contractor should provide appropriate dewatering methods and equipment. The dewatering efforts will need to be maintained during excavation, construction and backfill of the structure.

### **Cold Weather Precautions**

If site preparation and construction is anticipated during cold weather, then we recommend all foundations, slabs and other improvements that may be affected by frost movements be insulated from frost penetration during freezing temperatures. If filling is performed during freezing temperatures, all frozen soils, snow and ice should be removed from the areas to be filled prior to placing the new fill. The new fill should not be allowed to freeze during transit, placement and compaction. Concrete and asphalt should not be placed on frozen subgrades. Frost should not be allowed to penetrate below the foundations. The subgrade soils will likely require reworking and recompacting due to the loss of density caused by the freeze/thaw process.

### **Excavation Sideslopes**

All excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, “Excavations and Trenches”. This document states that the excavation safety is the responsibility of the contractor. Reference to this OSHA requirement should be included in the project specifications.

### **Observations & Testing**

This report was prepared using a limited amount of information for the project and a number of assumptions were necessary to help us develop our conclusions and recommendations. It is recommended that our firm be retained to review the geotechnical aspects of the final design plans and specifications to check that our recommendations have been properly incorporated into the design documents.

The recommendations submitted in this report have been made based on the subsurface conditions encountered at the test boring locations. It is possible that there are subsurface conditions at the site that are different from those represented by the test borings. As a result, on-site observation during construction is considered integral to the successful implementation of

the recommendations. We believe that qualified field personnel need to be on-site at the following times to observe the site conditions and effectiveness of the construction.

We recommend that a geotechnical engineer or a geotechnical engineering technician working under the direct supervision of a geotechnical engineer monitor the installation of the piles. Detailed records should be kept for the piles.

## **SUBSURFACE EXPLORATION PROCEDURES**

### **Test Borings**

We performed the borings with a truck rig equipped with hollow-stem auger. Soil sampling was performed in accordance with the procedures described in ASTM:D1586. Using this procedure, a 2-inch O.D. split barrel sampler is driven into the soil by a 140-pound weight falling 30 inches. After an initial set of 6 inches, the number of blows required to drive the sampler an additional 12 inches is known as the penetration resistance, or “N” value. The “N” value is an index of the relative density of cohesionless soils and the consistency of cohesive soils. In addition, thin walled tube samples were obtained according to ASTM:D1587, where indicated by the appropriate symbol on the boring logs. The test borings were backfilled in accordance with the requirements set forth by the Minnesota Department of Health.

The soil samples collected from the test boring locations will be retained in our office for a period of 1 month after the date of this report and will then be discarded unless we are notified otherwise.

### **Soil Classification**

As the samples were obtained in the field, they were visually and manually classified by the crew chief according to ASTM:D2488. Representative portions of all samples were then sealed and returned to the laboratory for further examination and for verification of the field classification. In addition, select samples were then submitted to a program of laboratory tests. Where laboratory classification tests (sieve analysis and Atterberg limits) have been performed, classifications according to ASTM:D2487 are possible. Logs of the test borings indicating the

depth and identification of the various strata, the “N” value, the laboratory test data, water level information and pertinent information regarding the method of maintaining and advancing the drill holes are also attached in Appendix A. Charts illustrating the soil classification procedures, the descriptive terminology and the symbols used on the boring logs are also attached in Appendix A.

### **Water Level Measurements**

Subsurface groundwater levels should be expected to fluctuate seasonally and yearly from the groundwater readings recorded at the test boring locations. Fluctuations occur due to varying seasonal and yearly rainfall amounts and snowmelt, as well as other factors. It is possible that the subsurface groundwater levels during or after construction could be significantly different than the time the test borings were performed.

### **Laboratory Tests**

Laboratory tests were performed on select samples to aid in determining the index and strength properties of the soils. The index tests consisted of moisture content, dry density and Atterberg limits (liquid and plastic limits). The strength tests consisted of unconfined compressive strength. The laboratory tests were performed in accordance with the appropriate ASTM procedures. The results of the laboratory tests are shown on the boring logs opposite the samples upon which the tests were performed or on the attached data sheets.

## **LIMITATIONS**

The recommendations and professional opinions submitted in this report were based upon the data obtained through the sampling and testing program at the test boring locations. We wish to point out that because no exploration program can totally reveal the exact subsurface conditions for the entire site, conditions between test borings and between samples and at other times may differ from those described in our report. Our exploration program identified subsurface conditions only at those points where samples were retrieved or where water was observed. It is not standard engineering practice to continuously retrieve samples for the full depth of the borings. Therefore, strata boundaries and thicknesses must be inferred to some extent.

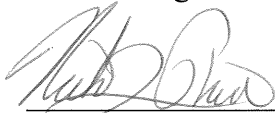
Additionally, some soils layers present in the ground may not be observed between sampling intervals. If the subsurface conditions encountered at the time of construction differ from those represented by our test borings, it is necessary to contact us so that our recommendations can be reviewed. The variations may result in altering our conclusions or recommendations regarding site preparation or construction procedures, thus, potentially affecting construction costs.

This report is for the exclusive use of the addressee and its representatives for use in design of the proposed project described herein and preparation of construction documents. Without written approval, we assume no responsibility to other parties regarding this report. Our conclusions, opinions and recommendations may not be appropriate for other parties or projects.

### STANDARD OF CARE

The recommendations submitted in this report represent our professional opinions. Our services for your project were performed in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering profession currently practicing at this time and area.

This report was prepared by:  
GeoTek Engineering & Testing Services, Inc.



Nick Bierle, PE  
Project Engineer

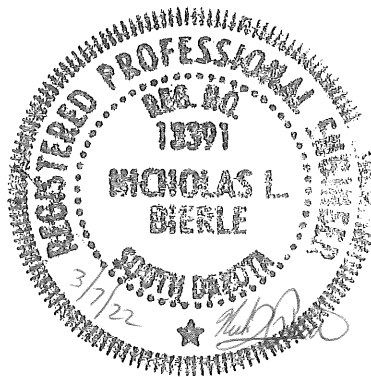




FIGURE 1  
SITE LOCATION MAP  
PROPOSED PEDESTRIAN BRIDGE &  
RETAINING WALL  
WEST 5TH STREET & SUMMIT STREET  
YANKTON, SD  
ACAD/GEOTEK/NICK/22-070

PROJECT#: 22-070

DRAWN BY: MAB



**GEOTEK ENGINEERING &  
TESTING SERVICES, INC.**  
909 East 50th Street North  
Sioux Falls, South Dakota 57104  
605-335-5512 Fax 605-335-0773



FIGURE 2  
TEST BORING LOCATION MAP  
PROPOSED PEDESTRIAN BRIDGE &  
RETAINING WALL  
WEST 5TH STREET & SUMMIT STREET  
YANKTON, SD  
ACAD/GEOTEK/NICK/22-070

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**FIGURE 3. LPILE DESIGN DATA SHEET**

Geologic Origin	Soil Type	Effective Unit Weight, pcf*	Cohesion, psf	Friction Angle, degrees	Lateral Soil Modulus, K, pci**	Young's Modulus, E, psi	Strain @ 50%, E50
Glacial Till	Clay	54	2800	---	930	1160	0.005
Niobrara Marl	Elastic Silt	48	500	---	170	800	0.017
Pierre Shale	Clay	58	4500	---	1400	3600	0.005

\*Based on a groundwater elevation of 5 feet. \*\*The values for clays are for a static condition. If values for a cyclic condition are needed, we recommend we be contacted for those values.





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**GEOTECHNICAL TEST BORING LOG**

GEOTEK # <u>22-070</u>						BORING NO. <u>1 (1 of 1)</u>					
PROJECT <u>Proposed Pedestrian Bridge &amp; Retaining Wall, W. 5th Street &amp; Summit Street, Westside Park, Yankton, SD</u>											
DEPTH in FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE		LABORATORY TESTS				
					NO.	TYPE	WC	D	LL	PL	QU
	↓ SURFACE ELEVATION <u>1246.2 ft</u>										
4½	<b>FILL, MOSTLY LEAN CLAY:</b> a little gravel, dark brown, frozen to moist, 4' of frost	FILL			1	HSA					
					2	HSA					
	<b>SANDY LEAN CLAY:</b> a trace of gravel, brown, dry to moist, stiff to firm, (CL)	GLACIAL TILL	10		3	SPT	13	101			
			6		4	SPT	13	106			
12			6		5	SPT	11				
13½	<b>LEAN CLAY WITH SAND:</b> a little gravel, brown, moist, stiff, (CL)	GLACIAL TILL	14		6	SPT	14	111			5800
	<b>ELASTIC SILT:</b> brownish white, wet, firm to stiff, (MH)	NIOBRARA MARL	9		7	SPT	43	77	54	33	
			8	▼	8	SPT					
			9		9	SPT	39	80			2200
			9		10	SPT					
			10		11	SPT					
			11		12	SPT	42	77			1100
44½	<b>FAT CLAY:</b> gray, moist, hard, (CH)	PIERRE SHALE	45		13	SPT	25	91			8700
51	Bottom of borehole at 51 feet.		50/0.4'		14	SPT	24	102	54	24	
WATER LEVEL MEASUREMENTS						START <u>1-18-22</u> COMPLETE <u>1-18-22 10:24 am</u>					
DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL	METHOD					
1-18-22	1:53 pm	51	--	42	None	3.25" ID Hollow Stem Auger					
1-18-22	1:53 pm	51	--	23	▼ 21.0						
--	--	--	--	--	--						
--	--	--	--	--	--	CREW CHIEF <u>Mike Wagner</u>					

GEOTECHNICAL TEST BORING 22-070.GPJ - GEOTEKENG.GDT 1/31/22



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**GEOTECHNICAL TEST BORING LOG**

GEOTEK # <u>22-070</u>						BORING NO. <u>2 (1 of 1)</u>						
PROJECT <u>Proposed Pedestrian Bridge &amp; Retaining Wall, W. 5th Street &amp; Summit Street, Westside Park, Yankton, SD</u>												
DEPTH in FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE		LABORATORY TESTS					
					NO.	TYPE	WC	D	LL	PL	QU	
	↓ SURFACE ELEVATION <u>1246.4 ft</u>											
4½	<b>FILL, MOSTLY LEAN CLAY:</b> a little gravel, dark brown, frozen to moist, 4' of frost	FILL			1	HSA						
					2	HSA						
	<b>SANDY LEAN CLAY:</b> a trace of gravel, brown, moist, firm to stiff, (CL)	FINE ALLUVIUM	9		3	SPT	14	118				
			6		4	SPT	17	113				
10	<b>LEAN CLAY WITH SAND:</b> a trace of gravel, dark brown, moist, firm, (CL)	GLACIAL TILL	6		5	SPT	22	103				
			7		6	SPT	24	101	38	17		
16			6		7	SPT	24	103				
	Bottom of borehole at 16 feet.											
WATER LEVEL MEASUREMENTS						START	<u>1-18-22</u>	COMPLETE	<u>1-18-22 11:16 am</u>			
DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL	METHOD						
1-18-22	1:53 pm	16	--	14	None	3.25" ID Hollow Stem Auger						
--	--	--	--	--	--							
--	--	--	--	--	--							
--	--	--	--	--	--	CREW CHIEF Mike Wagner						

GEOTECHNICAL TEST BORING 22-070.GPJ - GEOTEKENG.GDT 1/31/22

# SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
<p><b>COARSE GRAINED SOILS</b></p> <p>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</p>	<p><b>GRAVEL AND GRAVELLY SOILS</b></p>	<p>CLEAN GRAVELS</p> <p>(LITTLE OR NO FINES)</p>		<b>GW</b>	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		<b>GP</b>	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		<b>GM</b>	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		<b>GC</b>	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	<p><b>SAND AND SANDY SOILS</b></p>	<p>CLEAN SANDS</p> <p>(LITTLE OR NO FINES)</p>		<b>SW</b>	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		<p>CLEAN SANDS</p> <p>(LITTLE OR NO FINES)</p>		<b>SP</b>	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		<b>SM</b>	SILTY SANDS, SAND - SILT MIXTURES
		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		<b>SC</b>	CLAYEY SANDS, SAND - CLAY MIXTURES
		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		<b>SO</b>	ORGANIC SANDS, SAND - SILT MIXTURES
<p><b>FINE GRAINED SOILS</b></p> <p>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</p>	<p><b>SILTS AND CLAYS</b></p> <p>LIQUID LIMIT LESS THAN 50</p>		<b>ML</b>	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
			<b>CL</b>	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			<b>OL</b>	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	<p><b>SILTS AND CLAYS</b></p> <p>LIQUID LIMIT GREATER THAN 50</p>		<b>MH</b>	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
			<b>CH</b>	INORGANIC CLAYS OF HIGH PLASTICITY	
			<b>OH</b>	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
<p><b>HIGHLY ORGANIC SOILS</b></p>				<b>PT</b>	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

# BORING LOG SYMBOLS AND DESCRIPTIVE TERMINOLOGY

## SYMBOLS FOR DRILLING AND SAMPLING

<u>Symbol</u>	<u>Definition</u>
Bag	Bag sample
CS	Continuous split-spoon sampling
DM	Drilling mud
FA	Flight auger; number indicates outside diameter in inches
HA	Hand auger; number indicates outside diameter in inches
HSA	Hollow stem auger; number indicates inside diameter in inches
LS	Liner sample; number indicates outside diameter of liner sample
N	Standard penetration resistance (N-value) in blows per foot
NMR	No water level measurement recorded, primarily due to presence of drilling fluid
NSR	No sample retrieved; classification is based on action of drilling equipment and/or material noted in drilling fluid or on sampling bit
SH	Shelby tube sample; 3-inch outside diameter
SPT	Standard penetration test (N-value) using standard split-spoon sampler
SS	Split-spoon sample; 2-inch outside diameter unless otherwise noted
WL	Water level directly measured in boring
▼	Water level symbol

## SYMBOLS FOR LABORATORY TESTS

<u>Symbol</u>	<u>Definition</u>
WC	Water content, percent of dry weight; ASTM:D2216
D	Dry density, pounds per cubic foot
LL	Liquid limit; ASTM:D4318
PL	Plastic limit; ASTM:D4318
QU	Unconfined compressive strength, pounds per square foot; ASTM:D2166

## DENSITY/CONSISTENCY TERMINOLOGY

<u>Density</u>	<u>N-Value</u>	<u>Consistency</u>
<u>Term</u>		<u>Term</u>
Very Loose	0-4	Soft
Loose	5-8	Firm
Medium Dense	9-15	Stiff
Dense	16-30	Very Stiff
Very Dense	Over 30	Hard

## PARTICLE SIZES

<u>Term</u>	<u>Particle Size</u>
Boulder	Over 12"
Cobble	3" – 12"
Gravel	#4 – 3"
Coarse Sand	#10 – #4
Medium Sand	#40 – #10
Fine Sand	#200 – #40
Silt and Clay	passes #200 sieve

## DESCRIPTIVE TERMINOLOGY

<u>Term</u>	<u>Definition</u>
Dry	Absence of moisture, powdery
Frozen	Frozen soil
Moist	Damp, below saturation
Waterbearing	Pervious soil below water
Wet	Saturated, above liquid limit
Lamination	Up to ½" thick stratum
Layer	½" to 6" thick stratum
Lens	½" to 6" discontinuous stratum

## GRAVEL PERCENTAGES

<u>Term</u>	<u>Range</u>
A trace of gravel	2-4%
A little gravel	5-15%
With gravel	16-50%

# **TECHNICAL SPECIFICATIONS**



# SUBSTITUTION REQUEST

OWNER  
ARCHITECT  
CONSULTANT  
CONTRACTOR  
FIELD OTHER

PROJECT:

DATE OF ISSUANCE:

TO: Stockwell Engineers  
801 N Phillips Ave, Suite 100  
Sioux Falls, SD 57104

SUBMITTED BY:

SPECIFIED ITEM(S):

Section	Page	Paragraph	Description

Section	Page	Paragraph	Description

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION:

Attachments:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents which the proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct

1. The proposed substitution does not affect dimensions shown on drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

Issued by:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## FOR A/E USE ONLY

For use by the design consultant	Accepted	Accepted as noted	Not Accepted	Not Approved
----------------------------------	----------	-------------------	--------------	--------------

REVIEWED BY:

## SECTION 03 10 00: CONCRETE FORMING AND ACCESSORIES

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Forms for all cast in place concrete
- B. Form accessories.
- C. Stripping forms.
- D. Waterstops
- E. Formdeck for stoops
- F. Opening in forms for other effected work.
- G. Shoring and reshoring as required. See structural notes page and details.

#### 1.2 RELATED CONTRACT DOCUMENTS

- A. Documents affecting work of this Section include, drawings and general provisions of Contract, all General and Supplementary Conditions and all other Division 0 and 1 Specification Sections.

#### 1.3 WORK INSTALLED BUT FURNISHED UNDER SECTIONS

- A. Section 05 12 00 - Structural Steel: Steel fabrications attached to form work.

#### 1.4 RELATED WORK

- A. Section 03 20 00 - Concrete Reinforcement.
- B. Section 03 30 00 –Cast-In-Place Concrete.
- C. Section 05 12 00– Structural Steel

#### 1.5 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ACI 315 - Details and Detailing of Concrete Reinforcement.
- C. ACI 318 – Building Code Requirements for Structural Concrete.
- D. ACI 350 - Code Requirements for Environmental Engineering Concrete Structures
- E. ACI 347 - Recommended Practice for Concrete Formwork.
- F. PS 1 - Construction and Industrial Plywood.
- G. ACI 117-Standard Specifications for Tolerances.

## 1.6 QUALITY ASSURANCE

- A. Construct and erect concrete form work in accordance with ACI 301.
- B. Tolerances:
  - 1. See ACI 117.

## 1.7 CONTRACTORS RESPONSIBILITY FOR FORMWORK DESIGN AND REMOVAL

- A. The form-work system shall be designed to support freshly place concrete and reinforcing materials, It shall transfer all concrete loads to the bearing soils or to completed construction in a safe manner at all times. Remove formwork, in a manner that does not damage the concrete or the elements of the project. Under the requirements of the construction documents, IBC, All local Building codes, ACI, OSHA and Local Workmen's Compensation; The contractor, and not the engineer or architect, shall provide engineering as required to meet this obligation.

## PART 2 – PRODUCTS

### 2.1 FORM MATERIALS (Earth is not an approved forming material)(Conform to ACI 301 and ACI 347 for design, fabrication, erection and removal of forms.)

- A. Plywood: Douglas Fir or equal species; sound, undamaged sheets with straight edges, manufactured for concrete wall forms.
  - 1. Conform to Tables for form design in APA Form V-345, including strength.
- B. Glass Fiber Fabric Reinforced Plastic Forms: Matched tight fitting, stiffened to support weight of concrete without deflection detrimental to structural tolerances and appearance of finished concrete surface.
- C. Steel: Minimum 16 gauge sheet, well matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- D. Form deck: 1.5C 20 gauge (min) ASTM A653 by Vulcraft or equal, galvanized in accordance with ASTM 924-94 to a min class of G90, unless otherwise noted on plans.
- E. Circular pier or round column forms: Cardboard waxed or plasticized forms such as Sonotube or equivalent.
- F. Do not leave aluminum materials, which may cause a corrosive reaction, embedded in the concrete. Aluminum forms are acceptable.

### 2.2 FORMWORK ACCESSORIES

- A. Form Ties: factory fabricated, adjustable length, removable or snap off form ties which results in no metal being closer than 1 1/2" from surface of concrete when forms are removed.
- B. Form Release Agent: Colorless material that will not stain concrete, or absorb moisture.



1. Do not allow form release agent to come in contact with reinforcing steel or inserts in the concrete.
- C. Fillets for Chamfered Corners: Wood strips or rigid plastic as detailed. ¾" x ¾".
- D. Nails, Spikes, Lag Bolts, Through Bolts, Anchorage's: Sized as required; of strength and character to maintain form work in place while placing concrete.
- E. Shelf Angle Inserts
  1. Wedge type inserts for 5/8" diameter bolts. Include horseshoe shims.
  2. Minimum capacity 2,100 pounds
- F. Dovetail Anchor Slots:
  1. 1" deep with 5/8" throat, 24 gauge galvanized steel.
- G. Flashing Reglets: 3/4" deep with 1/4" throat, 26 gauge galvanized steel.
- H. PVC weeps: 3" diameter PVC pipe.
- I. Waterstops: See plans and details for location.
  1. Extrudable non-leaching polyurethane products that will swell upon moisture contact.
    - a. Sika Products: SikaSwell S one part water swelled extruded polyurethane sealant, including special triangular shaped nozzle.
    - b. An equal approved product with one part polyurethane makeup that is free of bentonite or other leaching materials
  2. PVC Waterstop.
    - a. Unless otherwise noted within the construction documents, 6" flat ribbed style shall be used at all cold formed joints in liquid bearing structures.
    - b. Waterstop shall have a minimum design head pressure capacity of 75' or greater.
    - c. PVC Waterstop must meet or exceed the performance required by U.S. Army Corps of Engineers Specification CRD-C 572-74.

### PART 3 – EXECUTION

#### 3.1 INSPECTION

- A. Verify lines, levels, and measurements before proceeding with formwork.
- B. Depth or thickness of concrete being formed is to be as shown on plans. No variation in thickness or depth is allowed. (i.e.) a 4" slab is not to be poured at 3-5/8".

#### 3.2 PREPARATION

- A. Arrange and assemble formwork to permit dismantling and stripping so that concrete is not

damaged during its removal.

- B. Arrange forms to allow stripping without removal of principal shores, where required to remain in place.

### 3.3 ERECTION

- A. Provide bracing to ensure stability of formwork. Strengthen formwork liable to be overstressed by construction loads.
- B. Construct forms in accordance with ACI 301.

### 3.4 TOLERANCES

- A. Set and maintain forms to provide completed surfaces meeting the tolerances given in ACI 117. See Part 1 of these specifications.
  - 1. Tolerances given in ACI 117 are not cumulative. Maximum tolerance for any formed surface, except footings, shall be one inch.

### 3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for work embedded in or passing thorough concrete. Fill these voids with a readily removable material to prevent entry of concrete into voids or:
  - 1. Use void forming systems of correct size for openings required in the concrete. Follow manufacturers' instructions for proper strength ratings of void forms.
- B. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, including electrical boxes and conduit and other inserts.
  - 1. Ensure that forms will provide sufficient coverage for reinforcing. See Section 03200 for requirements.
- C. Install accessories in accordance with manufacturers' instructions level and plumb. Ensure items are not disturbed during concrete placement.
- D. Apply extruded waterstop in form locations as shown on plans and details. Form all joints as a continuous  $\frac{3}{4}$ " bead strictly according to the manufacturer's instructions so that waterstops are continuous.
  - 1. Following manufacturers' instructions, use largest of the 2 precut triangular nozzles to insure proper form and size of bead. Apply to clean, dry flat surfaces.
    - a. Depending on concrete thickness more than one bead may be required. Consult manufacturer's instructions.
  - 2. Waterstop must be allowed to pass through all form bulkheads. Notch bulkheads at end of all pour intersections.
    - a. To prevent waterstop damage, install 2-3 hours prior to any concrete pour where vertical height is more than 20 inches. Use of a tremie to limit concrete drop to 20 inches is required if waterstop is less than 2 days old.

- b. If wall is higher than 10'-0" contact Engineer for use of SikaSwell Hose.
- E. Build in dovetail anchor slots. Install anchor slots in concrete walls, columns, piers, beams and spandrels deeper than 14 inches and wider than 16 inches which will be in contact with masonry or elsewhere as indicated on the Drawings. Install anchor slots vertically, spaced 16 inches on center.

### 3.6 FORM RELEASE AGENT APPLICATION

- A. Apply agent on formwork only in accordance with manufacturer's instructions.
  - 1. Apply prior to installation of reinforcing steel, anchoring devices or embedments.
  - 2. If unable to completely remove agent from unintended items, replace the reinforcing steel, anchors or embedments.

### 3.7 FORM REMOVAL

- A. Replace concrete damaged by early removal of forms. Consult ACI 318, 301 and the following:
  - 1. Do not remove forms, shoring or bracing until concrete has sufficient strength to support its own weight, and construction and design loads that may be imposed upon it.
  - 2. Temperatures below 50 degrees F will prolong the timing of form removal.
- B. Form removal timing: Contractor shall verify the exact timing of form removal using these minimum removal times based on 28 day strength design of concrete and ACI 318.
  - 1. Footings: 24 hours minimum.
  - 2. 12" Walls under 5'-0" and 5'0" columns: 36 hours minimum.
    - a. For walls thicker than 12" and up to 20" add 8 hours.
    - b. For walls thicker than 20" same as 3 below.
  - 3. Walls and columns over 5'-0": 72 hours minimum but not until concrete, by cylinder test, has reached 50% of its 28-day design strength.
  - 4. Beams, girders, raised decks or floors: 75% of its 28-day design strength. No time limit.
- C. Do not damage concrete surfaces during form removal.
- D. Reshoring: Reshoring is designed to allow concrete to deflect and support its own weight after initial set has occurred and forms have been removed. Remove forms and tightly place reshores only after initial concrete deflection. Do not remove reshores until concrete has reached its specified strength.
  - 1. Apply no construction loads or other loads to members being reshored
  - 2. Provide reshores for all two-way slabs until concrete reaches specified strength.

- E. Forms for post-tensioned members may be removed as soon as full post-tension has been applied. Provide reshores as for non-post-tensioned members.
- F. At removal of forms patch all locations where wire ties protrude through the concrete or are exposed. Use primer and Non Shrink grout to solidly fill these holes. Also patch and grind to provide a smooth formed finish where required. See Part 1 of these specifications.

### 3.8 ALLOWABLE FACE & CORNER FINISHES

- A. Rough Form Finish: Concrete faces not exposed to view in the finished work shall have a rough form finish as defined by ACI 347.3.4 as a Class D finish. Holes shall be no larger than 3/8" and honeycombing or surface irregularities shall be no more than 1" in a 5'-0" area. However any exposed reinforcing steel or ties must be solidly grouted to match reinforcing coverage requirements.
- B. Smooth Form Finish: Concrete faces exposed to view in the finished work shall have a smooth form finish as defined by ACI 347.3.4 as a Class B surface. Class B surfaces have no more than 1/4" abrupt or gradual irregularities in a 5'-0" area and no holes larger than 1/4" on the surface. The contractor shall grind the surface where necessary to comply with these ACI requirements.
- C. Prominently exposed Class A finish: Concrete faces exposed to view as part of the architectural design or surfaces to receive finishes of any type (paint, textured paint, etc.) shall receive an class A smooth form finish as defined by ACI 347.3.4. These class A surfaces have no more than 1/8" abrupt or gradual irregularities in a 5'-0" area and no holes larger than 1/8" on the surface. The contractor shall then fill all holes and grind the exposed surface to provide a finish compatible with a heavily scrutinized surface.
- D. Corners not exposed to view may be formed either square or chamfered.
- E. Corners exposed to view shall be square, smooth, solid, unbroken lines except where a chamfered surface is called for on architectural plans
  - 1. Chamfered Corners shall be formed with chamfer strips to produce uniformly straight lines and tight edge joints. Unless otherwise stated the chamfers shall be 3/4" along both adjoining planes of the concrete edge. Extend the edges of the chamfers to the end of the formed surface. Match adjacent changes of direction by mitering to produce a connection without breaks in appearance. See architectural plans for where chamfers are required.

### 3.9 CLEANING

- A. Clean forms to remove foreign matter as erection proceeds.
- B. Ensure that water and debris drain to exterior through clean-out ports.

END OF SECTION

## SECTION 03 20 00: CONCRETE REINFORCING

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Weldable and non-welded reinforcing steel bars, for cast-in-place concrete.
- B. Support chairs, bolster, bar supports, ties and spacers for supporting reinforcement.
- C. Adhesive installation of dowels and or bars into prior placed concrete, masonry or structure.

#### 1.2 RELATED CONTRACT DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 0 and 1 Specification Sections apply to this Section

#### 1.3 RELATED WORK

- A. Division 2 Earth and Site work.
- B. Section 03 10 00 - Concrete Forming and Accessories
- C. Section 03 30 00 – Cast-In-Place Concrete.
- D. Section 05 12 00 – Structural Steel

#### 1.4 REFERENCES (Except where noted use latest edition)

- A. ACI 301 - Specification for Structural Concrete for Buildings.
- B. ACI 350 – Code Requirements For Environmental Engineering Concrete Structures
- C. ACI 318 – Building Code Requirements for Structural Concrete
- D. ACI 315 - Details and Detailing of Concrete Reinforcement.
- E. ANSI/ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.
- F. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- G. ASTM A 184/A - Welded Deformed Steel Bar Mats for Concrete Reinforcement.
- H. ANSI/AWS D1.4 - Structural Welding Code Reinforcing Steel.
- I. ASTM A615 – Standard Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- J. ASTM A706 – Welding Bars for Concrete Reinforcement.
- K. CRSI - Manual of Practice.

## 1.5 QUALITY ASSURANCE

- A. Perform concrete reinforcement work in accordance with CRSI Manual of Standard Practice, and Documents 63 and 65.
- B. Conform to ACI.
- C. Have all reinforcing inspected by local authority and testing laboratory prior to concrete pour. See section 01 45 29.

## 1.6 SHOP DRAWINGS

- A. Submit shop drawings in no more or no less than 4 copies.
- B. Allow a minimum of 7 calendar days for processing not including shipping times.
- C. Provide layout with gridline coordinates and dimensions. Provide in accordance with ACI publication SP-66 / 315R-94 and 315-92 detailing manual.
  - 1. Provide cutting / bending lists and cut through concrete details that show all sizes, spacing, concrete cover, locations, splices and quantities of reinforcing steel.
    - a. Supporting devices are part of the work and must be shown on the submittal.
- D. Make a request in writing to Heyer Engineering to use portions of original design contract document drawings for layout of their submittal. If agreed, comply with the following:
  - The title block, sheet numbers and all designers' stamps, signatures and references are removed and are never to be used by the fabricator or user.
  - Dimensions shown on contract documents are not verified and are not to be reused. Detailer shall create new dimensions from architectural contract documents for erection purposes. Gridlines only should be reused.
  - Non-reinforcing elements except for concrete or masonry shall be removed.
  - Details and elevations shown on contract documents are only for design and need to be completely redone by the detailer for erection purposes.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. Non Welded Reinforcing Steel: ASTM A615, 60 ksi yield grade billet-steel deformed bars, uncoated finish. Also includes smooth dowels. Use at all locations where A706 type is not specifically stated.
  - 1. At construction joints, grease and wrap the exposed end portion of smooth dowels prior to next concrete pour.
  - 2. See Structural details for corner bar requirements in footings, foundations and masonry.
- B. Weldable Reinforcing Steel: ASTM A706 60 ksi yield grade low alloy steel deformed bars with uncoated finish. See locations required on plans and details.

- C. Welded Steel Wire Fabric: ASTM A185 plain type; uncoated finish. Where size not noted, use 6 x 6 W2.1 x W2.1.
  - 1. Must be flat sheets only. Coils or wire rolls are not permitted.
- D. Reinforcing supports:
  - 1. For footing, wall, pier or foundation supports use stirrups or wire meeting either CRSI Class 1-2 gauge tie wire meeting ASTM A82.
  - 2. Slab Reinforcing Supports: Use Stirrups, chairs, masonry materials, or concrete pre-placements meeting CRSI requirements. Wood materials are prohibited. Supports are to be furnished by material supplier unless masonry or concrete preplacements. Coordinate with contractor.

## 2.2 ACCESSORY MATERIALS

- A. Tie Wire: ASTM A82; minimum 16 gauge, annealed type, black.
- B. Adhesive Anchoring Products See Section 051200 for materials to be used when rebar must be embedded into existing structures.

## 2.3 FABRICATION

- A. Fabricate in accordance with ACI 315, providing concrete cover specified in this section.
- B. Locate reinforcing splices not indicated on Drawings at points of minimum stress. Indicate location of splices on shop drawings.
- C. If required in plans or details, weld reinforcing bars in accordance with ANSI/ASW D1.4.

## 2.4 JOBSITE STORAGE

- A. Reinforcing steel shall be stored at site on timbers or planks, not concrete, which will keep steel free from mud and water. If storage is during winter months cover and ventilate.

## PART 3 – EXECUTION

### 3.1 INSPECTION

- A. Prior to concrete placement all reinforcing shall be inspected by a Testing agency. See Section 01 45 29. This inspection shall verify that reinforcing is installed per the plans and specifications and is not contaminated with form lubricants. In case of a conflict between the plans and the submittal drawings promptly contact the Engineer for resolution.
- B. When the supporting medium is a raised platform inspect the platform or decking to insure that the substrate is the proper specified platform and that the finish of the deck is as specified.
- C. Prior to concrete placement, notify all required governmental authorities of the work to allow for their inspection and comment.
- D. Before placing concrete, clean reinforcement of foreign particles or coatings including form oils.

If reinforcement cannot be completely cleaned, replace contaminated reinforcement.

### 3.2 COVERAGE

- A. Maintain concrete cover around reinforcing as shown on structural plans and note sheet.

### 3.3 INSTALLATION

- A. For slabs and exterior walkways adjacent to building if reinforcement is not shown install 6 x 6 W2.1 x W2.1 flat sheet Woven Wire Fabric. Do not use coils.
- B. Place, support, and secure reinforcement against displacement. Do not deviate from alignment or measurement.
- C. Provide ties, bar supports and other permanent methods of keeping reinforcing steel at required position in the concrete.
  - 1. Anchor bolts or dowels for structure above footings or foundations may be placed in the top of initial pour prior to set of that concrete pour, within 30 minutes. They must be placed correctly and have all concrete at the area of the insertion hand troweled to provide a smooth and level top of concrete surface.
  - 2. Retaining walls, however, must have all elements including anchor bolts or dowels placed and supported in the initial pour.
- D. Chair up all steel bar slab reinforcing. Do not allow reinforcing to be at bottom of slabs. The process of lifting up bars during slab pouring is not permitted unless it is to lift it up onto pins or chairs, during pour, for permanent placement.
  - 1. Slabs where bars are not properly placed shall be replaced at contractors' expense.
- E. Where smooth dowel construction joints are utilized, grease and wrap one end of the dowel.
- F. See plans and details for specific locations that call for weldable reinforcing steel. At these locations use A706 reinforcing steel.
- G. For drilling or placing bolts, rods, anchors or similar embedments into existing masonry or concrete whether vertical or horizontal use an adhesive anchorage system. See Section 05121 for products to use and temperature restrictions. Substrate must not be below 32<sup>o</sup>F.
- H. For masonry see placement details for horizontal, corner and vertical bars in masonry cores, bond beams, jambs and lintels on structural drawing sheets.

END OF SECTION



## SECTION 03 30 00: CAST-IN-PLACE CONCRETE

### PART 1 - GENERAL

#### 1.1 RELATED CONTRACT DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and 01 Specification Sections apply to this section.

#### 1.2 WORK INCLUDED

- A. Furnish and install all cast-in-place concrete for footings, foundations, piers, columns, exterior stoops, interior slab on grade and raised slabs, equipment pads and other work as shown on plans and details.
  - 1. Equipment pads and similar concrete items. Division 15 and 16 contractors are responsible only for dimension, location and layout of the pads. Contractor of this section shall furnish and install concrete. If pad is located on top of a precast or other raised deck, provide information to the general contractor to adjust deck load prior to manufacturer's design of deck.
- B. Protection of freshly poured and concrete undergoing curing.
- C. Shelters, heat and weather protection of Cast in Place Concrete.
- D. Pumping of Concrete materials if required.
- E. Water stops. (See section 03 10 00).
- F. Installation of metal angles, embeds and anchor bolts furnished by Division 5 into the concrete.
- G. Core fill grouting of masonry (installed by mason)
- H. Admixtures, curing compounds and accessories.
- I. Sawcutting control joints.
- J. ASTM and ACI standards of level and flatness.
- K. Grouting of all control and construction joints with cementitious products compatible with flooring glues prior to flooring installation.

#### 1.3 RELATED WORK

- A. Division 02- Earthwork
- B. Section 03 10 00 - Concrete Forming and Accessories
- C. Section 03 20 00 - Concrete Reinforcing

1.4 REFERENCES (Use latest publication date unless otherwise noted)

- A. ACI 301 – Standard Specifications for structural concrete for buildings. (THE FIELD GUIDE)
- B. ACI 315 – Details and Detailing of Concrete Reinforcement
- C. ACI 318 – Building code requirements for structural concrete
- D. ACI 350 – Code Requirements For Environmental Engineering Concrete Structures
- E. ASTM C33 - Concrete aggregates.
- F. ASTM C618 – Standard specification for coal fly ash- type C. Use Coal Creek brand of fly ash only.
- G. ASTM C94 - Ready-Mixed concrete.
- H. ASTM C150 - Portland cement.
- I. ASTM C260 - Air-Entraining admixtures for concrete.
- J. ASTM C494 - Chemical admixtures for concrete.
- K. ASTM C309 – Curing compounds for concrete.
- L. ACI 210-Guide to durable concrete.
- M. ASTM C171- Specification for sheet material for curing concrete.
- N. ASTM E1155 – Standard test method for determining (FF) Floor flatness and (FL) Floor levelness numbers.
- O. ACI C308 - Standard practice for curing concrete.
- P. ACI C305R – Hot weather concrete work.
- Q. ACI C306R – Cold weather concrete work.
- R. AASHTO M-148 for curing materials.
- S. ASTM C192- Test methods for concrete.
- T. ASTM C156 - Test method for moisture retention for concrete.
- U. ASTM C 295 - Petrographic examination of aggregates for concrete.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Have a current copy of ACI 301 on the jobsite for reference during the work of this section.

- C. Dimensions as shown on Construction Drawings are as intended. Slabs listed as 4" shall be 4".
- D. If the Concrete provided does not meet these specifications, The Contractors' Independent Engineering & Testing Agency shall perform batch inspections for the design mix and shall sample and test mix ingredients until concrete quality is established to the satisfaction of these Specifications.

## 1.6 DESIGN & TESTING

Submit the design mixes 10 days prior to placing concrete. Receive Engineers' review prior to use. Mix designs shall be no more than one-year-old from the date they are to be used. The following information shall be provided for each design mix.

- (1) Fine and coarse aggregate gradations per ASTM C33.
  - (2) Method of determination the mix design proportions.
  - (3) Water/cement ratio.
  - (4) Entrained and non-entrained air content of freshly poured concrete.
  - (5) Compressive strength at 28 days per ASTM C 39.
  - (6) Chloride ion content of the concrete per ASTM C1218.
  - (7) The proportions and types of all cementitious materials and admixtures.
  - (8) The Shale and deleterious contents of all aggregates used.
  - (9) Slump. Including slump both prior and after introduction of plasticizers; if they are used.
  - (10) Location where concrete is to be placed. (i.e.) footings, topping etc.
- B. After design mix is approved, the testing and analysis of jobsite delivered concrete will be performed under provisions of Section 01 45 23 including:
    - 1. Strength tests: 4 Cylinders (1-7day, average of 2-28 day, 1 field hold) per every 50 yards of each type of concrete for each days pour.
      - a. Contractor shall keep and test additional cylinders for use in his determination of form removal timing, for cold or hot weather verification and for OSHA required column strengths.
    - 2. Slump tests at the point of application and before and after addition of plasticizer. Send back non-compliant trucks.
    - 3. Air entrainment tests at same time as slump tests. Air tests in fresh concrete are intended to show current air content. Send back non-compliant trucks.
  - C. Vehicles on which non-compliant concrete are delivered shall not be allowed to modify concrete to be in compliance. Vehicle shall return to redi-mix plant & offload non-compliant concrete prior to batching of new concrete. No rebatched, formerly rejected concrete shall be used.

## PART 2 – PRODUCTS

### 2.1 CONCRETE PROPERTIES, MATERIALS & MIXING

- A. Concrete shall be plant redi-mix type meeting ASTM C94. Site mixed concrete is not acceptable.
- B. Proportion mixes in accordance with ACI 211.1.
- C. Compressive strength (ASTM C31) and C39): See Chart for individual requirements.
- D. Water: potable, clean and free of injurious quantities of substances known to be harmful to and conforming to ASTM C94.
  - 1. Water / cement ratio: To be calculated for each mixed design. See Chart for individual basic requirements
  - 2. Maximum water to cement ratio for exterior concrete subject to freeze thaw cycles shall be 0.45. Use 8.32 lbs. per gallon.
- E. Portland Cement: ASTM C 150, Type I / II or Type I. All shall be low Alkali. If acid resistance is needed use type II. If high early strength is required use type III or add a minimum of 47 lbs. to each mix. Each bag is 94 lbs.
  - 1. Use the minimum quantity to reach desired 28-day compressive strength +15% overage.
- F. Type C Fly Ash, meeting ASTM C618, from Coal Creek Plant in Stanton North Dakota. Maximum allowable percentage and allowable time of use is stated in Chart in Article 2.6.
- G. Fine aggregate: clean, durable and sound natural sand conforming to ASTM C33, #4 and down.
  - 1. Shale or deleterious content shall be no more than .5% for slabs and 1% for all other concrete.
- H. Course aggregate: clean, durable and sound natural processed gravel conforming to ASTM C33 and free of materials that can cause Alkali-silica reaction (ASR). See chart in Part 2 for maximum sizes.
  - 1. Shale or deleterious content shall be no more than .5% for slabs and 1% for all other concrete.
  - 2. Maximum size shall not exceed 33 1/3% of the depth of any slab section.
  - 3. Test course aggregate for ASR under ASTM C295 or ASTM C1260.
- I. Air content: Tested to ASTM C231. See chart in Part 2 for required fresh entrained quantities. All concrete has some non-entrained air.
- J. Slump: Tested to ASTM C 143. See chart in Part 2 for requirements.

## 2.2 COMMON CONCRETE ACCESSORIES AND ADDITIVES

- A. No products containing calcium chloride in a content of more than 0.06% of the cement weight in chloride ions or Thiocyanates will be permitted. See ASTM C494 and ACI 318. - If additional admixtures are used after mix approval, notify the Structural Engineer.
  - 1. Use an exterior curing compound for all exterior horizontal and exposed vertical surfaces. Product shall meet ASTM C309 Type 2, Class B. These products leave a white Dye.

2. Clear interior cure and seal products are required for interior slab concrete, where no floor covering or coating will be applied; they must meet ASTM C1315 type 2.
  - a. Verify that no floor covering or finish exists with Architect.
3. On interior slabs on grade or raised placed in an enclosed temperature controlled building where floor covering will be adhered. Use a resin type, dissipating concrete curing compound meeting AASHTO M-148, and ASTM C309 Type I Class B. Verify that product shall penetrate and not leave material on surface.
4. Wet curing materials for interior slab on grade or raised slab work where building has not been erected and concrete is exposed.
  - a. Burlap, cotton mats and rags, rugs or similar material under polyethylene sheets. Fabric must not have been previously used for sugar, fertilizer or acidic materials storage. Take care that material does not have dye which will stain the concrete. The material shall meet AASHTO M-147 and ASTM C156.
  - b. Combination poly and cloth sheets meeting ASTM C156.
5. Performed expansion and wall isolation joint Filler: Non extruded type joint filler constructed of asphalt impregnated fibers meeting ASTM D1751. Material shall be full depth of slab of edge joint and exposed width shall be 1/2".
6. Super plasticizer. Meeting ASTM C494F: For workability or for pumping the contractor may use a High Range Water Reducing Admixture/ or Super Plasticizer to go to a max. temporary slump of 6. Water must not be used to obtain this increase.
7. Mid Range Plasticizer. Meeting ASTM C494 Type D: Combination water reducer and agent to improve workability for concrete during placement, at a level less than a superplasticizer.
8. Water reducing admixtures: Water reducing admixtures meet ASTM C494, Type A.
9. Air Entraining: Tests to ASTM C231. Air content is shown on chart in Part 2 for individual types of concrete. Air entraining products must meet ASTM C260. All concrete does have some non-entrained air.
  - a. Adjust if using a super or midrange plasticizer.
10. Concrete Bonding Agents: If concrete is to be placed on top of existing concrete or masonry use products meeting ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
11. Non-Chloride Accelerating Admixtures: If a faster initial set up is desired, or is specified in chart, use products meeting ASTM C 494 Type C. Never use chlorides.

### 2.3 GROUT FOR STRUCTURAL METAL BASEPLATES AND DOWELS

- A. See Section 05 12 00 for non-shrink non-metallic grout.
- B. Grout for dowels, See section 05 12 00 for adhesive anchoring systems.

2.4 GROUT FOR INTERIOR CONTROL JOINT, COLD JOINTS, CRACKS OR EXPANSION JOINT FILLING

- A. Fill All Control Joints, construction joints and cracks over 1/16" in width except exterior required to prior to flooring or colorant installation
  - 1. Use a cementitious thin patch that can be applied from featheredge to 1" inch thick. Products must contain at least 80% ASTM C150 cementitious materials. Product shall self-bonding to clean dry concrete and meet ASTM C1157 performance and ASTM C191 for material set characteristics. Some of these require flooring glues to be applied within 24 hours.

2.5 CONCRETE MIXING AND TRANSPORTING

- A. Do not add water to concrete at the site except with the direct written approval of the Structural Engineer or Architect. Delivery trucks shall deliver with minimum drum revolutions. No concrete older than 90 minutes from time of mixing in the truck shall be used for the project. See Article 1.6 on non-complaint concrete trucks.

2.6 CONCRETE MATERIALS, TYPES, STRENGTHS AND ADDITIVES

- A. Install mixes that provide following minimum requirements:
  - 1. Concrete design mixes shall have a min. 15% over-design of compressive strength.
  - 2. Type C fly ash may be used up to the maximum percentages shown in non-cold weather conditions. If an air temperature of 50 degrees or lower exists, a special cold weather concrete mix design shall be supplied and specified for concrete to be placed during cold weather conditions outlined in ACI 306 "GUIDE TO COLD WEATHER CONCRETING" as fly ash will retard initial set.

- Steel Pile Fill

- Low Alkali Cementitious Product Types: Portland Type I or I/II  
Maximum 25% Fly Ash Allowed
- Maximum Aggregate Size: 1½"
- Max Slump: 5"
- 28 Day Compressive Strength: 3,000psi
- Max w/c Ratio 0.55
- Allowed Admixtures; Air Entrainment WRDA Series upon Approval  
Use of Entrained Air is Contractors Option

- Pile Cap/Abutment

- Low Alkali Cementitious Product Types: Portland Type I or I/II  
Maximum 20% Fly Ash Allowed
- Maximum Aggregate Size: ¾"
- Max Slump: 4"
- 28 Day Compressive Strength: 4,500psi
- Max w/c Ratio 0.45
- Allowed Admixtures; Air Entrainment WRDA Series upon Approval  
Mid-Range Plasticizer OK  
Super Plasticizer With Prior Approval  
5%-7% Entrained Air

## PART 3 – EXECUTION

### 3.1 INSPECTION AND PROTECTION

- A. Notify Engineer minimum 24 hours prior to commencement of concrete placement.
- B. Verify anchors, seats, plates, reinforcement, drains and other items to be cast into concrete are accurately placed, held securely, and will not cause hardship in placing concrete. Provide written verification as well as photographs of the area to be poured.
- C. Insure polyurethane waterstops have been installed for at least 3 hours prior to pour and that rigid waterstop types are continually supported.
- D. Work area and Concrete may be exposed to potentially hazardous damage after initial set has been achieved. Take measures to protect concrete from traffic, ladders, fluids and indentation during initial set and curing. Ladders and all materials with sharp edges must have protective plywood under the rungs or edges.

### 3.2 PREPARATION

- A. Prepare existing concrete or masonry, for additional concrete by cleaning with steel brush and a neutral pH cleaning solution to insure removal of existing solvents, greases, plant products and other solutions. Apply an ASTM C1059 bonding agent in accordance with manufacturer's instructions.
- B. If concrete is to be placed on top of metal platforms, or decks, prepare metal surface by cleaning with an acid etching solution or vinegar. Do not place concrete if rust or oxidation is present. Notify Architect.
- C. If concrete is a slab to be placed on top of soil, insure that the soil is well compacted to specifications shown in earthwork section and that no debris or organic materials are present. Dampen the surface with water but do not flood.
- D. At any location where new concrete is doweled to existing work, use an adhesive anchoring system. See section 05 12 00.
- E. Protect and tape over all surfaces to be exposed, of all floor drains, openings and devices to be set into the concrete.
- F. Protect all concrete from freezing during placement and initial set. Under no circumstances can concrete be placed on top of frozen soil, snow, ice, and frozen precast or any other frozen object.

### 3.3 VAPOR RETARDER

- A. For all interior Slab on Grade Concrete with flooring or a finish applied; A vapor retarder shall be placed directly above granular subbase.
- B. Use screed bars and platforms and means / methods keep vapor retarder unbroken.

### 3.4 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301. Keep an ACI 301 book on site for reference at all times.
  1. Do not allow a vertical drop of more than 5'-0" without use of a Tremie to prevent aggregate segregation.
  2. Hot Weather Placement: See ACI 305R
  3. Cold Weather Placement: See ACI 306R
- B. Cold Weather Concreting
  1. Concrete shall not be placed when the outside air temperature is 40°F or less unless cold weather concreting practices are followed as specified below.
  2. Cold weather concreting practices should also be followed whenever the average daily air temperature is expected to be less than 40°F for more than three successive days. The average daily air temperature is the average of the highest and lowest temperature occurring during the period from midnight to midnight. The requirement for adhering to these cold-weather concreting practices may be terminated when the air temperature is above 50° F for more than half of any 24 hour duration.
  3. Cold-weather concreting practices invoked shall keep the temperature of the concrete immediately after placing within the following temperature ranges:
    - a. 55° to 75° F for sections less than 12 inches in the least dimension.
    - b. 50° to 70° F for sections 12 to 36 inches in the least dimension.
    - c. 45° to 65° F for sections 36 to 72 inches in the least dimension.
    - d. 40° to 60° F for sections greater than 72 inches in the least dimension.
  4. Concrete Protection: Protect the concrete immediately after placing and during the defined protection period such that the concrete does not freeze nor fall below the temperature levels stated in the above paragraph. For concrete not loaded during construction, the protection period shall be for a minimum of three days if cold-weather conditions persist. The time may be reduced to a minimum of two days if Type III cement or an accelerating admixture is used or if an additional 100 pounds of cement per cubic yard is added to the concrete mix. Concrete fully loaded during construction shall be protected during cold weather conditions for whatever time is required to obtain the required strength as determined by nondestructive strength tests (Windsor probe, Swiss Hammer Test) on the in-place concrete. Protect concrete surfaces from freezing for the first 24 hours even if cold-weather conditions do not officially exist due to high volatility in ambient temperatures.
  5. Protection Deficiency: If the temperature requirements during any portion of the protection period are not met but the concrete surface did not freeze, the protection period shall be extended until twice the deficiency expressed in degree-hours is made up. Deficiency degree-hours are defined as the average deficiency in temperature below the required value times the number of hours the deficiency persisted. Make-up degree hours are the average increase in temperature above the minimum value times the hours required to make up twice the deficiency degree-hours. Contact the Architect/Engineer if the concrete surface was allowed to freeze during the protection period.
  6. Protection Removal: As the protection is being removed the decrease in temperature measured at the surface of the concrete in a 24 hour period shall not exceed the following:



- a. 50° F for sections less than 12 inches in the least dimension.
  - b. 40° F for sections 12 to 36 inches in the least dimension.
  - c. 30° F for sections 36 to 72 inches in the least dimension.
  - d. 20° F for sections greater than 72 inches in the least dimension.
7. Records: Under cold weather conditions, the Contractor shall keep records of outside air temperature, concrete temperature as placed and general weather conditions. The temperature record shall be taken no less than two times per 24 hour duration.
8. Cold Weather Concreting Requirements: The following items, all or in part as required, should be followed to assure acceptable concrete in cold weather conditions:
- a. Design the concrete mixture to obtain high early strength by using higher cement content, a high early strength cement (Type III), or a specified non-chloride accelerator (ASTM C 494 Type C or E).
  - b. Protect the concrete during curing period using insulating blankets, insulated forms, enclosures, and/or heaters.
  - c. Concrete cured in heated enclosures shall have heaters vented to prevent exposure of concrete and workmen to noxious gases.
  - d. Frozen subgrade shall be thawed prior to concrete placement and snow and ice shall be removed from forms.
  - e. Temperature of embedments in concrete must be heated to above 32°F prior to placing concrete
  - f. Heat the mixing water and then blend hot and cold water to obtain concrete no more than 10°F above the required temperature.
  - g. Heat the aggregates by circulating steam in pipes placed in the storage bins for air temperatures consistently below 32°F. When either water or aggregate is heated to over 140°F, combine them in the mixer first to obtain a maximum temperature of the mixture not to exceed 140°F in order to prevent flash set of the concrete.
  - h. Uniformly thaw aggregates far in advance of batching to prevent moisture variations in the stockpile.
  - i. Cover warmed stockpiles with tarps to retain heat.
  - j. Place air entraining admixture in the batch after the water temperature has been reduced by mixing with cooler solid materials.
  - k. Use wind screens to protect concrete from rapid cooling.
  - l. Place vertical pump lines inside the building, if possible, for concrete being pumped.
  - m. Maintain artificial heat as low as possible to reduce temperature stresses during cooling.
  - n. Avoid water curing of concrete except for parking garage structures. Apply the required curing compound to unformed surfaces as soon as possible to prevent drying of concrete from heated enclosures.
  - o. Delay form stripping as long as possible to help prevent drying from heated enclosures and to reduce damage to formed surfaces caused by premature stripping.
  - p. Provide triple thickness of insulating materials at corners and edges vulnerable to freezing.
  - q. Wrap protruding reinforcing bars with insulation to avoid heat drain from the warm concrete.
  - r. Gradually reduce the heat at the end of the heating period to reduce likelihood of thermal shock.

- B. Ensure reinforcement, inserts, embedded parts, drains and formed joints are not disturbed during concrete placement. If movement occurs the concrete contractor must remove and replace the effected item and the effected concrete.
- C. See section 03 20 00 and structural notes sheet for minimum concrete cover.
- D. Use a minimum 1/8" per foot slope for all floor drains. Pitch entire room slab or maximum area of 20'- 0" and increase to 1/4" per foot of pitch in final 4'-0" of space around the drain. The concrete shall be worked well around all surfaces of the drain fitting.
- E. All slab reinforcing must be on chairs. Hand lifting without supports during pour is prohibited.
- F. Place concrete continuously between predetermined construction and control joints. Do not break or interrupt successive pours that would cause new cold joints to occur.
- G. Excessive honeycombing or embedded debris in concrete is not acceptable. Contractor must replace or repair. See section 03 10 00, Part 3 for acceptable finishes.
- H. Concrete may be placed by means of a Concrete pumper. A plasticizer and a decrease in course aggregate size may be used only with permission of the Engineer when pumping is used. Cementitious content will need to be raised if aggregate size is modified. See requirements on slump and super plasticizer in Part 2.
- I. The concrete shall be screeded or struck off slightly above final elevation, then consolidated.
  - 1. Consolidate concrete by vibrating, so that concrete is thoroughly worked around reinforcement, around embedded items and into corners of forms to eliminate air or stone packers that may cause honeycombing, pitting or weakness.
    - a. Vibrating shall be done by experienced workers in a manner to eliminate consolidation. Do not vibrate forms or reinforcing materials.
  - 2. After consolidation the concrete shall not be further worked until finishing.
- J. Do not add water during placement or when finishing.
- K. Depth or thickness of concrete is to be as shown on the plans. No variation in thickness or depth is allowed.
  - 1. Slab concrete that is shown as 4 inches shall not be formed and poured at 3 5/8".
- L. Do not use cement or sand to take up excess surface water.

### 3.5 HORIZONTAL SURFACE FINISHING (Including interior & exterior floors)

- A. Finish the concrete when the water sheen has disappeared and the surface has stiffened enough to permit the finishing operation. Follow ACI 302.1R.
- B. Types of final finishes are:
  - 1. For all exterior concrete that contains air entrainment, an aluminum or magnesium float

followed by a “Light Soft Bristle Broom Finish” shall be applied.

2. For all interior concrete that requires slip resistance, an aluminum or magnesium float, followed by minimal steel trowling for levelness and a ”Light Soft Bristle Broom Finish” shall be applied.
  3. See ACI 302.1R for class 6 and higher floors that are impact, high traffic or super flat.
- B. All concrete horizontal surfaces, including floors must be flat and level. The following chart shows ASTM E1155 values in an average commercial situation for a flat and level floor that shall be followed:
1.  $F_F$  defines the maximum floor curvature allowed over successive 24” measurements on a 20’-0” x 20’-0” floor or flat surface. It is concerned with floor waviness.
  2.  $F_L$  defines the maximum difference in elevations in decimals of an inch, between two points separated by 10’-0” taken any place on the floor. It is concerned with local levelness.
  3. The specified overall numbers are the maximum obtainable.
  4. The minimum localized numbers are the required expected values for the test section.
- C. A traditional method to determine floor flat and levelness is to place a 10’-0” flat level anywhere on the surface. No more than a 3/16” gap would be measured under the level at any place on the floor or interior or exterior surface. In the chart we have listed this traditional measurement as a guide only.
- D. The ASTM system is designed to measure 4 20’ x 20’ test sections randomly chosen on the floor or surface in question. The Sections should not adjoin each other unless the floor is less than 80’x 80’ in size.

Types of concrete Horizontal surfaces & Their Quality Classifications	Minimum FF / FL Numbers Required			Local Levelness Value	Maximum Clearance  Under a 10’ Level
	Overall Flatness Value	Local Flatness Value	Overall Levelness Value		
Flat concrete base for grout bed	20	15	15	10	3/8”
Precast Topping Surface	30	20	15	10	3/16”
Raised Slab Surface	30	20	15	10	3/16”
Interior Slab on Grade surface	35	24	30	20	1 / 8”
Exterior & garage floors, stoops, paving surfaces	20	15	13	10	1 / 4”

### 3.6 CRACKS, EXPANSION, CONSTRUCTION, AND CONTRACTION JOINTS

- A. Horizontal and vertical construction joints in concrete shall be made only where shown for structural drawings and or approved by Engineer. All cold construction joints shall be provided with a suitable bonding agent at all grooves and keyways, and surfaces against which new concrete is to be laid shall be thoroughly cleaned with a stiff wire brush and water.
  - 1. Where smooth dowel construction (cold) joints are used, grease and wrap the exposed end of the dowel to allow horizontal movement.
- B. Expansion joints at edges of the building or bay shall be filled with expansion material to within  $\frac{3}{4}$ " of top of all adjacent slabs or edges and shall be located where shown on drawings. See Part 2 products for types of materials to use.
- C. Control joints shall be saw cut and located as shown on structural drawings. If not shown cut at intervals of (36 x slab thickness)" by (36 x slab thickness)" (+/- 5'-0"). Locate under wall partitions if possible.
  - 1. Saw cut control joints at an optimum time after finishing. Use 3/16-inch thick blade, cutting at least 1/4 into depth of slab thickness. (i.e.) 4" slab to be cut 1"+ deep. Fill saw cut control joint with a semi rigid joint filler, in accordance with ACI301, section 11.3.9. General Contractor is responsible for joint and semi rigid joint filler condition up to 90 days after building is occupied. After the 90 days, owner is responsible for joint maintenance.
- D. All exposed joints and cracks over 1/16" in interior concrete upon which flooring or colorants are to be applied shall be grouted solid with a cementitious grout acceptable to flooring glue manufacturer. Contractor shall install prior to flooring installation but after initial cracking and movement due to shrinkage is complete. Generally 28 days. See part 2 products for material to use. Coordinate with flooring work. Some products have a limited time for installation of flooring.
  - 1. All joints that are under walls or partitions or are unexposed shall be sealed with a semi rigid joint filler, in accordance with ACI 301, section 11.3.9.

### 3.7 CONCRETE CURING AND SEALING (See also ACI 308)

- A. All interior and exterior concrete must be kept between 55 and 80 degrees F and in a moist condition, to decrease water evaporation from the exposed surfaces during the first 7 days after placement.
  - 1. For building or shelter-enclosed concrete, Contractor may use temporary heaters provided that he vent all flue gases from units to the outside of the enclosure. Use only fresh outside air for combustion. All heaters of this type must also be equipped with a heat exchanger vented to the outside.
- B. All interior slabs receiving glued down flooring, either on grade or raised, that are enclosed by the building shall be kept between 55° and 80° F and cured in the following manner.
  - 1. Either use the method in Paragraph C.1. below or:
  - 2. After finish troweling apply a resin based dissipating cure product meeting ASTM C309 with no surface residue in a double cross coat application. This will provide moisture retention only. Keep foot and equipment traffic off the slab for 7 days. Use products that do not leave residue on slab surface. See Part 2 Products.

3. Do not apply to concrete that will have colorant or exposed aggregate.
- C. All interior slabs, receiving glued down flooring either on grade or raised that are exposed to weather and not enclosed by the building during concrete pour and cure shall be kept between 55° and 80° F and cured in the following manner.
    1. Cover the slab with wet, non-ink containing burlap or similar material, under a 4-mil thick polyethylene plastic sheeting or a combination burlap / polyethylene cloth to retain moisture. Keep burlap or similar material moist and the slab cured in this manner for 7 days at a temperature range of 55 to 70 degrees F.
    2. Install materials to hold down the material.
    3. If high early strength, Type III, concrete is used and temperature is kept above 73 degrees the period of time of wet curing required may be reduced to 3 days.
  - D. Allow the surface of the concrete to further cure and dry for a period of 28 days prior to exposure to epoxy finishes, flooring glues, hard surface traffic, steel wheels or shovels.
  - E. All exterior exposed uncolored vertical or horizontal concrete shall have a white dye release curing compound meeting ASTM C309 Type 2 applied.
    1. See Part 2 Products and follow manufacturer recommendations & limitations for their use.
  - F. All interior slabs, left uncovered and not receiving any finish, colorant or flooring, either on grade or raised shall have a curing and sealing compound meeting either ASTM C1315 Type 1 or C309 Type 1 applied.
    1. See Part 2 Products for type and Architectural Plans for locations.
  - G. Interior athletic or vehicle traffic use uncolored or covered concrete slabs shall have an exterior cure and seal compound meeting ASTM C1315 Type 2 applied. See Part 2 Products for type and Architectural Plans for locations.

### 3.9 SETTING AND GROUTING OF STRUCTURAL METALS AND BASEPLATES

- A. See section 05 12 00.
- B. Setting of anchor bolts is by this 03 30 00 Section using template, Contract Drawings and reviewed shop drawings from Section 05 12 00.

### 3.12 FOOTING & FOUNDATION CONCRETE

- A. Do not use earth forms for footings.
- B. Insure that all forms are braced sufficiently to handle weight and shifting from pouring of concrete.
- C. Have an inspection done of all footings prior to pouring this concrete. Correct any reinforcement or form deficiencies prior to pouring. Do not imbed horizontal or cross bracing reinforcing after concrete has been poured. Dowels may be set after pouring but must be placed while concrete is still wet and pliable not after initial set. Drilling in dowels after set is not acceptable.

- D. Use vibration to insure that all concrete is solidly placed and that no voids or honeycombs are allowed to occur.
- E. Insure that top of footing concrete is level and able to receive masonry or concrete foundations without excessive dips or void areas.
- F. Keep forms in place until the concrete is sufficiently strong enough to avoid deflection. See Section 031000.
- G. During backfilling operations, brace foundation walls to prevent flexural distortion in curing concrete.

### 3.13 EXTERIOR CONCRETE

- A. Insure that surface is not frozen on which concrete is to be poured. Protect finished product from freezing temperatures. See ACI 306 R.
- B. If concrete is placed in hot weather in temperature above 80 degrees, provide protection to all newly poured surfaces. See ACI 305R.
- C. Keep traffic off concrete until 75% of minimum required strength is attained by test.
- D. Follow ADA and local governmental requirements with regard to maintaining proper slope at pedestrian walkways.
- E. Provide a gradual slope to catch basins, drains and similar.
- F. Provide rounded surface to all edges of walks, drives or other horizontal concrete during finishing. Provide a light broom finish to all horizontal exposed surfaces.
- G. See Part 3 horizontal surface finishing for methods of curing and finishing exterior surfaces.

### 3.14 DEFECTIVE CONCRETE (See Chapter 9 of ACI 301)

- A. Modify or replace concrete not conforming to required levels and lines, thickness, details, and elevations.
- B. Repair or replace concrete not properly placed, indented or damaged, not of the specified type, frozen, spalling, under strength by more than 15%, or improperly cured. Testing agency that designed concrete, Engineer and Architect shall be final arbiters of quality.

### 3.15 FIELD QUALITY CONTROL

- A. See Division 01 and Part 1 of this specification

### 3.16 CLEANUP

- A. At completion of each day's work, remove all concrete spillage and splash from adjacent areas and work.
  - 1. If Glass has been effected carefully, remove particles using methods approved by the glazing manufacturer. Do not use products that could etch glass.

2. Provide a disposal place for ready mix truck wash down. Do not allow wash down concrete to be deposited in the street, on finished landscaping or onto other work. Costs of cleanup of improperly disposed of wash down will be deducted from future payment and will include replacement of damaged or soiled property.

END OF SECTION

## SECTION 316223 – CONCRETE FILLED STEEL PIPE PILES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.
- B. Information concerning a sub-surface soil investigation by an independent testing laboratory is available and will be furnished by the owner upon request. The data included therein may be used by the contractor for his general information only. The Architect/Engineer will not be responsible for the accuracy or applicability of the data therein.

#### 1.2 SCOPE OF WORK

- A. The Pile Contractor shall furnish all materials, labor, services, equipment and shall install and cut off all piles at the locations and depths shown on the drawings or as otherwise directed by the Owner's Geotechnical Engineer. The piles shall be installed to have minimum working capacity as indicated in the General Notes on the drawings. The Piles shall be free of all defects or other anomalies that could adversely influence pile performance.
- B. The Pile Contractor shall furnish all materials and labor as required to perform the load tests as specified herein and on the drawings.
- C. The General Contractor shall provide all necessary excavation, sheeting and bracing or other adequate maintenance of excavation banks, suitable runways and ramps as necessary for pile driving, control of ground and surface water as necessary to keep the work area sufficiently dry, suitable access roads for movement of equipment and materials to and from pile locations, field layout required for pile work including setting and maintaining a location stake for each pile and giving cut-off grades on all piles, and removal of all overhead and underground obstructions as required.

#### 1.3 QUALIFICATIONS

- A. Piles shall be installed only by a specialty Pile Contractor with suitable equipment, competent personnel, and a reputation of satisfactorily performing the work. He shall have a minimum of five years pile driving experience and a minimum of 5 successful pile installations on project comparable in scope to this project. Evidence of compliance with this section may be required by the Architect/Engineer upon request.

#### 1.4 QUALITY ASSURANCE

- A. The Contractor is responsible for quality control, including workmanship and materials furnished by his subcontractors and suppliers.



- B. Codes and Specifications: Comply with all provisions of the following codes and specifications:
  - 1. AISC, "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings."
  - 2. AWS D1.1, "Structural Welding Code – Steel."
  - 3. API, Specification 2B "Fabricated Structured Steel Pipe."
- C. Welder Qualifications: Qualify welders, welding processes and procedures in accordance with AWS D1.1 "Structural Welding Code - Steel" for all welds required for transmitting design loads.

#### 1.5 QUALITY CONTROL

- A. The Contractor shall be fully responsible for quality control of all operations governed by this Section. Mill or shop inspection may be done by the Engineer and Owner's Testing Laboratory at his option without expense to the Contractor. Inspection in the mill or shop shall in no way relieve the Contractor of his responsibilities to furnish satisfactory materials or workmanship, or for proper fit, and the Engineer reserves the right to reject any material at any time the materials and workmanship do not conform to the Drawings and Specifications.
- B. The Owners Testing Laboratory shall have the option of directing the inspection of any weld by sonic, radiographic, or other nondestructive method of inspection without prior notification to the Contractor and at no cost to the Contractor. The Contractor shall correct any defective welding disclosed by such inspection at his own cost. All welds shall meet the requirements of AWS D1.1.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Except for piles to be used for test purposes, materials ordered or delivered to project site prior to verification of assumed pile length, will be at contractor's risk.
- B. After pile lengths are verified, deliver materials to project site in such quantities and at such times to assure continuity of pile driving operations to project schedule.
- C. Store piles in orderly groups above ground and blocked during storage to minimize possible distortion of members. Piles exhibiting variations beyond tolerance limits will be considered distorted and shall not be used in the work.
- D. Prevent damage to protective coating during delivery, handling, and storage at the site. Repair areas damaged in accordance with manufacturer's directions.

#### 1.7 JOB CONDITIONS

- A. Site Information:
  - 1. Data on indicated subsurface conditions are not intended as representations or warranties of continuity of such conditions. It is expressly understood that Owner will not be

responsible for interpretations or conclusions drawn therefrom by Contractor. The data are made available for convenience of Contractor.

2. Additional test borings and other exploratory operations may be made by Contractor at no additional cost to Owner. Notify and obtain approval from Owner prior to drilling borings.
- B. Protection of Existing Structures: Protect structures, underground utilities and other construction from damage caused by pile driving operations.
- C. Survey of Existing Structures: When structures are adjacent to pile driving operations, record and report to Architect/Engineer surveyed elevation bench marks on structures where directed by Architect/Engineer before commencing work. Record and report elevation of each bench mark at least twice a day while pile driving is in progress. Should bench mark readings indicate displacement, halt driving operations until corrective action has been provided and is acceptable to Architect/Engineer and Owner.

## 1.8 SUBMITTALS

- A. Mill Test Reports: The Contractor shall furnish to the Architect/Engineer a certified copy of mill test reports showing the chemical and physical properties of the material to be used in the work.
- B. Pile Driving Records: The Pile Contractor and Owner's Geotechnical Engineer shall submit copies of the driving record of each pile to Architect/Engineer immediately after driving. Include the following information:
1. Project name and number.
  2. Name of pile contractor.
  3. Pile location and number.
  4. Pile size and length.
  5. Type and size of hammer used.
  6. Type of pile driving cap used.
  7. Rate of operation of pile driving equipment.
  8. Pile dimensions.
  9. Elevation of point.
  10. Elevation of butt before and after cut-off.
  11. Splice type and locations along the pile.
  12. Ground elevation.
  13. Continuous record of number of blows for each foot of penetration.
  14. Any pile deviation from specified tolerance.
  15. Retap data if a pile is driven further after initial installation.
  16. Any unusual occurrences during pile driving.

Submit records prepared by the Owner's Geotechnical Engineer which have been compiled and signed by a registered professional engineer in the state where the project is located. Submit records prepared by the Pile Contractor signed by the Superintendent.

- C. Driving Schedule:

1. The Contractor shall submit a schedule of the procedure and operations that he intends to follow prior to the installation of any piles. The schedule shall show in detail, the sequence of all pile driving operations, the equipment to be used, catalogue data and manufacturer's specifications for all hammers to be used and methods of lifting, handling, driving and cutting off of piles. Each pile shall be given an identification number.
  2. The submissions of Contractor's details and other information to the Engineer shall not relieve the Contractor of any part of his responsibility under the Contract for the true and timely construction of the Work. Care must be taken in the handling, moving, and storage of the piles to prevent damage.
- D. Shop Drawings: Submit shop drawings for review and approval prior to start of pile driving operations. Shop drawings shall include pile size, length, top and bottom elevation for each pile, grade of steel, any pile driving accessories required for driving (point reinforcement, pile caps, bottom plates, etc.) and splice details.
- E. Protective Coating: Submit complete manufacturers brochures and data about protective coating applied to steel piles.
- F. Post Construction Survey: After completion of pile driving, the Contractor shall provide the Architect/Engineer with an as-built survey showing the actual locations of the piles at cut-off elevations. This survey shall show the plumbness of vertical piles, the slope of batter piles, and all abandoned piles, the slope of batter piles, abandoned piles and their replacements. No construction of superstructures shall commence until this survey has been reviewed and accepted by the Architect/Engineer. In order to facilitate the progress of the Work, the Contractor shall submit partial pile surveys for approval as the Work proceeds.
- G. Alternatives: The Pile Contractor shall submit his bid based on the specifications as written without exceptions. He may submit bids for alternates to the specifications or modifications to the design, load test program, or installation specifications for consideration by the Architect/Engineer and Owner.

## PART 2 - PRODUCTS

### 2.1 STEEL PIPE PILES

- A. Steel Grade:
1. All steel pipe piles shall be closed end and shall conform to ASTM A252 or ASTM A572 or ASTM A1011/1018 (minimum yield strength of 50,000 PSI) with diameter and wall thickness as shown on the structural drawings.
  2. All steel pipe piles shall be fabricated in accordance with the American Petroleum Institute (API) Specification 2B for Fabricated Steel Pipe.
- B. Splices: All splices in pipe piles shall be 100% full penetration butt welded splices as detailed on the shop drawings. Splices shall not be made in the top 20 feet of the pipe and shall be limited to one splice per pile. Splices shall be made only by certified welders.
- C. Accessories: Provide top and butt plates and pile point reinforcement of ASTM A 36 or matching pile grade steel with full penetration butt welds to piles.

## 2.2 PROTECTIVE COATINGS

- A. Hot-Applied Coal-Tar Enamel: Provide a hot-applied coal-tar enamel coating system complying with Steel Structures Painting Council (SSPC) SSPC-PS 10.01.
  - 1. Blast clean or pickle surfaces to be coated to a commercial blast finish complying with SSPC-SP-6. Remove mill scale.
  - 2. Degrease areas of surfaces to be blasted which show traces of oil or grease prior to blast cleaning.
  - 3. Apply paint system to blast cleaned steel in accordance with coating manufacturer's written instruction. Apply a hot-applied primer and two coats of enamel to a total thickness of 64 mils.
  - 4. Provide finish coating which is generally smooth and free of projections which can be removed by abrasion. Remove sharp edges and repair all areas damaged in shipping or handling in accordance with manufacturer's instructions.
  
- B. Two Component Coal-Tar Epoxy Compound System: Provide a 2 component coal-tar epoxy compound system complying with SSPC-PS 11.01.
  - 1. Blast clean or pickle surfaces to be coated to a commercial blast finish complying with SSPC-SP-6. Remove mill scale.
  - 2. Apply paint system to blast cleaned steel in accordance with manufacturer's written instruction.
  - 3. Apply by spray in 2 coats to a minimum dry film thickness of 16 mils.
  - 4. Provide finish coating which is generally smooth and free of projections which can be removed by abrasion. Remove sharp edges and repair all areas damaged in shipping or handling in accordance with manufacturer's instructions.

## 2.3 DRIVING EQUIPMENT

- A. General: Provide pile driving equipment of type generally used in standard pile driving practice, operated at manufacturer's specified rate, to develop required rated energy per blow.
  
- B. Hammer: Provide pile driving hammers of sufficient capacity, size and type able to deliver consistently effective dynamic energy, suitable to piles to be driven and to subgrade material into which they are to be driven, when operating at not less than 75% efficiency of rated driving energy.
  
- C. Driving Caps: Equip hammer with cast steel or structural steel driving cap, with grooved base conforming to pile shape. Keep bearing surfaces of grooves true and smooth.
  - 1. The driving head or cap shall be designed to cover the entire surface of the top of the pile. The driving head shall be such that the blow of the hammer is distributed evenly to the entire periphery of the pile.

## 2.4 CONCRETE MATERIALS

- A. All pipe piles shall be filled with concrete after installation with minimum 3000 PSI normal weight concrete unless specified otherwise on the drawings.

- B. Portland Cement: ASTM C 150, Type I or II.
- C. Aggregates: ASTM C 33, except local aggregates of proven durability may be used when acceptable to Architect/Engineer.
- D. Water: Clean, free of oils, acids, organic matter.
- E. Air-Entraining Admixture: ASTM C 260.
- F. Water-Reducing Admixture: ASTM C 494, Type A.
- G. Concrete: ASTM C 94, and as follows:
  - 1. Compressive strength as shown on drawings. Maximum aggregate size; 3/4". Air content; 4% to 6%.
  - 2. Use admixtures in accordance with manufacturer's instructions for climatic conditions prevailing at time of placement.

### PART 3 - EXECUTION

#### 3.1 INSPECTION

- A. Pile Contractor shall examine the conditions under which piles are to be installed and shall notify General Contractor in writing of conditions detrimental to proper and timely completion of the work. The Pile Contractor shall not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to him.

#### 3.2 PRE-DRIVING WORK

- A. Site Conditions: Do not drive piles until earthwork in area which piles are to occupy has been completed, as follows:
  - 1. Excavations: Earth excavation will be stopped at an elevation of 6" to 12" above bottom of footing before piles are driven. Final excavation of required elevation of footing bottoms will be done as part of earthwork for buildings, after piles have been driven and tested.
  - 2. Fills: Fills will be constructed and compacted to elevation of grade indicated on the drawings.
- B. Pile Length Markings: Mark each pile's length with a horizontal line, at 1'-0" intervals, and the number of feet from pile point at 5'-0" intervals.
- C. Welding: Perform manual arc welding using shielded metal arc or submerged arc method, complying with AWS standards. Use oxygen gas or oxygen arc methods for field cutting of steel, complying with AWS recommendations.
- D. Splices:

1. Clean surfaces to be welded of all rust, scale, oil, paint and foreign material. Use only pile members with identical cross-sections for splicing.
  2. Make splices before starting driving operations wherever possible. If a welded splice is required during the driving operation, make splice when the top of the driven pile portion is at least 3'-0" above the ground, to permit inspection of the welded connection during welding and during subsequent driving.
  3. Splices shall be capable of developing 100 percent of the capacity of the pile in bending.
  4. Driving shall not commence until the welded steel has cooled to less than 200° F.
- E. Touch Up Work: Touch up and repair protective coatings on piles after splices are made, inspected and approved. Use same material and methods as used in shop applied coating system.

### 3.3 DRIVING PILES

- A. General: Continuously drive piles at locations indicated to required minimum point elevation and extend them thereafter until driving resistance established by driving and loading of test piles has been attained.
1. Carefully maintain center of gravity for each group or cluster of piles to conform to locations shown on drawings.
  2. Carefully plumb leads and pile before driving. Take care during driving to prevent and to correct any tendency of piles to twist or rotate.
  3. When handling and driving long piles, take special precautions to ensure against overstress or leaning away from a true position when driving.
- B. Driving Tolerances: Drive piles within following maximum tolerances:
1. Location: 3" from location indicated for center of gravity of each single pile or pile groups; 1" for piles under walls.
  2. Plumbness: Maintain 1" in 10'-0" from vertical, or a maximum of 4", measured when the pile is above ground, in leads.
  3. Batter Angle: Maximum 1" in 10'-0" from required angle; measured when pile is above ground, in leads.
- C. Pre-Excavating (Coring): Provide pre-excavated holes for piles driven within 15'-0" of structures or underground utilities where located, and to depths shown on drawings. Drill holes with a diameter equal to 80% or less than largest cross-section dimension. Exact size and depth shall be as required to produce satisfactory driving results as determined by Owner's Geotechnical Engineer. Backfill voids between pile and pre-excavated hole, using satisfactory soil materials.
- D. Jetting: Piles may not be driven with aid of water jets unless authorized by Owner's Geotechnical Engineer. Guidelines for jetting shall be established by the Owner's Geotechnical Engineer.
- E. Heaved Piles: Provide recorded instrument observations made during pile driving to determine whether driven pile has lifted from its original seat during driving of adjacent piles. If uplift occurs, re-drive affected piles to point elevation at least as deep as original point elevation with a

driving resistance at least as great as original driving resistance or as otherwise directed by the Owner's Geotechnical Engineer.

- F. **Damaged or Misdriven Piles:** Damaged piles, and piles driven outside required driving tolerances will not be accepted. They shall be reported to the Architect/Engineer prior to re-driving new piles for evaluation and possible redesign. Cost of re-engineering shall be at Pile Contractor's expense.
  - 1. Withdraw piles rejected after driving, and replace with new piles.
  - 2. Drive additional pile or piles where centerline deviation exceeds 3" and redesign indicates load on any pile exceeding 110% of design load.
  - 3. Piles rejected after driving may be abandoned and cut-off, and additional piles driven to replace rejected units at designated locations.
  - 4. Solidly fill spaces left by withdrawn piles that will not be filled by new piles, using cohesionless soil material such as gravel, broken stone, and gravel-sand mixtures. Place and compact throughout length of space.
- G. **Cutting-Off:** Cut-off tops of driven piles, square with pile axis and at elevations indicated by burning with a cutting torch or other approved method. Dispose of excess materials off site.
- H. **Top Plates:** After pile is cut off, weld top plates in place, square and level on top of pile.
- I. **Dowels:** Immediately after concrete is placed, set dowels using 1/8" thick steel templates as shown on the drawings.

### 3.4 WITHDRAWING AND RE-DRIVING PILES

- A. **Pile Withdrawal:** Withdraw selected driven piles when directed by Architect/Engineer, to determine condition of piles after driving.
- B. **Re-Driving:** Re-drive piles withdrawn for test and inspection, unless damaged or found not meeting specification requirements.
  - 1. Withdrawing and re-driving of piles found to satisfactory will be paid for in accordance with contract provisions for changes in work.
  - 2. Replace rejected piles with new piles as specified under "Damaged or Misdriven Piles".

### 3.5 CONCRETE WORK

- A. **Concrete Mixing:** Ready-mix concrete complying with ASTM C 94.
- B. **Concrete Placement:**
  - 1. Do not place concrete in the shell of any pile until driving within a radius of 20' has been completed and the interior of shells have been inspected and approved.
  - 2. Immediately before concrete is placed, mix a 1:2 cement grout and pour in the shell point to a depth of not less than 12".
  - 3. Fill pile shells with concrete immediately after inspection and acceptance by the Owner's authorized inspector.

4. Place concrete continuously through a tremie without interruption and in a smooth flow without segregating the mixed materials. Provide mechanical vibration for consolidation of at least the top 25' of each shaft.
  5. Stop the concrete placement slightly above the cut-off elevation shown, screed off true and level, and apply a scoured, rough finish.
- C. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as specified in the Concrete section of the Specifications.
- D. Hot Weather Placing: When hot weather condition exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305 and as specified in the Concrete section of the Specifications. Do not use retarding admixtures without the written acceptance of the Architect/Engineer.
- 3.6 APPROVAL BY GEOTECHNICAL ENGINEER
- A. Approval by the Owner's Geotechnical Engineer is required on all pile driving criteria and his decision and judgment on pile length, rejection of piles, additional piles required, and all other pile installation questions shall be final.

END OF SECTION 316223