

City of Scottsbluff, Nebraska

Monday, June 2, 2014

Regular Meeting

Item Consent3

Consider approval of plans and specifications for the Five Oaks Paving District 311 and authorize the city clerk to advertise for bids to be received by 11:00 a.m., June 27, 2014

Staff Contact: Annie Urdiales, Planning Administrator

Agenda Statement

Item No.

For meeting of: June 2, 2014

AGENDA TITLE: Approve plans and specifications for Paving District # 311- Five Oaks Drive and authorize City Clerk to advertise for bids to be received until 11:00 A.M., June 27, 2014.

SUBMITTED BY DEPARTMENT/ORGANIZATION: Development Services Department

PRESENTATION BY: Rick Kuckkahn

SUMMARY EXPLANATION: Plans and specifications have been submitted by Baker and Associates for Paving District Number 311- Five Oaks Drive beginning at the intersection of 36th Street and Five Oaks Drive and continuing north on Five Oaks Drive to 100' past 38th Street. The Paving district will also include extending Sagebrush Drive to Five Oaks Drive, as well as 140' to start the new street Pine Circle.

BOARD/COMMISSION RECOMMENDATION: N/A

STAFF RECOMMENDATION: Approve plans and specifications and authorize City Clerk to advertise for bids to be received until 11:00 A.M., June 27, 2014.

EXHIBITS

Resolution ☐ Ordinance Contract ☐ Minutes ☐ Plan/Map X

Other (specify) ☐ Plans & Specifications

NOTIFICATION LIST: Yes ☐ No ☐ Further Instructions ☐

APPROVAL FOR SUBMITTAL: _____
City Manager



Engineers - Architects - Surveyors
Since 1977

Client: C&T Holdings LLC
Project: 5 Oaks Street
Project #:
Date: 5/28/2014

				Preliminary Engineers Opinion of Probable Costs	
Item #	Description	Units	Quantity	Unit Price	Item Totals
<u>Five Oaks Drive Street Paving & Storm Sewer</u>					
1	Mobilization	EA	1	\$10,000.00	\$10,000
2	Grading	CY	3,000	\$4.00	\$12,000
3	Sub-Grade Prep and Base Course	SY	5,100	\$4.00	\$20,400
4	30" PCC Curb and Gutter	LF	2,707	\$15.00	\$40,605
5	6" PCC Paving	SY	4,345	\$34.00	\$147,730
6	20' rad. Curve Returns (8")	EA	6	\$4,200.00	\$25,200
7	Storm Sewer Inlets	EA	2	\$1,400.00	\$2,800
8	18" Storm Sewer Pipe	LF	37	\$40.00	\$1,480
	Subtotal				\$260,215
	Contingency (10%)				\$26,022
	Engineering				\$12,000
	Total				\$298,237
<i>Engineer's opinions of probable Construction Cost are to be made on the basis of Engineer's experience and qualifications and represent Engineer's best judgment as an experienced and qualified professional generally familiar with the construction industry. However, since Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual Construction Cost will not vary from opinions of probable Construction Cost prepared by Engineer. If Owner wishes greater assurance as to probable Construction Cost, Owner shall employ an independent cost estimator.</i>					

CONTRACT DOCUMENTS

FOR THE

FIVE OAKS STREET

IMPROVEMENTS 2014

for the

City of Scottsbluff, Nebraska

CONTRACT #023-018-13

Prepared by:



120 East 16th Street, Suite A
Scottsbluff, Nebraska 69361

????, 2013

Street Improvement District No. 311 (Five Oaks Drive)

CONTRACT # 023-018-14

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All drawings included in the set titled "FIVE OAKS STREET IMPROVEMENTS 2014"

DOCUMENT 00100 INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS.

- 1.1 Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract (EJCDC C-700, 2007 ed.) have the meanings assigned to them in the General Conditions.
- 1.2 The term "Bidder" means one who submits a Bid directly to Owner, as distinct from a sub-bidder, who submits a bid to a Bidder.
- 1.3 The term "Successful Bidder" means the lowest, qualified, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.
- 1.4 The term "Bidding Documents" includes the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

2. COPIES OF BIDDING DOCUMENTS.

- 2.1 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement for Bids may be obtained from Engineer. The deposit will be refunded, if stated, to document holders of record who return the Bidding Documents in good condition within thirty days after opening of Bids.
- 2.2 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3 Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3. QUALIFICATIONS OF BIDDERS.

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit, within five days of Owner's request, written evidence, such as financial data, previous experience, present commitments and other such data as may be called for below (or in the Supplementary Instructions). Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE.

- 4.1 It is the responsibility of each Bidder before submitting a Bid, to
 - 4.1.1 examine the Contract Documents thoroughly,
 - 4.1.2 visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work,
 - 4.1.3 consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work,
 - 4.1.4 study and carefully correlate Bidder's observations with the Contract Documents, and
 - 4.1.5 notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.
- 4.2 Reference is made to Document 00200 for identification of those reports of exploration and tests of subsurface conditions at the site which have been utilized by Engineer in preparation of the Contract Documents. Bidder may rely upon the accuracy of the technical data contained in such reports but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purpose of bidding or construction.

- 4.3 Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner and the Engineer do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.
- 4.4 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Facilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.02, 4.03 and 4.04 of the General Conditions.
- 4.5 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 4.6 On request in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.
- 4.7 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.

- 4.8 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

5. INTERPRETATIONS AND ADDENDA.

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

6. BID SECURITY.

- 6.1 Each Bid must be accompanied by Bid security made payable to Owner in an amount of five percent of the Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond issued by a surety meeting the requirements of Paragraph 5.01 and 5.02 of the General Conditions.

- 6.2 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required contract security, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within fifteen days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of the Bidder will be forfeited. 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 the seventh day after the Effective Date of the Agreement or the forty-sixth day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within seven days after the Bid opening.

7. CONTRACT TIME.

The numbers of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Agreement.

8. LIQUIDATED DAMAGES.

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

9. SUBSTITUTE ITEMS.

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

10. SUBCONTRACTORS, SUPPLIERS AND OTHERS.

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

11. BID FORM.

- 11.1 The Bid Form is included with the Bidding Documents; additional copies may be obtained from Engineer (or the issuing office).
- 11.2 All blanks on the Bid Form must be completed in ink or by typewriter.
- 11.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.
- 11.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- 11.5 All names must be typed or printed below the signature.
- 11.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).
- 11.7 The address and telephone number for communications regarding the Bid must be shown.

12. SUBMISSION OF BIDS.

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

13. MODIFICATION AND WITHDRAWAL OF BIDS.

- 13.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
- 13.2 If, within twenty-four hours after Bids are opened, any Bidder files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

14. OPENING OF BIDS.

Bids will be opened 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.

15. BIDS TO REMAIN SUBJECT TO ACCEPTANCE.

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

16. AWARD OF CONTRACT.

- 16.1 Owner reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, non-responsive, unbalanced or conditional Bids. Also, Owner reserves the right to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner.

- 16.2 Discrepancies in the multiplication of units of Work and unit prices will be resolved in the favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between the written price and the figure price shall be resolved in favor of the written price.
- 16.3 In evaluating Bids, Owner will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 16.4 Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- 16.5 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- 16.6 If the contract is to be awarded, it will be awarded to the lowest Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.
- 16.7 If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within forty-five days after the day of the Bid opening.

17. CONTRACT SECURITY.

Article 5 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to insurance requirements and performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by the insurance certificate, performance and payment bonds.

18. SIGNING OF AGREEMENT.

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within fifteen days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds. Within ten days thereafter Owner shall deliver one fully signed counterpart to Contractor.

19. RETAINAGE.

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

20. OUT-OF-STATE BIDDERS.

It shall be the Bidder's responsibility to make himself aware of all applicable State laws and regulations governing out-of-state contractors.

END OF SECTION

DOCUMENT 00205 UTILITY COMPANIES

PART 1 Water & Sewer

City of Scottsbluff
(308) 630-0926
(308) 630-6258 - water

PART 2 Electrical

Nebraska Public Power District
515 1st Avenue
Scottsbluff, NE
(877) 275-6773

PART 3 Telephone:

Century Link
Location of Buried Cable
(800) 788-3600

Allo Communications
(308) 633-5000

PART 4 Cable TV:

Charter Digital Communications
Location of Buried Cable
(308) 635-3163

PART 5 Natural Gas:

Source Gas
(800) 563-0012

PART 6 Digger's Hotline of Nebraska:

(800) 331-5666

END OF SECTION

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) _____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

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

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

Notice of Award

Date: _____

Project: _____

Owner: _____

Owner's Contract No.: _____

Contract: _____

Engineer's Project No.: _____

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 _____

[Indicate total Work, alternates, or sections of Work awarded.]

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

Three copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

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 three (3) fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents three (3) copies of the Performance Bond, Payment Bond and issue certificates of Insurance as specified in the Instructions to Bidders, General Conditions and Supplementary Conditions.

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
Baker & Associates, Inc. - Engineer

Title

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by _____,

this the _____ day of _____ 20__.

By _____

Title _____

EJCDC C-510 Notice of Award

Prepared by the Engineers Joint Contract Documents Committee and endorsed by the Construction Specifications Institute.

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Notice to Proceed

Date: _____

Project: _____

Owner: _____

Owner's Contract No.: _____

Contract: _____

Engineer's Project No.: _____

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 _____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Owner

Given by: _____

Authorized Signature

Title

Date

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged

by _____,

this the _____ day of _____ 20__.

By _____ Title _____

EJCDC C-550 Notice to Proceed

Prepared by the Engineers Joint Contract Documents Committee and endorsed by the Construction Specifications Institute.

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PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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 shall 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 shall 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 shall 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 shall 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 shall 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 shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. 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 shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, 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 may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after 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 shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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 shall 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 shall 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 shall 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 shall 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 shall 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 shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and 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 shall 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 shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
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;
4. A brief description of the labor, materials, or equipment furnished;
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;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
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 shall be 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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CONSTRUCTION SPECIFICATIONS INSTITUTE

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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.

SECTION 00810 MODIFICATIONS TO GENERAL CONDITIONS

PART 1 GENERAL:

The General Conditions (Document 00700) are hereby amended, voided and/or otherwise modified by the following conditions:

PART 2 COPIES OF DOCUMENTS (REFERENCE ARTICLE 2, PARAGRAPH 2.02):

The Owner shall not provide any additional copies of the documents. A set of electronic files in Adobe® Portable Document File (pdf) format will be issued to the Contractor by the Engineer. The Engineer can provide hard copies upon request at the cost of reproduction.

PART 3 ELECTRONIC DATA (REFERENCE ARTICLE 3, PARAGRAPH 3.06):

Add the following paragraph:

Baker & Associates, Inc. considers that plans and specifications are approved documents only if: 1) they are paper copies with original signatures and professional certification visibly present on the copies or 2) electronic files in Adobe® Portable Document File (pdf) format issued directly by Baker & Associates, Inc. (hereinafter referred to as electronically transmitted data). Information supplied via methods other than those noted above are not to be considered approved documents. The receiver of electronically transmitted documents is responsible for verifying the information is approved documents. This electronic information is copyrighted and may not be transferred to any other party.

PART 4 SUBSURFACE and PHYSICAL CONDITIONS (REFERENCE ARTICLE 4):

Any information pertaining to the availability of geotechnical data, soils reports, boring logs or groundwater information will be included as Document 00200 - SUBSURFACE INFORMATION.

PART 5 INSURANCE REQUIREMENTS (REFERENCE ARTICLE 5):

The following requirements shall supplement the requirements of Article 5. None of the requirements of Article 5 shall be voided or changed by requirement under this Part.

The Contractor shall procure and maintain at his own expense, during the Contract time, liability insurance as follows:

Contractor's General Public Liability and Property Damage Insurance including vehicle coverage issued to the Contractor and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the Contract Documents, whether such operations be by himself or by a Subcontractor under him, or anyone directly or indirectly employed by the Contractor or by a Subcontractor under him.

Insurance shall be written with a limit of liability of not less than \$1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained to any one person in any one accident; and a limit of liability of not less than \$2,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$500,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than \$500,000 aggregate for any such damage sustained by two or more persons in any one accident.

Both the Owner and Engineer shall hold the Certificate of Insurance.

PART 6 SALES AND USE TAX (REFERENCE ARTICLE 6, PARAGRAPH 6.10):

Add the following paragraph:

The Owner will issue the Contractor the appropriate tax exemption certificates/appointments, if applicable, and in accordance with local and state laws. Final approval and determination of exempt status lies with the State Department of Revenue. Prior to final payment, the Contractor will furnish the Owner an itemized listing of exempt material and a certification of approval issued by the State Department of Revenue.

PART 7 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT (REFERENCE ARTICLE 14, PARAGRAPH 2, Part C.1):

Delete Paragraph 14.02.C.1 in its entirety and replace with the following paragraph:

Thirty days after the presentation of the Application for Payment 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.

END OF SECTION

SECTION 00820 STATE REQUIREMENTS

PART 1 NEW EMPLOYEE WORK ELIGIBILITY STATUS:

The Contractor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

1.1 PROPRIETORSHIPS:

If the Contractor is an individual or sole proprietorship, the following applies:

- A. The Contractor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at www.das.state.ne.us.
- B. If the Contractor indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the US Citizenship and Immigration Services documentation required to verify the Contractor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.

The Contractor understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. §4-108.

PART 2 ONE-CALL NOTIFICATION ACT:

The Contractor shall meet all the requirements of the Nebraska One-Call Notification Act (State of Nebraska Title 155, Chapter 2).

END OF SECTION

SECTION 00822 FEDERAL REQUIREMENTS

The following Federal Requirements are hereby made a part of these documents and are attached following this Section.

A. Wage Determination

The Contractor and his Sub-Contractors shall be required to pay their employees minimum wages in accordance with the Wage Determination, _____.

B. Required Contract Provisions Federal-Aid Construction contracts, pages 1-20.

C. Disadvantaged Business Enterprise

No Disadvantaged Business Enterprise goals are required for this project.

D. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity - Executive Order 11246, pg 1-3.

E. Interim Guidance for Minority Business Enterprise and Women's Business Enterprise Requirement of 40 CFR 33.240, pg SGC-29 to SGC-37.

- F. Federal Sub-agreement and Miscellaneous Clauses, pg 1-4 and pg 12934-12938.

END OF SECTION

SECTION 01010 SCHEDULE OF WORK

PART 1 SCHEDULE:

If a special sequencing of the work is critical to the project, place the schedule here. If there are no special requirements this section should be deleted.

END OF SECTION

SECTION 01015 OWNER FURNISHED ITEMS:

PART 1 GENERAL:

The Owner will furnish no labor, no equipment, and no materials to the Contractor, except as listed following. It is the intention of this Contract to require the Contractor to furnish all labor, materials and equipment necessary to complete the construction of the work as outlined in the Specifications and as shown on the Drawings and Detail Drawings.

PART 2 WATER:

All water required for flushing, testing and disinfection of water mains installed or storage tanks recoated under this contract (as applicable), shall be furnished to the Contractor without charge so long as such water is used without obvious waste. The Contractor shall make all provisions necessary to obtain the water from the designated place and to convey it to the place of use without waste. Water required for cleaning or compaction activities shall be furnished by the Contractor.

END OF SECTION

SECTION 01025 MEASUREMENT AND PAYMENT:

PART 1 Unit Prices:

It is to be understood that the quantities of each item of work set forth in the Bid are approximate only and will be revised depending on field conditions encountered. The Owner has the right to revise quantities in its best interest without affecting any of the unit prices set forth above. In all cases, the stated unit prices Bid shall be used in determining the final value of the completed work.

PART 2 Application for Payment:

Attached to the end of Section 01000 is a copy of Form 01025-A, the Application for Payment that will be used for this project. The Contractor shall submit the application for payment on this form, or in similar form, if approved in writing, by the Engineer. This form is available on electronic media.

PART 3 Change Order Procedures:

The Contractor shall request in writing all change order items prior to proceeding with any such work. The request shall include detailed unit and/or lump sums prices and justification for the proposed work. Should the Owner or Engineer request a modification to the project which requires a change order, the Contractor shall submit a written cost of the modifications to the Engineer prior to beginning the modification. The final documentation for a change order will be submitted on Form 01025-B as attached to Section 01000.

END OF SECTION

SECTION 01030 ALTERNATE CONSTRUCTION ACTIVITIES:

PART 1 The following construction activities are either additions to the Contract, for which the Owner is unsure of the certainty of their being included in the proposed construction; or are alternate methods of construction which may replace a specified construction activity.

PART 2 List each alternate with a brief description

END OF SECTION

SECTION 01040 CONSTRUCTION COORDINATION:

The Contractor shall be responsible for coordinating all phases of his/her operations with the Engineer and Owner. Advance notice of not less than 48 hours will be given to the Engineer prior to any operations.

END OF SECTION

SECTION 01050 CONSTRUCTION SURVEY WORK:

PART 1 Construction Staking:

The Engineer will provide control points and project benchmark(s) for the project. A minimum of two control points will be provided with a project benchmark, plus an additional point and benchmark for each additional 10 acres of site. It shall be the Contractor's responsibility to maintain all stakes and reference elevations and replacement of stakes shall be at the Contractor's expense. The Engineer will not provide any "bluetop" staking for the project and additional staking required beyond the scope provided below will be the Contractor's cost, reimbursed to the Engineer. The Engineer will provide the following staking for the project with reasonable offsets as requested by the Contractor:

- 1.1 Street Construction: Back of curb at 50-foot intervals, radius points, driveways, alleys, and grade changes.
- 1.2 Pathway/Sidewalk Construction: Centerline of pavement at 50-foot intervals, radius points, and driveways.
- 1.3 Fencing: All corners, gates and at 200-foot intervals.
- 1.4 Water Line Construction: Centerline of pipeline at 100-foot intervals, bends, fittings, fire hydrants, and proposed service lines.
- 1.5 Sanitary Sewer Construction: Centerline of pipeline at 100-foot intervals, manholes, cleanouts, and proposed service lines.
- 1.6 Stormwater Construction: Centerline of pipeline at 100-foot intervals, manholes, inlets, headwalls, and flared end sections.
- 1.7 Site Grading: Rough stakes at 200-foot grid and/or major features, final grading at 100-foot grid and/or major features.
- 1.8 Building: Exterior corners will be set for new buildings. No additional stakes will be provided for building additions.

Requires Modification
Ver.14

General Requirements

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PART 2 Staking Review:

The Contractor is responsible for checking stakes for accuracy and verifying grades of pipe, pavement, grading, and building dimensions independently from staking. The Contractor shall make no claim against the Owner or Engineer regarding the alleged inaccuracy of construction stakes set by the Engineer unless all survey stakes set by the Engineer are maintained intact and can be verified as to their origin. If staking is not intact or cannot be verified as to the origin, any and all remedial work to correct improper construction shall be done at the sole expense of the Contractor.

PART 3 Notification:

The Contractor shall notify the Engineer at least three (3) working days in advance of his intention to construct any specific portion of the work, to allow the Engineer time to stake that portion of work.

END OF SECTION

SECTION 01060 REGULATORY REQUIREMENTS:

PART 1 GENERAL:

It shall be the Contractor's responsibility to familiarize himself/herself with the regulatory requirements with regard to the location of the project and the type of work to be performed under the Contract.

PART 2 SAFETY:

All regulations pertaining to safety, to include Occupational Safety & Health Association (OSHA) Standards, shall be strictly adhered to by the Contractor. Particular care shall be exercised in connection with the operation of vehicles and other equipment on the site. Safety barriers and equipment shall be provided by the Contractor as required.

PART 3 PERMITS:

It shall be the Contractor's responsibility to obtain all necessary permits as required by State and Local codes to perform the work required as part of this Contract.

PART 4 SWPPP:

The Contractor shall prepare a Stormwater Pollution Prevent Plan as required by State and Local agencies. The Engineer will provide Site Plan and Detail Drawings based on the layout and materials the Contractor would like to submit to the reviewing agency. The Contractor shall maintain the SWPPP until all permit requirements are satisfied, including maintenance of all erosion features until final acceptance by the review agency.

PART 5 BUILDING CODES:

The following Standard Codes of construction practices are hereby made a portion of these Specifications and shall govern all applicable construction activities carried out under this Contract.

- 4.1 National Electrical Code (NEC)
- 4.2 Building Code, Plumbing Code, Energy Conservation Code and Mechanical Code as adopted by the Owner or controlling agency. This shall include any specific regulations or standards adopted by the Owner/agency that identify construction practices. If the Owner or agency has not adopted such codes, the International Codes shall govern.
- 4.3 The Americans with Disabilities Act of 2010 (ADA) and Nebraska Accessibility Guidelines (NAG).

END OF SECTION

SECTION 01120 ASBESTOS CONTAINING MATERIALS:

- PART 1 During construction or remodeling activities involving existing buildings, there exists the possibility that Asbestos Containing Materials (ACM) may be encountered. The Building Owner may not be aware of the location of all ACM within the building. It shall be the Contractor's responsibility to request information from the building owner as to the known locations of ACM and to familiarize himself with those known locations.

PART 2 If during any construction activity, any suspected ACM is encountered by the Contractor, he shall stop all construction activities immediately. The Contractor shall notify the Owner immediately of the suspected ACM to allow evaluation of the suspected material and the appropriate course of action. If the material is found to be ACM and abatement/cleanup procedures are required, the Contract time shall be extended by formal change order to cover the delays encountered by the abatement/cleanup activities.

PART 3 If the Contractor has negligently disturbed an area known to contain ACM, the Contractor shall be held solely responsible for the resulting cleanup operations and elimination of the hazard.

PART 4 No materials supplied under this contract shall contain asbestos in any form.

END OF SECTION

SECTION 01130 PROTECTION OF POTABLE WATER SUPPLIES (ORGANIC CHEMICALS)

PART 1 To prevent contamination of the potable water supplies the Contractor shall not use any solvents, petroleum derived products, caustic or poisonous substances during construction activities involving, potable water pipelines, well and well test hole drilling, water tanks and or any part of a municipal water system that comes into contact with potable water supplies.

PART 2 Special care shall be exercised during refueling and or lubrication activities to prevent spillage of petroleum products that may come in contact with potable water supplies.

PART 3 No substances found on The Environmental Protection Agency List of Monitored Substances or having an Environmental Protection Agency Maximum Contaminant Level (MCL) shall be allowed on the job site.

END OF SECTION

SECTION 01170 SPECIAL CONSTRUCTION PROVISIONS:

The following modifications, additions and special provisions are hereby made a part of these Specifications and shall take precedence over any conflicting requirements.

HISTORICAL AND ARCHEOLOGICAL

If during the course of construction, evidence of deposits of historical or archeological interest is found, the Contractor shall cease operations affecting the find and shall notify the Federal Funding Agency, and the Nebraska State Historic Preservation Office, (402) 471-4775. No further disturbance of the deposits shall ensue until the Contractor has been notified, in writing, by the Owner that he may proceed. The Owner will issue a notice to proceed only after the state officials have surveyed the find and made a determination to the Federal Funding Agency and the State Historic Preservation Office. Compensation to the Contractor, if any, for lost time or changes in construction to avoid the find, shall be determined in accordance with changed conditions or change order provisions of the Specifications.

END OF SECTION

SECTION 01200 SPECIAL PROJECT MEETINGS:

The Contractor shall be required to attend a Pre-Construction meeting with the Environmental Protection Agency (EPA), Owner and Engineer prior to the start of construction. The meeting will be held at the Owner's business offices.

END OF SECTION

SECTION 01340 SHOP DRAWINGS, PRODUCT DATA AND SUBMITTALS:

PART 1 GENERAL:

The Contractor shall provide the Engineer with catalog material, capacities, performance curves, dimensions, weights or any other information which may be necessary in order that the conformity with the Specifications may be reviewed for each proposed piece of equipment. The Contractor shall furnish five (5) copies of submittals and/or shop drawings. All such material shall be furnished to the Engineer within thirty (30) days after the date of the "Notice to Proceed". No material or equipment shall be installed without an approved shop drawing/submittal.

PART 2 SHOP DRAWING REVIEW:

- 2.1 The ENGINEER will review CONTRACTOR's shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall system designed by the ENGINEER.
- 2.2 Before submitting a shop drawing or any related material to the ENGINEER, the CONTRACTOR shall:
 - A. Review each such submission for conformance with the means, methods, techniques, sequences, and operations of construction, and safety precautions and programs incidental thereto, all of which are the sole responsibility of CONTRACTOR; and
 - B. Approve each submittal before delivering it to the ENGINEER, providing a stamp on each such submission indicating the CONTRACTOR'S review and approval of the submittal.
- 2.3 The CONTRACTOR shall certify the shop drawing have been reviewed by and approved with respect to the means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incidental thereto by utilizing (and signing) the submittal transmittal form (Form 01340A) following this Division.
- 2.4 The ENGINEER shall assume that no shop drawing or related submittal comprises a variation to the specified material or equipment unless CONTRACTOR advises the ENGINEER otherwise, via a written instrument, which is acknowledged by the ENGINEER in writing.

- 2.5 The shop drawings to be submitted for a particular construction activity are identified in the SECTION describing the construction activity. Shop drawings to be submitted, in addition to those listed elsewhere in the Contract Documents, are identified following.

Item: _____

- 2.6 In the event that the ENGINEER will require more than ten (10) working days to perform the review, the ENGINEER shall so notify CONTRACTOR. The ENGINEER shall return shop drawings with comments provided that each submission has been called for and is stamped by CONTRACTOR as indicated above. The ENGINEER shall return, without comment, material not called for or which has not been approved by CONTRACTOR.

PART 3 OPERATION MANUALS:

Upon completion of the Contract, and prior to final payment, the Contractor shall furnish the Owner, two copies of the manufacturer's operation and maintenance manuals and parts lists for each piece of equipment furnished. Product data sheets shall be supplied for those materials and equipment that are not provided with a manufacturer's operation and maintenance manual.

PART 4 ELECTRICAL CERTIFICATION:

Prior to final acceptance and payment for the project, the Contractor shall provide written certification that the project has been inspected by the electrical inspector having jurisdiction over the electrical portion of the project and that any items of non-compliance have been corrected.

PART 5 RESPONSIBILITY:

The Contractor shall not be relieved of his/her responsibility to supply equipment meeting all requirements of the Specifications by any reviews of submittals or shop drawings by the Engineer.

END OF SECTION

SECTION 01440 CONTRACTOR'S QUALITY CONTROL:

PART 1 GENERAL:

The work performed under these specifications shall be executed in the best and most workmanlike manner by qualified, careful and competent personnel of the respective trades in strict accordance with these specifications, applicable drawings, appropriate codes and the best current construction practices.

PART 2 QUALITY CONTROL:

The Engineer may elect to have a commercial testing laboratory conduct testing at random locations or areas where work or materials are of questionable qualities in his opinion. In the event such tests indicate the quality of materials or work is at or above the minimum Contract specifications, the Owner will make payment for the tests. The cost of the test results that indicate qualities of work or materials below the minimum Contract specifications will be charged to the Contractor's account.

END OF SECTION

SECTION 01441 CONSTRUCTION OBSERVATION & STAKING SCHEDULE

Contractor requests for material testing, construction observations or staking at times other than normal working hours 7:00 a.m. - 6:00 p.m. weekdays, shall be at the discretion of the Engineer. In any event, the contractor's account will be charged one-half times the Engineer's rate being charged the Owner for all hours worked; except on legal holidays (Federal and/or Owner) which will be charged at the Engineer's full rate.

END OF SECTION

SECTION 01540 PROTECTION OF WORK AND PROPERTY:

The Contractor shall be responsible to check and determine that all necessary precautions have been taken to protect all property, both public and private, in all areas where this Contract is being accomplished. Damage caused from failure by the Contractor to exercise care in the performance of work shall be immediately replaced or restored to the satisfaction of the Engineer without additional cost to the Owner.

END OF SECTION

SECTION 01560 CONSTRUCTION CLEANING:

PART 1 DAILY CLEANUP:

- 1.1 The areas where work is in progress shall be kept as neat and clean as is consistent with the work in progress. Materials, wrappings, containers which might be scattered by wind or become a hazard to pedestrians shall be placed in appropriate containers, disposed of or otherwise cared for.
- 1.2 All debris shall be removed from the job site each day. All scrap and debris shall be disposed of, off of the Owner's property, at no additional cost to the Owner.

PART 2 FINISH GRADING:

- 2.1 The Contractor shall grade the trench line and all surrounding areas, where the grade has been disturbed during construction, to a smooth grade to affect a neat and workmanlike appearance.
- 2.2 Any adjacent areas which are damaged by the Contractor, due to demolition or removals, shall be repaired to the satisfaction of the Engineer or be replaced.

PART 3 FINAL CLEANUP:

- 3.1 Upon completion of the project, the Contractor shall remove all rubbish and accumulated materials and scrap from the premises leaving the job site in a clean, acceptable condition.
- 3.2 All salvageable items shall remain the property of the Owner and shall be disposed of as directed by the Owner's representative.

- 3.3 Excess excavated materials and construction debris, if any, shall be hauled away to a location selected by the Contractor, off the Owner's property, easements, and rights-of-way.
- 3.4 It is intended that the Contractor leave the work area in a similar and equal condition as existed prior to commencement of construction.
- 3.5 Every effort shall be made to protect and preserve the environment. Erosion shall be controlled and kept to a minimum. No discharge of fuels or waste liquids which would be harmful to the environment shall be allowed.

PART 4 Reference Section 02212, SURFACE RESTORATION

END OF SECTION

SECTION 01570 TRAFFIC CONTROL:

The Contractor shall be required to furnish, install and maintain traffic control devices in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), Federal Highway Administration, U.S. Department of Transportation. Traffic control devices shall be used when the Work is in street right of way.

END OF SECTION

SECTION 01580 PROJECT IDENTIFICATION AND SIGNS:

PROJECT SIGN:

The Contractor shall construct the following project sign to be located at the construction site:

CONTRACTOR -
ENGINEER - BAKER & ASSOCIATES
PROJECT COST -
FINANCIAL ASSISTANCE - D.E.D

Lettering shall be a minimum two (2) inches high on a 4' x 6' board.

END OF SECTION

SECTION 01660 **STARTING OF SYSTEMS:**

- PART 1 It shall be the Contractor's responsibility to provide system start up services to insure that all equipment is properly installed and operating as intended.
- PART 2 Reference Division 11, Section 11000, GENERAL EQUIPMENT REQUIREMENTS

END OF SECTION

SECTION 01740 WARRANTIES AND BONDS:

- ## PART 1 PERFORMANCE BOND:

The Contractor shall be required to maintain the Performance Bond during the life of the Contract and for a period of one year after the date of final acceptance of all work performed under the Contract.

- PART 2 PAYMENT BOND:

The Contractor shall be required to maintain the Payment Bond during the life of the Contract and for a period of one year after the date of final acceptance of all work performed under the Contract.

PART 3 EQUIPMENT GUARANTEE:

All equipment and installation shall be guaranteed by the Contractor for one year after the date of substantial completion of the entire Contract. The Contractor shall immediately repair or replace any defects within the guarantee period due to faulty equipment, material, installation or workmanship at his own expense.

END OF SECTION

SECTION 01800 MAINTENANCE OF BACKFILL:

All backfill shall be maintained in a satisfactory condition, and all places where settlement is evident shall be filled by the Contractor and maintained during the life of the Contract and for a period of one year after the date of final acceptance of all work performed under the Contract. When the Contractor is notified by the Engineer or Owner that any backfill is hazardous, the Contractor shall correct or make repairs of such hazardous conditions at once. Any utilities and pavements damaged by any such settlement shall be the responsibility of the Contractor. The Contractor shall be responsible for all claims for damages filed with the court, actions brought against the Owner for, and on account of, such damage.

END OF SECTION



Application for Payment No. **1**
For Work accomplished through the date of:

Owner: **OWNER NAME**
ADDRESS
CITY, STATE ZIP
PHONE
FAX

Contractor: **CONTRACTOR NAME**
ADDRESS
CITY, STATE ZIP
PHONE
FAX

Project: PROJECT NUMBER
PROJECT TITLE

Item No.	Description of Work	Scheduled Value		Amount	Work Completed		Materials Stored **	Total Completed Plus Stored	% Completed
		Unit Price	Quantity		Retainage *	Quantity			
CONTRACTOR'S Certification: The undersigned CONTRACTOR certifies that: (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied to discharge in full all obligations of CONTRACTOR incurred in connection with Work covered by all prior Applications for Payment, inclusive; (2) title to all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all liens, claims, security interest and encumbrances (except such as are covered by Bond acceptable to OWNER indemnifying OWNER against any such lien, claim, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective as that term is defined in the Contract Documents. Contractor: _____ Dated: _____ Authorized Signature Payment of the above AMOUNT DUE THIS APPLICATION is recommended. Baker & Associates: _____ Dated: _____ Authorized Signature * - Retainage based on percent of completion of the individual item ** - Materials on site, not installed (Invoices required)									
Total Contract Amount: _____									
Total value of work & materials completed: _____									
Less amount paid, previous estimates: _____									
Less retainage: 10% _____									
TOTAL AMOUNT DUE THIS APPLICATION: _____									
Baker & Associates, Inc. Engineers * Architects * Surveyors 120 East 16th Street, Suite A, Scottsbluff, Nebraska 69361									



Engineers - Architects - Surveyors
Since 1977

120 East 16th Street
Scottsbluff, Nebraska 69361
(308) 632-3123
Fax: 632-7253

OWNER: OWNER NAME
ADDRESS
CITY, STATE ZIP
PHONE
FAX

CHANGE ORDER NO. 1
DATE:

PROJECT: PROJECT NUMBER
PROJECT TITLE

CONTRACTOR: OWNER NAME
ADDRESS
CITY, STATE ZIP
PHONE
FAX

<u>ITEM NO.</u>	<u>DESCRIPTION / JUSTIFICATION:</u>	<u>AMOUNT</u>
1.)		
2.)		
3.)		
4.)		
5.)		
6.)		
7.)		
8.)		

REVISION IN CONTRACT AMOUNT:

CURRENT CONTRACT PRICE + (-) PREVIOUS CHANGE ORDERS

AMOUNT THIS CHANGE ORDER _____

REVISED CONTRACT AMOUNT _____

REVISED CONTRACT TIME + (-) BY _____ CALENDAR DAYS

SUBMITTED BY CONTRACTOR	_____	DATE: _____
ACCEPTED BY B & A	_____	DATE: _____
APPROVED BY OWNER	_____	DATE: _____

Baker & Associates, Inc. Engineers * Architects * Surveyors 120 East 16th Street, Suite A, Scottsbluff, Nebraska 69361

FORM 01025-B



Engineers - Architects - Surveyors
Since 1977

SHOP DRAWING/SUBMITTAL TRANSMITTAL

CONTRACT: PROJECT TITLE
PROJECT NO. PROJECT NUMBER

SUBMITTAL NO. _____
SECTION: _____
COPIES: _____

OWNER: OWNER NAME
ADDRESS
CITY, STATE ZIP
PHONE
FAX

CONTRACTOR: CONTRACTOR NAME
ADDRESS
CITY, STATE ZIP
PHONE
FAX

FOR COMPLETION BY THE CONTRACTOR:		FOR COMPLETION BY THE CONSULTANT:	
DESCRIPTION	MANUFACTURER	ACTION	NOTES
<p>I, the undersigned Contractor, have reviewed and approved this shop drawing with respect to the means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incidental thereto. I also warrant that this shop drawing/submittal complies with contract documents and comprises no variations thereto.</p> <p>SUBMITTED BY:</p> <p>_____ CONTRACTOR NAME</p> <p>_____ DATE</p>		DATE RECEIVED: _____	
		<p>APP - APPROVED REJ - REJECTED SUB - SUBMIT SPECIFIED ITEM FAC - FURNISH AS CORRECTED REV - REVISE AND RESUBMIT INR - ITEM NOT REVIEWED</p> <p>REVIEWED BY:</p> <p>_____ Baker & Associates, Inc.</p> <p>_____ DATE</p>	

This review was performed only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Modifications or comments made on the shop drawings during this review do not relieve contractor from compliance with the requirements of the plans and specifications. Approval of a specific item does not include approval of the assembly of which the item is a component. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences, and procedures of construction; coordination of the work of all trades; and for performing all work in a safe and satisfactory manner.

Baker & Associates Inc., 120 East 16th Avenue, Ste A, Scottsbluff, NE 69361
Telephone - (308)632-3123 Facsimile - (308)632-7253

FORM 01340-C

SECTION 02212 SURFACE RESTORATION

PART 1 GENERAL:

- 1.1 The Contractor shall return all areas disturbed during construction to a condition equal to, or better than, that which existed prior to construction, regardless of whether or not such disturbed areas are within or outside of easements or right-of-ways.
- 1.2 This shall include, but not be limited to the following:
 - A. Replacement of pavement and sidewalk areas,
 - B. Replacement of grass sod in lawn areas,
 - C. Repair of sprinkler systems where disturbed or damaged by construction activities,
 - D. Repair of underground utilities disturbed or damaged by construction activities,
 - E. Repair and/or replacement of fences cut or removed as required by construction activities,
 - F. Restoration of ditches, channels, or swales to their original invert elevations and cross sections,
 - G. Reseeding and/or resodding of all vegetated areas disturbed by construction activities, and
 - H. Other work required to restore such areas to their former condition.

PART 2 STRUCTURES:

- 2.1 The site areas for structures shall be graded as indicated on the Drawings, or as directed by the Engineer. The final grading shall provide a neat appearance and shall facilitate positive drainage to natural water courses and allow for positive drainage away from structures.
- 2.2 After finish grading is accepted by the Engineer, the Contractor shall then install the appropriate ground cover as specified or as indicated on the drawings.

PART 3 UTILITIES:

3.1 Areas to Receive Paving:

- A. Paving, curb and gutter, sidewalks or other improvements destroyed, removed, or damaged during construction shall be replaced with the same type, of equal or better quality, consistent with the undisturbed portions of the improvements existing prior to the trench excavation, except as described following.
- B. Edges of existing pavement, sidewalk or curb and gutter shall be saw cut, or otherwise prepared, to provide a smooth uniform edge.
- C. Upon completion and testing of backfilling by the Engineer, a 6-inch base course shall be added. Base course compaction shall be 95% maximum dry density (ASTM D698).
- D. The paving shall be replaced to the same depth as the undisturbed paving (or the following minimum depths), using hot-mix asphaltic cement or concrete as indicated on the Drawings.
 - 1. All hot-mix asphaltic cement pavement used in restoration work shall be a minimum 6-inches thick, full depth asphalt. Preparation for the asphaltic cement paving shall include prime and tack coats. After placing the material, the pavement shall be compacted with a smooth roller. All proposed methods shall be as specified herein, and/or reviewed by the Engineer.
 - 2. Concrete thickness shall be a minimum 6-inch for areas to receive traffic and 5-inch for all other concrete paving unless otherwise shown on the Drawings. All proposed methods shall be as specified herein, and/or reviewed by the Engineer.
- E. All concrete used in the restoration work shall conform to the requirements of Division 3, "Concrete". Joints of concrete shall match/duplicate the existing joint pattern.

3.2 Areas to Receive Gravel Surfacing:

- A. Gravel surfacing shall be replaced to the same depth as that existing prior to excavation, or as a minimum, gravel shall be 2-inches thick. No gravel surfacing shall be replaced prior to the acceptance of the backfill by the Engineer.
- B. The gravel surfacing shall conform to the following gradation requirements.

<u>Sieve Designation</u>	<u>% Passing</u>	<u>Tolerance</u>
1-inch	100	0
#4	78	±17
#10	16	-16,+14
#200	3	±3

3.3 Areas with Topsoil and/or Vegetation Cover:

- A. When excavation is through lawns, fields, pasture land, or any other areas having a vegetation cover, or any areas where there is naturally existing topsoil, the Contractor shall strip and stockpile separately all topsoil.
- B. This material shall then be replaced on top of the final backfill, after installation of the pipeline. When excavated material must be stored on lawns or other grassed areas, burlap or other suitable coverings shall be used to protect such areas.
- C. When so indicated on the Drawings, or elsewhere in these Specifications, special seeding or the installation of grass sod shall be required in areas where grass has been disturbed or removed during construction.

PART 4 PAYMENT OF RESTORATION ACTIVITIES:

4.1 General:

Restoration activities shall be considered incidental to the contract unless a specific item in Document 00300 "BID" addresses payment of the restoration activity. Where separate payment is allowed, the following methods of payment shall apply.

4.2 Asphaltic Cement Pavement and Concrete Pavement:

Payment for the replacement of asphaltic cement pavement and concrete pavement shall be per lineal foot as measured along the pipeline for utility construction and per square yard for other construction. Payment will be under the Bid Item "Pavement Removal and Replacement".

4.3 Concrete Sidewalk:

Payment for the replacement of concrete sidewalks shall be per square foot, as measured in place. Payment will be under the Bid Item "Replacement of Concrete Sidewalk".

4.4 Concrete Curb and Gutter:

Payment for the replacement of concrete curb and gutter shall be per lineal foot as measured along the gutter line. Payment will be under the Bid Item "Replacement of Concrete Curb and Gutter".

4.5 Miscellaneous Pavement Replacement:

A. Payment for the replacement of miscellaneous paving shall be per square yard, as measured in place. Payment will be under the Bid Item "Miscellaneous Pavement Removal and Replacement:

B. Payment for miscellaneous pavement replacement will require written authorization prior to removal of existing paving.

4.6 Areas to Receive Gravel Surfacing:

Payment for the replacement of gravel surfacing shall be per lineal foot as measured along the pipeline for utility construction and per square yard for other construction. Payment will be under the Bid Item "Replacement of Gravel Surfacing".

4.7 Areas with Topsoil and/or Vegetation Cover:

Payment for the replacement of topsoil and/or vegetation cover shall be per lineal foot as measured along the pipeline for utility construction and per square yard for other construction. Payment will be under the Bid Item "Reseeding" or "Re-Sodding", as applicable.

END OF SECTION

SECTION 02222 EXCAVATION, BACKFILL AND COMPACTION FOR UTILITIES

PART 1 SCOPE OF WORK:

It is the intent of this section for the Contractor to provide all labor, materials, equipment, and transportation necessary for the excavation and backfill of all pipeline trenches and appurtenances.

PART 2 GENERAL REQUIREMENTS:

- 2.1 Unless shown otherwise on the Drawings, or described in the Specifications, all excavation shall be made by open cut. The Engineer may authorize tunneling beneath driveways, crosswalks, curbing, walkways, and buried utility installation, but any such tunnels shall not exceed eight feet in length.
- 2.2 Not more than 100 feet of trench shall be opened in advance of pipe laying or more than 200 feet of trench left open behind pipe laying, unless permitted by the Engineer or as necessary for the convenience and safety of the public.

PART 3 PROTECTION OF EXISTING FACILITIES:

3.1 General:

All existing utilities and facilities, including but not limited to power, gas, telephone, cable television, sewers, water mains, cables, culverts, conduits, ditches, embankments, structures and trees within the construction area, shall be supported and protected from injury by the Contractor during construction and until completion of the work, unless removal is authorized by the Engineer or the Drawings or Specifications.

3.2 Underground Facilities:

- A. A reasonable effort has been made by the Engineer to indicate the type, size, location and number of known underground facilities on the Drawings, however, no guarantee is made as to the true type, size, location, or number of such facilities. It shall be the Contractor's responsibility to verify utilities along the route of the work. The omission from, or the inclusion of, utility locations on the Drawings is not to be considered as the non-existence of, or an absolute location of, existing underground utilities.

It is the Contractor's responsibility to contact local utility companies or call the local "digger's hotline" or similar service to have buried utilities located prior to construction.

- B. The Contractor shall locate and expose any buried facilities ahead of the normal trenching operation, including confirming size and location of piping to be connected to, so that necessary changes in pipeline location, alignment, or depth, for the pipeline under construction, or the possible relocation of existing buried facilities may be accomplished well in advance of the trenching operation. No additional payment will be allowed for exposing and locating buried facilities ahead of the normal trenching operation.
- C. The Contractor shall notify the Engineer of the existing utilities (as confirmed above), whether above-ground or underground prior to proceeding with trench excavation whenever such trenching operations are within 10 feet of the possible location of any existing utility. Should any such utility be damaged in the trenching operations, the Contractor shall immediately notify the Owner of such utility, and unless authorized in writing by the Utility, the Contractor shall not attempt to make repairs.
- D. Any written authorization given to the Contractor by the utility for making repairs, shall be so worded as to save harmless the Owner and Engineer of any responsibility relative to the adequacy of the repairs.

- E. If it is determined during construction that it will be necessary to relocate any above or below ground utility, including drainage structures, the Contractor shall notify the Engineer of such utility, well in advance, so that changes and/or relocation can be made without delaying the work.

PART 4 TRENCH WIDTH:

- 4.1 The minimum clear trench width as measured at the top of the pipe barrel shall be no less than the outside diameter, plus 16-inches. For all pipe diameters, the maximum clear trench measured at a point of 12-inches above the top of the pipe barrel shall be not greater than the trench width shown in the following table:

MAXIMUM TRENCH WIDTH TABLE

<u>Pipe Diameter Inches</u>	<u>Pipe Trench Inches</u>	<u>Pipe Diameter Inches</u>	<u>Pipe Trench Inches</u>
4	24	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		

- 4.2 The excavation in streets with permanent paving, such as asphalt or concrete must be confined to a minimum width. The pavement shall be cut with a vertical face 6-inches beyond the top of each trench wall and on a straight line.
- 4.3 If the above stated maximum trench widths are exceeded, either through accident or otherwise, and if the Engineer determines that resultant backfill conditions will exceed or approach the design loading of the pipe, the Contractor will be required to make such corrective measures as cradling the pipe in concrete, using a pipe of a stronger class, if such be available, or provide special bedding material as determined necessary by the Engineer.

- 4.4 The cost of remedial measures because of exceeding the maximum allowable trench width shall be entirely at the Contractor's expense.
- 4.5 The Contractor may slope or bench the trench side walls as he/she deems necessary in accordance with good safety practices. The sloping or benching shall terminate not less than one foot above the top of the pipe barrel, and from that point down the trench wall shall be vertical.
- 4.6 All of the trenching operation and the spoil bank shall remain confined to the Owner's permanent and temporary construction easements, or right-of-way.
- 4.7 A clear area shall be maintained back from the top edge of the excavation to prevent overloading and sliding or caving of the trench walls. All excavated material shall be maintained in such a manner as to minimize inconvenience to the public and adjoining property owners. All public streets shall be kept open, unless written authorization is received from the Engineer for closure. At street crossings, driveways or other places of access, the Engineer may authorize or require that trenches be bridged in a safe manner to permit access to fire hydrants and public or private properties.

PART 5 TRENCH PREPARATION:

- 5.1 The trench shall be excavated to permit the pipe to be laid to the alignment and depth as specified and shown on the Drawings. The trench wall shall be braced so that the workers may work safely and efficiently. Trench excavation and preparation shall also conform to any details or special requirements shown on the Drawings.
- 5.2 Trenches shall have extra width, when required, to permit the placing of timber supports, sheeting, and bracing, and the handling of special units if necessary. Bell holes shall be provided in the bottom of the trench at each joint to permit proper joining of the pipe.
- 5.3 After excavation, the trench bottom shall be uniformly graded and hand-shaped so that the pipe barrel (and not the pipe joint) will have uniform and continuous bearing on firm, undisturbed trench bottom, or thoroughly compacted granular material, throughout the length of the pipe barrel.

- 5.4 Final grading of trench bottom shall permit the pipe spigot end to be centered in the preceding laid pipe joint, without lifting the pipe above the final grade, and without exceeding permissible joint deflections. If it is necessary to raise the pipe subgrade, special compacted fill, approved by the Engineer, shall be used.

PART 6 BEDDING AND BACKFILLING:

For the purpose of this Section, "Pipe Bedding" shall refer to material below the pipe invert. "Pipe Backfill" shall consist of all material above the bedding to a height of 12-inches above the pipe. "Trench Backfill" shall consist of all material above the "Pipe Backfill."

6.1 Bedding:

- A. Special bedding shall be required where unstable foundation is encountered, as determined in the field by the Engineer. Special bedding shall also be required when trench excavation is in rock or sandstone.
- B. When an unstable trench bottom is encountered, the Contractor shall over-excavate a minimum of 6-inches and replace such over-excavated material with $\frac{3}{4}$ -inch "minus" crushed stone.
- C. When the trench bottom is rock, sandstone or hardpan, the Contractor shall over-excavate and/or remove sufficient material to provide a minimum of 4-inches of embedment cushion on each side of and below the pipe and appurtenances. The embedment cushion shall be granular material with no particles larger than $\frac{3}{4}$ -inch.
- D. No additional payment for "pipe bedding" shall be allowed, unless an item is listed specifically in the Bid for "pipe bedding," and its use is specifically authorized by the Engineer. Payment, if allowed, shall be based upon the volume of material placed as measured along the length of the pipeline being installed, by the depth of the material as authorized by the Engineer and by the width of the trench as shown in the "Maximum Trench Width Table" in Part 4 of this Section.

6.2 Pipe Backfill:

- A. For backfilling around the pipe; suitable materials, taken from the excavated trench and containing no stones larger than as listed following shall be used:

<u>Type of Pipe Installed</u>	<u>Maximum Size of Stones in Backfill around Pipe</u>
Ductile-Iron	2-inches
Concrete	1-inch
P.V.C.	¾-inch

- B. Special care shall be taken to compact the "pipe backfill" under the pipe "haunches"; between the springline (pipe centerline) and the pipe barrel where it comes in contact with the trench bottom. The first lift shall not be above the pipe spring line.
- C. Compaction bars or other pneumatic or mechanical units shall be used, which can thoroughly compact the material to 95% maximum dry density (Standard Proctor), or greater. Non-cohesive soils not applicable to Standard Proctor Density testing shall be compacted to 70% density as determined by ASTM 4253 & 4354.
- D. If sufficient suitable backfill material (for placement within 12-inches of the pipe barrel) is not available from the excavated material, the Contractor shall segregate or screen out large stones, debris and other unsuitable material from the "pipe backfill" before placing and compacting; or the Contractor shall provide acceptable material from other excavations or locations of the work under this contract. No extra payment shall be made for this moving and handling of the "pipe backfill" material.
- E. If sufficient quantities of suitable material for "pipe backfill" are not reasonably available, as described in the preceding paragraph, the Contractor shall notify the Engineer. The Engineer will then locate a source of suitable "pipe backfill" material.

- F. No additional payment for "pipe backfill" material shall be allowed, unless an item is listed specifically in the Bid for "pipe backfill," and its use is specifically authorized by the Engineer. Payment, if allowed, shall be based upon the volume of material placed as measured along the length of the pipeline being installed, by the depth of the material as authorized by the Engineer and by the width of trench as shown in the "Maximum Trench Width Table" in Part 4 of this Section.

6.3 Trench Backfilling:

A. General:

1. Special care shall be taken when compacting over the pipe. Any damage to or movement of the pipe, as a result of the backfilling and compaction operations, shall be the responsibility of the Contractor. The backfilling and compaction shall proceed in maximum lifts of a depth to insure the specified degree of compaction based on the type of soil and the type of compaction equipment being used.
2. "Trench backfill" necessary to bring the trench to final grade shall be considered incidental to construction.
3. No payment for additional "trench backfill" material shall be allowed unless specific circumstances do not allow the use of the existing soils as "trench backfill." The use and payment of additional "trench backfill" shall be specifically authorized by the Engineer.
4. Payment, if allowed, shall be based upon the volume of material placed as measured along the length of the pipeline being installed, by the depth of the material as authorized by the Engineer and by the width of trench as shown in the "Maximum Trench Width Table" in Part 4 of this Section.

B. Backfilling in Locations Receiving Paving Or Designated As Traffic Areas:

The maximum lift for locations receiving paving or designated as traffic areas shall not exceed six inches. Regardless of the method, all compaction shall be 95% of the maximum dry density (Standard Proctor), in accordance with ASTM Specification Designation D698. Non-cohesive soils not applicable to Standard Proctor Density testing shall be compacted to 70% relative density as determined by ASTM 4253 & 4354.

C. Backfilling in Locations Not Receiving Paving Or Designated As Traffic Areas:

1. Unless shown otherwise on the Drawings, or described in the Special Construction Provisions, all backfill shall be carefully deposited into the trench on a slope angle equal to the repose of the material in maximum one foot lifts, and allowed to flow progressively forward in such a manner as to avoid impact on the pipe. The backfill shall be compacted in maximum one foot lifts.
2. Regardless of the method of compacting, all compaction under this classification of "Backfilling in Locations Not Receiving Paving Or Designated As Traffic Areas" shall be 85% of the maximum laboratory dry density (Standard Proctor), in accordance with ASTM Specification Designation D698. Non-cohesive soils not applicable to Standard Proctor Density testing shall be compacted to 60% relative density as determined by ASTM 4253 & 4354.

END OF SECTION

SECTION 02230 SUBGRADE PREPARATION FOR CURB, GUTTER, SIDEWALK AND STREET CONSTRUCTION

PART 1 GENERAL:

The work to be performed in accordance with the requirement of this Section consists of furnishing all material, equipment, supplies and accessories required, and of performing all labor required for subgrade for curb, gutter, sidewalk and street construction.

PART 2 DESCRIPTION:

The work of subgrade construction shall include adjusting grade lines to meet intersections, pavements, bridge ends, as required; railroad crossings or any other physical features; disposing of surplus excavated material, and such scarifying, drying, reshaping and compacting as is necessary to conform to the Plans and Specification requirements.

PART 3 CONSTRUCTION METHODS:

- 3.1 Areas to receive embankment and the top of cut areas shall first be stripped of all vegetation, organic material, all other materials that are unsuitable for use in embankment, and disposed of by the Contractor at his expense. Embankments shall be constructed in accordance with the Nebraska Department of Roads Standard Specification 205 for Class "II" Embankments or Wyoming Highway Department Specification Section 203 "Excavation and Embankment."
- 3.2 Within the limits of the embankment and cut area, and all other areas to receive asphalt or concrete pavement, curb and gutter, the subgrade shall be scarified to a depth of six (6) inches and the moisture content increased or reduced as necessary to bring the moisture to optimum. This scarified layer shall then be compacted. The remainder of the embankment volume shall then be constructed of suitable material at optimum moisture content and compacted in lifts not to exceed six (6) inches to the relative compaction specified. No direct payment will be made for water applied.
- 3.3 Fill material and the top six (6) inches in cut areas under paved areas shall be compacted to 95% Proctor Density at optimum moisture. Compacted subgrade ready to receive base material shall conform to the lines, grades and cross-section called for on the drawings. Subgrade is to be established by survey.

- 3.4 No curb, gutter, sidewalk, cross pan, base course or asphaltic concrete is to be placed on unstable, soft, spongy or frozen subgrade. Unstable, soft or yielding subgrade shall be scarified, aerated, moisture-adjusted and relayed to the compaction specified; or, if such relaying, moisture adjustment and compaction does not result in a stabilized subgrade, or if the depth of unstable material exceeds the specified 6-inch depth for normal subgrade preparation, then the subgrade material shall be excavated, removed and replaced with base course material as necessary to stabilize the subgrade, or as directed by the Engineer.
- 3.5 No additional payment shall be made for re-working of the subgrade to a depth of 6 inches, as specified herein, to obtain the proper compaction.
- 3.6 Additional payment for over-excavation of unstable subgrade, replacing with base course material, including compaction of base course material and other requirements stated in this Section, shall be made in accordance with the unit prices listed in the Bid. The unit price for this work shall also include the cost of removing and disposing of the unstable material.

PART 4 EQUIPMENT:

- 4.1 Compacting equipment and methods, which will consistently produce the compaction specified throughout the depth of the lifts, shall be used. Compacting equipment which will produce a smooth, glossy surface or produces detrimental laminations within the compacted lifts will not be permitted.

END OF SECTION

SECTION 02233 **BASE COURSE FOR CURB, GUTTER, SIDEWALK AND STREET CONSTRUCTION**

PART 1 **GENERAL:**

This Section shall govern all labor, material, equipment and services necessary for the construction of base courses composed of granular materials constructed on a prepared subgrade or underlying course, as specified on the Plans, or as directed in the field by the Engineer.

PART 2 **MATERIAL:**

- 2.1 The base material shall consist of hard durable particles or fragments of granular aggregates. This material will be mixed or blended with fine sand, clay, stone dust, or other similar binding or filler materials produced from approved sources. This mixture must be uniform and shall comply with the requirements of this Section as to gradation, soil constants, and shall be capable of being compacted into a dense and stable base. The material shall be free from vegetable matter, lumps, or excessive amounts of clay, and other objectionable or foreign substances. Pit-run material may be used, provided the material meets the requirements specified.

TABLE 2.1 - GRADATION REQUIREMENTS

Sieve Designation (Square Openings) As Per AASHTO T11 and T27		Percentage by Weight Passing Sieves
3-inch	100
No. 10	20 - 100
No. 40.	5 - 60
No. 200	0 - 15

- 2.2 The portion of the material passing the No. 40 sieve shall have a liquid limit of not more than 25 and a plasticity index of not more than 6 when tested in accordance with AASHTO T 89 and T 90. The maximum amount of material finer than 0.02 mm. in diameter shall be less than 3%.

PART 3 EQUIPMENT:

It shall be the Contractor's responsibility to provide adequate equipment to perform the necessary work described in this Section.

PART 4 PREPARATION OF MATERIALS:

- 4.1 When the entire base material is secured in a uniform and satisfactory condition and contains approximately the required moisture, such approved material may be moved directly to the spreading equipment for placing. The material may be obtained from gravel pits, stockpiles, or may be produced from a crushing and screening plant with the proper blending. The materials from these sources shall meet the requirements for gradation, quality, and consistency.
- 4.2 It is the intent of this Section to secure materials that will not require further mixing. The moisture content of the material shall be approximately that required to obtain maximum density. Any minor deficiency or excess of moisture may be corrected by surface sprinkling or by aeration. In such instances, some mixing or manipulation may be required, immediately preceding the rolling, to obtain the required moisture content. The final operation shall be blading or dragging, if necessary, to obtain a smooth uniform surface, true to line and grade.
- 4.3 When materials from several sources are to be blended and mixed, the material shall be processed in a central or travel mixing plant. The base material together with any blended material, shall be thoroughly mixed with the required amount of water. After the mixing is complete, the material shall be transported to and spread on the underlying course without undue loss of the moisture content.

PART 5 PLACING OF MATERIAL:

- 5.1 The base course shall be constructed in layers. Any layer shall not be less than 2 inches nor more than 8 inches of compacted thickness. The material, as spread, shall be of uniform gradation with no pockets of fine or coarse materials. The base, unless otherwise permitted by the Engineer, shall not be spread more than 2,000 square yards in advance of the rolling. Any necessary sprinkling shall be kept within this limit. No material shall be placed in snow or on a soft, muddy, or frozen course.

- 5.2 During the placing and spreading, sufficient caution shall be exercised to prevent the incorporation of subgrade, shoulder or foreign material in the base course mixture.

PART 6 FINISHING AND COMPACTING:

- 6.1 After spreading or mixing, the base material shall be thoroughly compacted by rolling and sprinkling, when necessary. Sufficient rollers shall be furnished to adequately handle the rate of placing and spreading of the base course.
- 6.2 Rolling shall progress gradually from the sides to the center of the lane under construction, or from one side toward previously placed material, by lapping uniformly each preceding track by at least 12 inches. The rolling shall continue until the material is thoroughly set and stable, and the base material has been compacted to not less than 98% of maximum density at optimum moisture. Blading and rolling shall be done alternately, as required or directed, to obtain a smooth, even, and uniformly compacted base.
- 6.3 The course shall not be rolled when the underlying course is soft or yielding or when the rolling causes undulation in the base. When the rolling develops irregularities that exceed ½ inch when tested with a 16-foot straightedge, the irregular surface shall be loosened and then refilled with the same kind of material as that used in constructing the course and again rolled as required above. Unstable subgrade material that is encountered shall be over-excavated and the over-excavation filled with the base course material and compacted, as directed by the Engineer.
- 6.4 Along places inaccessible to rollers, the base material shall be tamped thoroughly with mechanical or hand tampers.
- 6.5 Sprinkling during rolling, if necessary, shall be in the amount and by the equipment approved by the Engineer. Water shall not be added in such a manner or quantity that free water will reach the underlying layer and cause it to become soft.

PART 7 PROTECTION:

Work on base course shall not be conducted during freezing temperature nor when the subgrade is wet. When the base material contains frozen material or when the underlying course is frozen, the construction shall be stopped.

END OF SECTION

SECTION 02514 PORTLAND CEMENT CONCRETE PAVEMENT

PART 1 GENERAL:

The work to be performed in accordance with the requirements of this Section consists of furnishing all materials, equipment, supplies, and accessories required, and of performing all operations needed in connection with the construction of Concrete Pavement under this contract.

PART 2 MATERIAL:

Concrete for construction of pavement shall be as specified in Division 3 "Concrete". Concrete thickness shall be as indicated on the Drawings or as called for in the Bid/Proposal.

PART 3 EQUIPMENT:

All equipment, tools and machinery shall be adequate for the purpose for which it is to be used and in accordance with Nebraska Department of Roads Standard 601.02.

PART 4 FORMS:

4.1 General:

- A. Forms for concrete shall be used for all vertical surfaces, mortar type, true to required lines and grades, and of sufficient strength to maintain shape during the placing of the concrete and the finishing process without springing or settling.
- B. Forms may be of metal or seasoned shiplap lumber of a depth equivalent to the thickness of the work prescribed. Timber forms shall be two-inch (2"-nominal) surfaced plank; metal forms shall be approved section and shall have a flat surface on the top of not less than one and three-quarter inches (1 3/4").
- C. Forms shall be thoroughly cleaned of all dirt, mortar and foreign matter before being used. Forms shall be oiled prior to using.

- D. Unit lengths of forms shall be joined in advance of the point of placing concrete. Flexible, curved, or wood forms of the proper radii shall be used for curbs having a radius of less than two hundred (200') feet.
- E. Forms shall be equipped with not less than three (3) staking points per each ten feet (10') of length with means for securely locking the form to each stake. Flange braces and staking pockets shall extend outward on the base not less than two-thirds ($\frac{2}{3}$) of the height of the form.
- F. Forms that are bent, twisted, warped, broken, or forms that have battered or splintered top faces shall be removed from the job. Repaired forms shall not be used until they have been inspected and approved by the Engineer. The top face of a form shall not vary from a true plane by more than one-eighth inch ($\frac{1}{8}$ ") in ten feet (10') and the upstanding face shall not vary from a true plane by more than one-fourth inch ($\frac{1}{4}$ ") in ten feet (10').
- G. The building of pedestals of earth or other materials upon which to rest the forms in order to bring them to the grade will not be permitted. Sufficient forms shall be provided so that they may remain in place 12 hours or more after the concrete has been placed before it is necessary to move and reuse them.
- H. The alignment and grade of forms shall be checked and approved immediately before placing the concrete.

4.2 Removal of Forms:

Forms shall be removed within twenty-four (24) hours after the placement of concrete. After the forms have been removed, no honeycomb or minor defects will be acceptable and any concrete found to have such defects will be rejected by the Engineer, unless acceptable repairs are made.

PART 5 CONCRETE PLACEMENT:

Concrete shall be placed in accordance with Nebraska Department of Roads Standard.

PART 6 JOINTS:

6.1 Joints shall be in accordance with the detailed Drawings, in accordance with the typical concrete pavement joint detail drawing.

- A. Construction Joints
- B. Expansion Joints
- C. Contraction Joints
- D. Longitudinal Joints

Note: Saw cutting is to be completed within 12 hours after concrete has been placed.

6.2 Joint spacing shall be based on the following:

- A. Minimum 10'
- B. Standard: Spacing (in feet) = 2 X thickness of pavement (in inches)
- C. Maximum: Spacing (in feet) = 2.25 X thickness of pavement (in inches) never to exceed 16.5'
- D. Length: Width shall not exceed 1:1.5
- E. Expansion Joints shall placed at each end of radius at intersections and at a maximum of 150'.

6.3 Joint sealing filler shall be hot-poured "Hi-Spec" Hot-Applied Polymeric Sealant, as manufactured by W.R. Meadows, meeting the requirements of ASTM D 3405. Sealing shall be in accordance with Nebraska Department of Roads Standard 603.03, Item 8.

PART 7 FINISHING:

Finishing concrete shall generally be in accordance with Nebraska Department of Roads Standard 603.03, Item 6.

PART 8 SURFACE TESTS:

- 8.1 The finished surface of the pavement shall be within the tolerance of the following surface trueness test:
- A. The pavement shall be tested for trueness in each wheel lane at the expiration of the required curing or protection period.
 - B. The surface shall be tested by means of a 10-foot straightedge or other device for measuring deviations from a plane, placed parallel to the centerline of the pavement, parallel to the grade line and touching the surface.
 - C. Surface variations of the pavement measured from the base of the straightedge to the surface of the pavement shall not exceed 1/8-inch. Surface variations which exceed 1/4-inch up to and including 1/2-inch in 10 feet may be removed by an approved grinding tool or a device consisting of multiple saws; or be left as is and the contract payment reduced 15% per each pavement section containing such variation.
- 8.2 Areas which vary from the true surface by more than 1/2-inch shall be removed and replaced with pavement of the required quality and smoothness at the entire expense of the Contractor. When it is necessary to remove the pavement to eliminate surface variations, the sections removed shall be full lane width or the total width between longitudinal joints of the pavement, and shall be not less than ten (10) feet in length.

PART 9 CURING AND PROTECTION:

The concrete shall be protected and cured as outlined in Section 03370 "Concrete Curing".

PART 10 INTEGRAL CURB:

- 10.1 Integral curb, when specified, shall be constructed on the edge of the concrete slab in accordance with the drawings and typical cross sections. This curb shall be placed simultaneously with the concrete pavement.

- 10.2 The concrete for integral curb shall be of the same mixture design as used in the concrete slab. All contraction or expansion joints in the pavement shall be continuous through the integral curb.
- 10.3 Direct payment will not be made for the integral curb but shall be considered as subsidiary work pertaining to concrete pavement, unless otherwise provided for in the Bid/Proposal.

PART 11 PAVEMENT THICKNESS:

It is the intent that the pavement shall be constructed to the minimum thickness as shown on the drawings.

- 11.1 The thickness of the pavement shall be determined by average caliper measurement of cores.
- 11.2 For the purpose of establishing an adjusted unit price for pavement, units shall be considered for each 1,000 square yards of pavement. One core shall be taken at random by the Engineer in each unit. When the measurement of the core from a unit is not deficient more than 0.1 inch from the specified thickness, full payment will be made. If core is deficient in thickness by more than 0.10 inch but not more 1.0 inch from the specified thickness, two additional cores shall be taken from the area represented and the average of the three cores determined. If the average measurement of these three cores is not deficient more than 0.1 inch from the specified thickness, full payment will be made. If the thickness of the three cores is deficient more than 0.1 inch but not more than 1.0 inch from the specified thickness, an adjusted unit price, as provided, will be paid for the area represented by these cores.
- 11.3 In calculating the average thickness of the pavement, measurements which are in excess of the specified thickness by more than 0.2 inch shall be considered as the specified thickness plus 0.2 inch, and measurements which are less than the specified thickness by more than 1.0 inch shall not be included in the average.
- 11.4 When the measurement of any core is less than the specified thickness by more than 1.0 inch, the actual thickness of the pavement in this area shall be determined by taking additional cores at not less than 10-foot intervals parallel to the centerline in each direction from the affected location, until in each direction a core is found which is not deficient by more than 1.0 inch.

Areas found deficient in thickness by more than 1.0 inch shall be evaluated by the Engineer and, if in his judgment, the deficient areas warrant removal, they shall be removed and replaced with concrete of the thickness shown on the drawings. Exploratory cores for deficient thickness will not be used in averages for adjusted unit price.

- 11.5 No additional payment shall be made for any pavement which has an average thickness in excess of that shown on the drawings.

CONCRETE PAVEMENT DEFICIENCY

<u>Deficiency in Thickness Determined by Cores (Inches)</u>	<u>Proportional Part of Contract Price Allowed (Percent)</u>
0.00 to 0.10	100
0.11 to 0.25	85
0.26 to 0.50	75
0.51 to 0.75	60
0.76 to 1.00	50

- 11.6 When the thickness of pavement is deficient by more than 1 inch and in the judgment of the Engineer, the area of such deficiency should not be removed and replaced, there shall be no payment for the area retained.

PART 12 PREPARATION OF SUB-GRADE:

See Section 02230 "Subgrade Preparation for Curb, Gutter, Sidewalk, and Street Construction".

PART 13 MEASUREMENT:

The quantity to be paid for shall be the actual superficial exposed surface area, complete in place and accepted and adjusted for any deficiencies in thickness.

END OF SECTION

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SECTION 02525 COMBINATION CONCRETE CURB AND GUTTER

PART 1 SCOPE OF WORK:

This Section shall govern all labor, material, equipment, and services necessary for construction of concrete combination curbs and gutters to be constructed within street rights-of-way.

PART 2 GENERAL:

The curb and gutter profile shall be as indicated on the Detailed Drawings.

PART 3 MATERIAL:

Concrete for construction of combination curb and gutter shall be specified in Division 3 "Concrete".

PART 4 EXPANSION JOINT MATERIALS:

Expansion joints shall be constructed with preformed expansion joint filler, conforming to ASTM D 994, D 1751 and D 1752 and placed at curb returns (3/4" thick) and between attached sidewalks (1/2" thick). Expansion joint filler shall be installed around or between any fixed structure (i.e. manholes, utility poles, buildings, etc.) and shall extend the full depth of the concrete. Expansion joints shall be installed at other locations as directed by the Engineer. Expansion joints shall extend to the full depth of the curb section. Joints shall be edged to form a minimum radius of 1/4 inch. The Contractor shall provide to the Engineer a detail of all joints prior to placement of concrete.

PART 5 JOINT SEALING MATERIAL:

Joint sealing filler shall be hot-poured "Hi-Spec" Hot-Applied Polymeric Sealant, as manufactured by W.R. Meadows, meeting the requirements of ASTM D 3405.

PART 6 CONTRACTION JOINTS:

- 6.1 Contraction joints shall be installed at a maximum of every 6 feet and shall extend into the concrete for at least 1/3 of the depth and shall be approximately 1/8-inch wide.

- 6.2 Curb returns shall be divided into sections as indicated on the attached Detail Drawings and at other locations as directed by the Engineer. The jointing or other acceptable means shall form a minimum radius of 1/4 inch.

PART 7 FORMS:

7.1 General:

- A. Forms for concrete shall be used for all vertical surfaces, mortar type, true to required lines and grades, and of sufficient strength to maintain shape during the placing of the concrete and the mechanical finishing without springing or settling.
- B. Forms may be of metal or seasoned shiplap lumber of a depth equivalent to the thickness of the work prescribed. Timber forms shall be two-inch (2" nominal) surfaced plank; metal forms shall be approved section and shall have a flat surface on the top of not less than one and three-quarter inches (1 3/4").
- C. Forms shall be thoroughly cleaned of all dirt, mortar and foreign matter before being used. Forms shall be oiled prior to using.
- D. Unit lengths of forms shall be joined in advance of the point of placing concrete. Flexible, curved, or wood forms of the proper radii shall be used for curbs having a radius of less than two hundred (200') feet.
- E. Forms shall be equipped with not less than three (3) staking points per each ten feet (10') of length with means for securely locking the form to each stake. Flange braces and staking pockets shall extend outward on the base not less than two-thirds (2/3) of the height of the form.
- F. Forms that are bent, twisted, warped, broken, or forms that have battered or splintered top faces shall be removed from the job. Repaired forms shall not be used until they have been inspected and approved by the Engineer. The top face of a form shall not vary from a true plane by more than one-eighth inch (1/8") in ten feet (10') and the upstanding face shall not vary from a true plane by more than one-fourth inch (1/4") in ten feet (10').

- G. The building of pedestals of earth or other materials upon which to rest the forms in order to bring them to the grade will not be permitted. Sufficient forms shall be provided so that they may remain in place 12 hours or more after the concrete has been placed before it is necessary to move and reuse them.
- H. The alignment and grade of forms shall be checked and approved immediately before placing the concrete.

7.2 Removal of Forms:

Forms shall be removed within twenty-four (24) hours after the placement of concrete. After the forms have been removed, no honeycomb or minor defects will be acceptable and any concrete found to have such defects will be rejected by the Engineer, unless acceptable repairs are made.

PART 8 PREPARATION OF SUBGRADE:

Reference Section 02230 "Subgrade for Curb, Gutter, Sidewalk and Street Construction".

PART 9 PLACEMENT AND FINISH:

- 9.1 The concrete shall be placed in forms and consolidated by vibration or hand tamping so that there will be no air spaces in the mass. The combination curb and gutter shall be brought to proper surface by running a straightedge over the steel templates with a sawing motion so as to fill all holes and depressions. Immediately after using the straightedge, the surface shall be floated with a wood float to draw the mortar to the surface and edged with an approved edger.
- 9.2 Just before the concrete takes its initial set, the surface shall be brushed with a soft bristle brush so as to remove all trowel marks and leave a uniform appearance. Brushing shall be at right angles to the curb line. No more concrete shall be poured in one day than can be finished before dark the same day. No concrete that has begun to set shall be deposited in the forms.

- 9.3 No concrete shall be placed if there is not enough to completely fill one complete 6 -foot curb and gutter section. No concrete shall be deposited adjacent to concrete that has already taken its initial set (90 minutes or older), unless the specified construction or expansion joint is provided.
- 9.4 Curb placed by mechanical curb and gutter machines shall be troweled with a steel trowel to a smooth, uniform surface. Just prior to the initial set of the concrete, the surface shall be brushed with a soft brush so as to remove all trowel marks and to leave a uniform appearance.

PART 10 FINISHED WORK:

The work shall be performed in a manner which results in a curb and gutter constructed to specified line and grade and uniform in appearance and structurally sound. Curbs found with unsightly bulges, ridges, low spots in the gutter or other defects shall be removed and replaced at the Contractor's expense, if the Engineer considers them to be irreparable. When checked with a ten (10) foot straightedge, grade shall not deviate more than 1/8 inch and alignment shall not vary more than 1/4 inch. Areas which vary from the true plane by more than 1/2 inch shall be removed and replaced at the entire expense of the Contractor.

PART 11 CURING AND PROTECTION:

The concrete shall be protected and cured as specified in Division 3 "Concrete".

PART 12 BACKFILLING:

Backfilling adjacent to curb & gutter and placement of asphaltic or concrete paving shall be accomplished no sooner than 7 days after construction of the combination concrete curb & gutter.

PART 13 MEASUREMENT:

Curb and gutter will be measured in lineal feet.

END OF SECTION

SECTION 02527 CROSSPANS

PART 1 SCOPE OF WORK:

The work to be performed in accordance with the requirements of this Section consists of furnishing all materials, equipment, supplies, and accessories required, and of performing all operations needed in connection with the construction of Concrete Crosspans under this contract.

PART 2 MATERIALS:

Concrete used for construction of crosspans shall conform to Division 3 "Concrete".

PART 3 DIMENSIONS:

Crosspan basins shall be eight (8) feet wide with a minimum thickness of six (6) inches. The crosspan shall be sloped from each longitudinal edge toward the middle at a maximum slope of ¼-inch per foot.

PART 4 REINFORCEMENT:

Reinforcement for crosspans shall be steel mesh; 6 x 6 -W2.9 x W2.9 (steel area 0.06 sq.in. longitudinal and transverse) and shall be located two (2) inches above the bottom of the crosspan.

PART 5 JOINTS:

- 5.1 Expansion joints shall be ½ inch premolded and placed completely through the section at 50 foot intervals and at curb returns. ½ inch smooth steel dowels with sleeves or caps at 2 foot centers shall be placed at each expansion joint.
- 5.2 Contraction joints shall be placed to match transverse concrete street joints, or at a maximum spacing of 15 feet if not otherwise indicated on the drawings.

PART 6 JOINT SEALING MATERIAL:

Joint sealing filler shall be hot-poured "Seal-Tight Hi-Spec Polymeric Joint Sealing Compound", as manufactured by W.R. Meadows, meeting the requirements of ASTM D 3405.

PART 7 PLACEMENT AND FINISH:

The concrete shall be placed in the forms and thoroughly vibrated, spaded or tamped so that there will be no air spaces in the mass. Crosspans shall be brought to proper surface by wood floating to fill all holes and depressions. Just before the concrete takes its initial set, the surface shall be brushed with a soft bristle brush to remove all trowel marks and to leave a uniform appearance. Brushing shall be parallel to the centerline of the crosspan.

PART 8 CURING AND PROTECTION:

The concrete shall be protected and cured as specified in Division 3 "Concrete".

PART 9 MEASUREMENT:

The quantity to be paid for shall be the actual superficial exposed surface area, complete in place and accepted.

END OF SECTION

SECTION 02616 PIPELINE MATERIALS - CORRUGATED POLYETHYLENE PIPE

PART 1 SCOPE OF WORK:

This Section covers corrugated polyethylene pipe. It is the intention of this Specification for the Contractor to furnish all equipment and labor to perform the construction activities described following:

PART 2 MATERIALS:

- 2.1 The 4 to 60-inch pipe shall have a smooth interior and annular exterior corrugations shall meet the requirements of ASTM F2648 and shall be watertight according to the requirements of ASTM D3212.
- 2.2 Material for pipe production shall be an engineered compound of virgin and recycled high-density polyethylene conforming with the minimum requirements of cell classification, as defined and described in the latest version of ASTM D3350, except that carbon black content should not exceed 4%.
- 2.3 Pipe shall be joined using a bell & spigot joint meeting ASTM F2648. The joint shall be soil-tight and gaskets shall be made of polyisoprene meeting the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris.
- 2.4 Fittings shall conform to ASTM F 2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the watertight joint performance requirements of ASTM F 2306. Fittings shall be furnished according to the size and gauge designated on the plans or in the Special Construction Provisions.
- 2.5 Virgin material for the corrugated polyethylene pipe shall be high-density polyethylene conforming with the minimum requirements as defined in ASTM D3350.
- 2.6 The pipe shall be similar and equal to ADS N-12 WT IB pipe.

PART 3 INSTALLATION:

Installation shall be in accordance with: Section 02723 – Storm Sewer Pipeline Installation; manufacturer's published installation guidelines; and ASTM D2321.

END OF SECTION

SECTION 02721 STORM DRAINAGE INLETS (CONCRETE)

PART 1 SCOPE OF WORK:

This Section shall govern the construction of storm drainage inlets. Inlets shall be located as shown on the Drawings, or as directed in the field by the Engineer. Detailed requirements for the construction and installation of inlets are shown on the Drawings, on the detail drawings and as specified following. Submittals shall be required for a grates and frames specified herein.

PART 2 INLET CONSTRUCTION:

- 2.1 The contractor may elect to construct inlets in accordance with one of the following methods.
 - A. Monolith pre-cast inlet.
 - B. Pre-cast base with poured-in-place or solid block walls.
 - C. Poured-in-place base with poured-in-place or solid block walls.
- 2.2 Inlets shall be constructed of pipe or concrete with smoothed to rounded even surfaces from invert to pipe spring line, thoroughly cleaned and free from any accumulation of silt, debris, or foreign matter at the time of final inspection.
- 2.3 Pre-cast bases shall be 4-inches thick, reinforced with W2.9 x W2.9 6x6 wire mesh. Poured-in-place bases shall be 4-inches thick with a thickened edge of 5-6 inches. Poured-in-place bases may be formed with 2x6 exterior forms and poured directly on the soil.
- 2.4 Solid block shall be laid in a full bed of mortar. Block and/or pre-cast sections shall be laid in a full bed of mortar in order to accurately install castings to grade.

PART 3 MATERIALS:

3.1 Concrete:

All concrete shall meet the requirements of Division 3, "Concrete". Inlet brick shall be solid, and shall conform to the requirements of ASTM.

3.2 Concrete Mortar:

Mortar shall be composed of one (1) part type II cement to two (2) parts sand, thoroughly mixed dry and then having only that amount of water added and mixed to form a paste of workable consistency. Mortar shall be freshly made and used within 2 1/2 hours of initial mixing: no mortar or grout will be used after it has begun to set.

3.3 Inlet Grate and Frame:

Inlet grates and frames shall be grey cast iron conforming to ASTM Designation A-48, free from cracks, holes, swells, cold joints, and having a smooth workmanlike finish. Frames shall be set in a full bed of mortar. Grates and frames shall be manufactured by Deeter Foundry or Neenah Foundry and shall be as indicated on detail drawings

END OF SECTION

SECTION 02732 SEWER PIPELINE INSTALLATION

PART 1 GENERAL:

The work to be performed in accordance with the requirements of this Section consists of furnishing all material, equipment, supplies, and accessories required, and of performing all labor required for installation of sewer pipelines under this Contract.

PART 2 HANDLING OF MATERIAL:

- 2.1 Hoists or skidways shall be used for loading and unloading pipe, fittings, manhole rings, manhole frames and covers and all other accessories so as to prevent damage of these items. Under no circumstances shall any material be dropped. Material skidded or rolled from a vehicle shall not be rolled against pipe or fittings already on the ground.
- 2.2 Pipe and fittings shall be handled so that the coating and lining will not be damaged. If, however, any part of the coating or lining is damaged, repair or replacement shall be by the Contractor at his expense in a manner satisfactory to the Engineer.
- 2.3 In distributing the material at the site of the work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench.

PART 3 INSTALLATION OF SEWER PIPE:

- 3.1 PVC sewer pipe shall be installed in accordance with manufacturer's pipe installation guide, and/or in conformance with ANSI/ASTM D2321 "Underground Installation of Flexible Thermoplastic Sewer Pipe".
- 3.2 Pipe laying shall proceed with the bell end facing in the direction of laying, which shall proceed upgrade.
- 3.3 Pipe joints shall not be deflected.
- 3.4 Each joint bell and spigot shall be thoroughly cleaned and the spigot end lubricated using the manufacturer-supplied lubricant.
- 3.5 All pipe and fittings shall be carefully examined for cracks and other defects when suspended above the trench, immediately before installation.

- 3.6 Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade.
- 3.7 Under no condition shall pipe fittings be dropped into the trench.
- 3.8 At times when pipe laying is not in progress, the open ends of pipe shall be closed by watertight plug.
- 3.9 The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or linings, and so as to leave a smooth end at right angles to the axis of the pipe.
- 3.10 Jointing of Push-On Joints:
- A. The inside of the bell and the outside of the spigot end shall be thoroughly cleaned as described above. The circular rubber gasket shall be flexed inward and inserted in the gasket recess of the bell socket pointing inside the pipe so it will spring into its proper place inside the pipe bell. A thin film of gasket lubricant shall be applied to the inside surface of the gasket over its entire exposed surface. The spigot end of the pipe socket shall then be wiped clean and entered into the socket to contact the gasket, with care used to keep the joint from contacting the ground.
- The pipe shall then be forced all the way into the bell by crow-bar, or by jack and choker slings without damaging the pipe.
- B. Pipe that is not furnished with a depth mark shall be so marked before assembly. Field-cut pipe lengths shall be filed or ground to form a spigot end such as manufactured.

PART 4 PIPE CONNECTIONS BETWEEN DIFFERENT PIPELINE MATERIALS:

The joint between pipe of varying materials, or special installations not able to provide bell and spigot ends, shall be accomplished using BAND-SEAL or CALDER couplings with stainless steel clamps, or approved equal as indicated on Detail Drawing No. 02732-1.

PART 5 SERVICE CONNECTIONS:

The connection between newly constructed sewer mains and service connections shall be made using a wye fitting. Service wye saddles will not be accepted on new installations. Reference Detail Drawings.

PART 6 CLEANOUTS:

The installation of cleanouts shall be as indicated on Detail Drawings.

PART 7 EXISTING MANHOLES AND NEW SEWER PIPELINES:

An expansive grout shall be used to make a watertight seal between an existing manhole wall and any new pipe that is installed. An expansive grout shall also be used for smoothing enlarged or irregular bottomed channels in existing manholes. Metallic grouts will not be acceptable. Grouting shall be installed in strict accordance with the manufacturer's recommendations.

PART 8 FLUSHING AND TESTING SEWER PIPELINES:

8.1 Pipeline Flushing:

The pipeline shall be flushed in accordance with good practice, as the work progresses, to insure that all foreign materials are removed from the pipeline interior.

8.2 Deflection Test:

- A. The Engineer will inspect the sewer pipeline for any displacement of the pipeline after the trench backfill has been in place for at least 30 days. A rigid ball or mandrel, with a diameter equal to 95% of the inside diameter of the pipe, shall be passed through the pipe.

Pipe Size (Nominal) <u>Inches</u>	Rigid Ball/Mandrel Diameter <u>Inches</u>
6	5.62
8	7.52
10	9.41
12	11.19
18	16.75
21	19.74

- B. Failure of the ball or mandrel to successfully pass through the pipe shall constitute failure of the deflection test. Any sections of the pipe found to be deformed shall be replaced at no cost to the OWNER. No mechanical pulling devices may be used in the test.

8.3 Leakage:

- A. The Contractor shall conduct tests for water-tightness in the presence of the Engineer. Leakage of the sewer pipe and connections shall not exceed 100 gallons per inch of pipe diameter per mile for a 24 hour test period:

<u>Pipe Size, Inches</u>	<u>Allowable Exfiltration/Infiltration in gal/ft. of Sewer/24 Hours</u>
6	0.11
8	0.15
10	0.19
12	0.23
15	0.28
18	0.34
21	0.40
24	0.45

- B. The Engineer may reduce the test time to 4 hours with adjustments made to the above figures.
- C. Pipelines that fail to meet the leakage test requirements shall be repaired and re-tested by the Contractor until satisfactory tightness is obtained.
- D. Infiltration testing will only be allowed if the groundwater table is one foot or more above the top of the sewer pipeline; otherwise, exfiltration tests shall be used.
- E. The head for exfiltration tests shall be at least two feet above the top of the pipe at its highest point in the test section; however, total head on any test section shall not exceed 10 feet.

8.4 Alignment Test:

Straight alignment shall be checked by using either a lamp or laser beam between all manholes. This test may be performed at any time following final backfill.

PART 9 ALTERNATE LOW PRESSURE AIR TEST FOR EXFILTRATION:

9.1 At the Contractor's option, the sanitary sewer lines may be tested by the low pressure air method. All testing shall be done in accordance with ASTM F-1417.

9.2 Preparation of the Sewer Line:

- A. Flush and clean the sewer line prior to testing and plug all pipe outlets to resist the test pressure.
- B. Determine the test duration for the section being tested from the air test table (Table 02732-1) listed following. The pressure holding time shall be based on an average holding pressure of 3 psig (21 kPa) or a drop from 3.5 psig (24 kPa) to 2.5 psig (17 kPa).
- C. Add air until the internal air pressure of the sewer line is raised to approximately 4.0 psig (28 kPa). After an internal pressure of approximately 4.0 psig is obtained, allow time for the air pressure to stabilize.
- D. When the pressure has stabilized and is at or above the starting test pressure of 3.5 psig (24kPa), commence the test. Before starting the test, the pressure may be allowed to drop to 3.5 psig. Record the drop in pressure for the test period. A pressure drop of more than 1.0 psig (7kPa) during the test period shall constitute a failure. The test may be discontinued when the prescribed test time has been completed even if the 1.0 psig pressure drop has not occurred.

TABLE 02732-1

AIR TEST TABLE

(Based on Equations from ASTM F 1417)

Specification time (min:sec) required for
pressure drop from 3 1/2 to 2 1/2 psig

L.F. Pipe	Pipe Diameter - Inches								
	4	6	8	10	12	15	18	21	24
25	3:46	5:40	7:34	9:26	11:20	14:10	17:00	19:50	22:40
50	3:46	5:40	7:34	9:26	11:20	14:10	17:00	19:50	22:40
75	3:46	5:40	7:34	9:26	11:20	14:10	17:00	19:50	22:40
100	3:46	5:40	7:34	9:26	11:20	14:10	17:00	19:50	22:47
125	3:46	5:40	7:34	9:26	11:20	14:10	17:00	21:49	28:29
150	3:46	5:40	7:34	9:26	11:20	14:10	19:13	26:10	34:11
175	3:46	5:40	7:34	9:26	11:20	15:35	22:26	30:32	39:53
200	3:46	5:40	7:34	9:26	11:24	17:48	25:38	34:54	45:34
225	3:46	5:40	7:34	9:26	12:49	20:02	28:50	39:15	51:16
250	3:46	5:40	7:34	9:53	12:15	22:16	32:03	43:37	56:58
275	3:46	5:40	7:34	10:53	15:40	24:29	35:15	47:59	62:40
300	3:46	5:40	7:36	11:52	17:05	26:42	38:27	52:21	68:22
325	3:46	5:40	8:14	12:52	18:30	28:56	41:40	56:43	74:04
350	3:46	5:40	8:52	13:51	19:56	31:09	44:52	61:04	79:46
375	3:46	5:40	9:30	14:50	21:22	33:23	48:05	65:26	85:27
400	3:46	5:42	10:08	15:49	22:47	35:36	51:16	69:48	91:10

END OF SECTION

SECTION 03100 CONCRETE FORMWORK:

PART 1 INSTALLATION OF FORMS:

Forms shall be free of surface defects and shall conform to the lines, grades and shapes as shown on the Drawings. The forms shall be joined together sufficiently tight to prevent leakage and so that they maintain the intended shape. Snap ties shall be used. Holes resulting from snapping ties shall be grouted for a flush, smooth concrete surface. Plywood or steel, oiled with a nonstaining oil shall be used for exposed concrete.

PART 2 REMOVAL OF FORMS:

The forms shall not be removed until the concrete has developed sufficient strength to safely support its weight and the load thereon. The Contractor shall be responsible for the determination of sufficient strength for form removal. Any concrete damaged by premature form removal shall be replaced by the Contractor without additional cost to the Owner.

END OF SECTION

SECTION 03310 STRUCTURAL CONCRETE

PART 1 MATERIALS:

1.1 Cement:

All cement used under this Contract shall be Type 1PF, 1PN, I/II, Portland cement.

Mixes with Type 1PF and 1PN are pre-blended or interground with Class F fly ash or Class N Pozzolan by the cement mill producer at a rate of 25%±2%, no additional Class F fly ash or Class N Pozzolan is added at the batch plant. Lithium Nitrate may be used in place of Class F fly ash or Class N Pozzolan.

Type 1PF or 1PN shall be a Type 1P made exclusively with Class "F" fly ash or Class N as the pozzolan. Type 1P cement shall conform to the requirements as prescribed in ASTM C 595 and the following requirements:

- a. The fly ash or pozzolan content shall be 25±2 percent of the cementitious materials by weight.
- b. The material shall be Class F fly ash or Class N pozzolan.
- c. Additional fly ash substitution shall not be allowed with Type 1P cement containing Class F fly ash or Class N pozzolan.

1.2 Aggregates:

The quality of Concrete aggregates shall be in accordance with ASTM C33. The grading of Concrete aggregates shall be in accordance with Section 03313, Part 3, Item 2.2.

1.3 Water:

Water used in mixing of concrete shall be clean water, free from oil, acids, alkali or organic material.

PART 2 STORAGE OF MATERIALS:

2.1 Cement:

Storage of cement shall be such that deterioration and contamination will be avoided. Caked, partially set, contaminated or damaged cement shall be rejected.

2.2 Aggregates:

Gradation and cleanliness of the aggregates shall be preserved through proper storage.

PART 3 QUALITY:

3.1 Compressive Strength:

All concrete shall develop the minimum compressive strengths at 28 days as indicated in Section 03313.

3.2 Concrete Admixtures:

A. Calcium Chloride:

Due to its effect on shrinkage and its susceptibility to sulfate attack, calcium chloride shall not be used without written permission from the Engineer.

3.3 Slump:

Concrete slump shall be as required in Section 03313 (Concrete Mix Design).

3.4 Batching:

Batching shall be conducted so that the weight of each material required is within a tolerance of 1% for cement and 2% for aggregates. Water may be measured either by volume or by weight. The accuracy of measuring the water shall be within 1% of required amounts.

Detailed batch tickets shall be submitted with each truck giving an itemized listing of the actual mix proportions for that truck.

3.5 Time of Haul:

Concrete transported in truck mixers or truck agitators shall be delivered to the work site and completely discharged within a period of ninety (90) minutes after the cement comes in contact with the mixing water or with the combined aggregates when the combined aggregates contain free moisture in excess of 2% by weight.

3.6 Production and Delivery:

- A. The production and delivery of ready-mixed concrete shall be such that placing and finishing shall be continuous insofar as the operations require.
- B. When an increase in the water-cement ratio is required, the concrete frame shall be rotated at a rate of 20 RPM for not less than three (3) minutes after the water has been added.

END OF SECTION

SECTION 03311 CONCRETE MIXING, MOVING AND TESTING

PART 1 MIXING OF CONCRETE:

- 1.1 All mixing equipment shall be clean before mixing concrete and each batch shall be completely discharged before the mixer is re-charged. The concrete shall be mixed until the materials are uniformly distributed throughout.
- 1.2 Ready-mixed concrete shall conform to ASTM Specifications for mixing and delivering ready-mixed concrete (C 94).

PART 2 PLACING OF CONCRETE:

- 2.1 Each section to be poured shall be concreted as one continuous operation. The concreting shall be carried out at a rate which keeps the concrete plastic. Concrete that is partially hardened or that contains foreign material shall not be used. Surfaces upon which concrete is to be placed shall be moistened prior to placing concrete.
- 2.2 All concrete shall be consolidated by vibration, spading or rodding to eliminate air or stone pockets which may cause honey-combing or planes of weakness.
- 2.3 Construction, contraction and expansion joints shall be in accordance with the Specifications, as shown on the Drawings or as directed by the Engineer. If joints are required, but not specified or shown on the Drawings, the joints shall be located as to least impair the strength of the structure.

PART 3 CONCRETE TESTING:

- 3.1 The Engineer may secure concrete for compression tests at any time during the progress of work. The test specimens shall be cured in accordance with ASTM Standard Method of Making and Curing Concrete Compression and Flexure Test Specimens (C31). The specimens will be cured under laboratory conditions unless the Engineer deems it necessary to cure additional specimens under job conditions.
- 3.2 All concrete that fails to conform to Specifications shall be removed and replaced by the Contractor at no additional cost to the Owner.

END OF SECTION

SECTION 03313 CONCRETE MIX DESIGN

PART 1 GENERAL:

The Contractor shall submit the proposed concrete mix design to the Engineer in writing prior to the placement of any concrete.

PART 2 MIX DESIGN:

2.1 Structural, Pavement (Exterior *and* Interior), Pathways/Trails, and Curb & Gutter Concrete, 3,500 psi

- A. The concrete mix, including aggregate gradations and testing requirements, shall meet the following proportions:

Type of Cement	1PF/1PN
Lbs of Cement/Fly Ash or Pozzolan	423/141
Lbs. of Cementitious Material per Cubic Yard (Min.)	564
Water/Cement Ratio (Max.)	0.48
Air-Entrainment	6.0% - 8.5% 7.5% - 10.0% (slip forming)
Total lbs Aggregates	2850 min./3150 max.
Ratio of Coarse Aggregate to Total Aggregate	30% ±3%
Type of Coarse Aggregate	Crushed Limestone
Slump in Inches (Max.)	3

B. Aggregate Gradations:

1. Fine Aggregate:

<u>% Passing</u>	<u>Target</u>	<u>Tolerance</u>
1-inch Sieve	100	None
3/8-inch Sieve	—	—
No. 4 Sieve	87	±10
No.10 Sieve	60	±10
No.30 Sieve	28	±12
No.200 Sieve	1.5	±1.5

2. Coarse Aggregate:

<u>% Passing</u>	<u>Target</u>	<u>Tolerance</u>
1½-inch Sieve	100	—
1-inch Sieve	100	-8
¾-inch Sieve	78	±12
½ inch Sieve	—	—
3/8-inch Sieve	30	±15
No. 4 Sieve	6	±6
No. 10 Sieve	—	—
No. 20 Sieve	2 *	±2
No. 200 Sieve	1.5	±1.5

* The percent passing may be increased to 3 ±3 provided no more than 1.5% is passing the No. 200 sieve when washed.

2.2 Interior and Exterior Non-Pavement Flatwork Concrete, 3,500 psi

- A. The concrete mix, including aggregate gradations and testing requirements, shall meet the following proportions:

Type of Cement	1PF/1PN
Lbs of Cement/Fly Ash or Pozzolan	423/141
Lbs. of Cementitious Material per Cubic Yard (Min.)	564
Water/Cement Ratio (Max.)	0.48
Air-Entrainment	6.0% - 8.5%
Total lbs Aggregates	2850 min./3150 max.
Type of Aggregate	Sand-Gravel
Slump in Inches (Max.)	3

- B. Aggregate Gradations:

<u>% Passing</u>	<u>Target</u>	<u>Tolerance</u>
1-inch Sieve	100	—
3/8-inch Sieve	—	—
No. 4 Sieve	66	±22
No.10 Sieve	37	±13
No.30 Sieve	12	±8
No.200 Sieve	1.5	±1.5

2.3 Flowable Fill :

- A. The approximate quantities of each component per cubic yard of mixed material shall be as follows:

Cement (Type I or II)	50 lbs.
Fly Ash	200 lbs.
Fine Sand	2,700 lbs.
Water (Approximate)	420 lbs.
Air Content (Approximate)	10%

- B. Fine Sand Gradation:

No. 4 Sieve	At least 95% passing
No. 200 Sieve	Not more than 5% passing

END OF SECTION

SECTION 03370 CONCRETE CURING

PART 1 GENERAL:

All concrete shall be cured for a period of 7 days. Concrete shall be kept moist for at least 5 days after placement. Curing shall be accomplished by methods approved by the Engineer.

PART 2 CURING COMPOUNDS:

- 2.1 If curing compounds are used, they shall be thoroughly agitated during use and shall be uniformly sprayed in a single coat. Application shall be at a rate of 150 square feet per gallon of compound. Application shall be made as soon as all surface water sheen has disappeared from the concrete surface. If concrete surfaces become partially dry, they shall be thoroughly moistened with water immediately prior to the application of the compound. Under no circumstances shall curing compound be used on surfaces to which new concrete is to be bonded.
- 2.2 Transparent curing compounds shall conform to AASHTO M 148 Type 2, or Federal Specification TT C-800 Type 2 and meet the following requirements:
 - A. The compound shall be sufficiently transparent and free from permanent color to result in no pronounced change in color from that of the natural concrete at the conclusion of the curing period. The compound shall, however, contain a dye of color strength sufficient to render the film distinctly visible on the concrete for a period of at least four hours after application.
 - B. If at any time during the curing period any of the forms are removed, a coat of curing compound shall be applied immediately to the exposed surface.

PART 3 PROTECTION IN COLD AND FREEZING WEATHER.

- 3.1 In cold weather, concrete shall be mixed and placed only when the temperature is at least 40 degrees Fahrenheit. When the temperature may be expected to drop below 40°F during the curing period, suitable means shall be provided for mixing and maintaining the concrete at a minimum temperature of 50 degrees Fahrenheit for 7 days after placement. Adequate equipment shall be provided for heating the concrete materials and protecting the concrete during freezing or near freezing weather. Under no circumstances shall frozen materials or materials containing ice be used for the preparation of concrete. Salt, chemicals or other foreign materials shall not be mixed with the concrete for the purpose of preventing freezing. All materials, reinforcement, forms, fillers and ground which the concrete is to come in contact with shall be free from frost.
- 3.2 The housing, covering or other protection used in connection with curing shall remain in place and intact for at least 48 hours after the artificial heating is discontinued.
- 3.3 The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather and any concrete injured by frost action shall be removed and replaced at the Contractor's expense.

END OF SECTION

SECTION 03480 MANHOLES

PART 1 GENERAL:

This Section shall govern the construction of concrete manholes. Manholes shall be located and constructed to a depth as shown on the Drawings. Additional requirements for the construction and installation of manholes are shown on the Detail Drawings found at the end of this Section.

PART 2 MATERIALS:

- 2.1 Manholes shall be constructed of precast concrete and shall conform to ASTM Specification C-478. 48-inch diameter manholes shall have a wall thickness of 5-inches.
- 2.2 Cement mortar when required, shall consist of one part Portland Cement, Type II, or better, and three parts sand.
- 2.3 Manhole step, when required, shall be similar and equal to American Step Company NO. ML-13-NCR. Each step shall be a minimum of 13-inches wide and have a slip-proof tread and be steel reinforced copolymer polypropylene construction.
- 2.4 Manhole ring and covers shall be cast iron and shall be similar and equal to Deeter No. 1030 or Neenah No. R-1595-A.
- 2.5 Elastomeric plastic manhole adapters (rubber rings around pipe where it passes through the concrete manhole base) shall be as manufactured by Fernco-Concrete Manhole Adapter (water stop) or equal.
- 2.6 Positive seal gasketing systems used for manhole sections with precast pipe openings shall be similar and equal to Press Seal Gasket Corp, type "PSX".

PART 3 CONSTRUCTION:

- 3.1 Joints between manhole rings shall be sealed with "ram-nek" pre-formed gaskets in accordance with the Detail Drawings.

- 3.2 Precast concrete grade adjustment rings shall be used for the top section of each manhole. The precast rings shall be furnished in heights to allow for 1-inch adjustment and shall be a minimum of 6-inches wide.
- 3.3 Manhole steps, when required, shall be cast into the manhole wall at the same time the manhole section is poured. Steps shall be spaced 12 inches apart and shall have rungs set a minimum of 7-inches from the manhole wall. Manhole steps of the insert type may be substituted.
- 3.4 Stubs shall be provided at manholes when so designated on the Drawings or as requested by the Engineer. Stub outs will be sealed with a water-tight removable plug.
- 3.5 Elastomeric plastic manhole adapters (rubber rings around pipe where it passes through the concrete manhole base) shall be installed on all manhole pipes.
- 3.6 Precast manhole sections which include precast pipe openings shall have a positive seal gasketing system used.
- 3.7 All manholes shall receive damp-proofing on their exterior surfaces below grade. Manholes which will be in groundwater shall receive waterproofing on their exterior surfaces below grade. (See Sections 07100 & 07150)
- 3.8 The manhole base, if cast-in-place, shall be constructed in accordance with Sections 03100, 03210, 03310, 03311, 03313 and 03370.

PART 4 MANHOLE SEWER TESTING:

Each manhole will be checked for conformance with the Drawings and Specifications.

- 4.1 Visual Examination: Each manhole shall be visually checked by the Engineer, both exterior and interior for quality of workmanship, and inadequacies which might affect the operation or water-tight integrity of the structure. The Contractor shall make any repairs deemed necessary by the Engineer.

4.2 Water Tightness Test:

- A. Each manhole shall be tested for leakage and each test shall be witnessed by the Engineer. Leakage test shall be performed prior to backfilling around the manholes and in accordance with the following:
- B. All lines shall be plugged, and the manhole filled with water to at least 1 foot above the highest manhole joint. Any visible external leakage noted within two hours shall constitute failure, and the Contractor shall repair and retest the manhole until satisfactory results are obtained.
- C. A separate manhole test will not be required when manholes are tested simultaneously with sewer line construction.

END OF SECTION
