

Project Specifications

City of Muskegon
Muskegon County, Michigan

Water System Improvements Water Treatment Plant – Beach Street Transmission Main Flow Meter

July 2023

2221055

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Advertisement

Owner: City of Muskegon

Project Title: Water Filtration Plant - Beach Street Transmission Main Flow Meter

Project #: 2221055

1. RECEIPT OF BIDS

Sealed bids for the above project will be received by the City of Muskegon of 933 Terrace Street, Muskegon, Michigan until:

2:00 pm (local time) on Tuesday, August 29, 2023.

at which time the bids will be publicly opened and read aloud.

2. SCOPE OF PROJECT

The project consists of furnishing all material and constructing the following:

- Furnishing and installation of one (1) insertion flow meter on the Beach Street water transmission main (30" Class 200 DIP), including installation of precast flow meter chamber.
- All associated electrical, controls, instrumentation, and site work.

Including all necessary appurtenances and restoration.

3. EXAMINATION OF SPECIFICATIONS

Contract documents may be examined online at www.preinnewhof.com/plan-room or at the offices of:

City of Muskegon, 933 Terrace Street, Muskegon, MI 49440
Prein&Newhof, 4910 Stariha Drive, Muskegon, MI 49441
Prein&Newhof, 3355 Evergreen Drive NE, Grand Rapids, MI 49525

And some local plan rooms.

4. DEPOSIT FOR DRAWINGS AND SPECIFICATIONS

Drawings and specifications are available online at www.preinnewhof.com/plan-room or at the Grand Rapids office of Prein&Newhof after 12:00 PM, July 27, 2023. Electronic drawings, specifications and bidding documents will be accessible/available only to those Bidders who are active members of the Prein&Newhof Plan Room. Bidder assumes sole risk for any project drawings and specifications, electronic or hard copy, obtained other than directly from Prein&Newhof. Hard copy drawings and specifications are available for the fee of \$75.00

dollars. Prein&Newhof Plan Room members who want to purchase the hard copy of the drawings only, may do so for \$18.00 dollars. A \$20 dollar charge will be added to all mailed drawings and/or specifications. Fees are payable by cash or check only and are not refunded.

The Bidder is to complete the Bid Proposal documents that are included in the Project Specification book (online or hard copy), referring to the table of contents to identify the exact order of these documents. Regardless of how the bid documents are received, a hard copy (paper copy) of the Bid Proposal Documents must be submitted for bidding purposes. *No electronically submitted Proposals will be accepted.* The Bid Proposal Documents include: Bid Proposal Checklist, and Bid Proposal.

The Bidder must provide the signed Bid Proposal Documents in either type written or hand written (in ink) form and clearly and completely set forth all required lump sum amounts, unit prices or other costs in a legible and understandable manner. Illegibility of any work or figure in the proposal may be sufficient cause for rejection of the proposal by the Owners. No electronically submitted Proposals will be accepted.

Any conclusions or information obtained or derived from Contract Documents will be at the user's sole risk. Prein&Newhof will maintain in its Grand Rapids office the master copy (hard copy) of the Contract Documents from which all electronic copies are based. In the case of any contract discrepancy, the Master Copy (hard copy) shall be considered the controlling document.

5. FUNDING

The work to be performed under this contract will be financed and paid for by local funds.

6. BID SURETY

For bid surety requirements, see Section 00 21 13 Instructions to Bidders.

7. RIGHT TO REJECT BIDS

The Owner reserves the right to reject any or all bids and to waive any irregularities in bidding. No bid may be withdrawn after the scheduled closing time for receiving bids for at least one hundred twenty (120) days thereafter.

8. SITE INSPECTION

Access to the water treatment plant for site inspection will be granted on one occasion. Access will be granted between 10:00 AM and 2:00 PM on Tuesday, August 15, 2023. Please call Joe Buthker at 231-724-4104 prior to arrival to confirm inspection time.

9. COMMENCEMENT OF WORK

Construction activities are to begin as soon as possible following contract award. It is the intent of the Owner to consider award of the contract to the successful bidder at the September 12, 2023, City Council Meeting.

10. COMPLETION DATE

The project shall be completed in accordance with the following dates:

April 26, 2024 – Substantial Completion
April 26, 2024 – Ready for Final Payment

Ann Marie Meisch
Muskegon City Clerk
933 Terrace Street
Muskegon, MI 49440
231-724-6705

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Instructions To Bidders

Owner: City of Muskegon

Project Title: Water Filtration Plant - Beach Street Transmission Main Flow Meter

Project #: 2221055

1. CONTRACT DOCUMENTS

The contract documents consist of material outlined in Article 9 of the Agreement. Each Bidder shall carefully examine his copy of the contract documents for completeness. No claim will be allowed on the basis that the contract documents are not complete.

2. INTERPRETATION OF THE CONTRACT DOCUMENTS

It is the intent of these contract documents to be clear, complete and consistent. If Bidder is of the opinion that any portion of the contract documents is ambiguous, inconsistent or contains errors or omissions Bidder shall, prior to submitting its bid, in writing request Engineer to clarify that portion of the contract documents as an addendum. Requests must be received by the Engineer at least four business days prior to the bid. This interpretation or correction will be made a part of the contract documents as an addendum. Any such addendum shall be mailed, faxed, e-mailed or delivered only to each person recorded as having received/downloaded a copy of the contract documents directly from Prein&Newhof.

Only written addenda issued by the Engineer shall be binding. Oral interpretations, information or instructions by any office or employee of the Owner or Engineer are not authorized and therefore are not binding.

Any conclusions or information obtained or derived from electronic media will be at the user's sole risk. Prein&Newhof's responsibility is limited to only the printed copies (also known as hard copies) that are delivered pursuant to the service under the contract with the client.

3. BIDDERS INVESTIGATION

The Bidder will be responsible for inspecting the site of the proposed work to determine for himself all conditions under which he will be obligated to work. It is also expected that he will investigate and make his own determination concerning the available facilities for receiving, transporting, handling and storing construction equipment and materials, and concerning other local conditions that may affect his work.

4. PROJECT FUNDING

Refer to Section 00 11 13 Advertisement to ensure compliance with funding requirements.

5. BID PROPOSAL PREPARATION

A. Name, Address and Legal Status of Bidder

The name and legal status of the Bidder, Corporation, Partnership or an Individual, shall be stated in the Proposal. A corporation Bidder shall name the state in which its Articles of Incorporation are held, and must give the title of the official having authority, under the by-laws, to sign contracts. A partnership Bidder shall give the full names and addresses of all partners. An L.L.C. Bidder shall provide the full names and addresses of all members.

Anyone signing a proposal as an agent of another must submit, with his proposal, legal evidence of his authority to act as an authorized agent of the party.

The place of residence of each Bidder, or the office address in the case of a firm or company, with county and state, must be given after a signature.

B. Experience and Qualifications

It is the intention of the Owner to award this contract to a Bidder that will perform and complete all work in compliance with the Contract Documents and in a workmanlike and professional manner. Bids are therefore only solicited from responsible Bidders known to be skilled, experienced and regularly engaged in work of similar character and magnitude to that covered by these contract documents.

After the opening of bids, when so requested by the Owner or Engineer, the Bidder will be required to provide documentation of the extent and nature of his experience in work of this kind and to furnish references as to his experience on projects of similar types and concerning contractor's ability to timely and within budget perform work of the type involved in this project. The successful Bidder shall submit a statement of his experience and financial status, a list of all jobs he now has underway, with the volume and percent completed. If the successful Bidder is an LLC, bidder shall provide, if requested, personal guarantees of its members.

In addition to the above, when so requested, the Bidder shall meet with the Owner's representatives and give further information in relation to his proposed construction plan, methodology, and schedule of operations, in order to determine the Bidder's qualifications, ability to perform the Work, and timely complete the Work in accordance with the contract requirements.

C. Bid Surety

Each proposal must be accompanied by a bid deposit in the form of a bid bond payable to the Owner in the amount of not less than 5% of the total price for the Contract. The bond shall be issued by an insurance company licensed to do business in the State of Michigan.

Any Bidder who has submitted a proposal to the Owner may withdraw his bid at any time prior to the scheduled time for opening bids. No Bidder may withdraw his bid after the opening for a period of one hundred twenty (120) days thereafter.

D. Return of Bid Deposits

The bid deposits of all Bidders, except the three lowest Bidders, will be returned within seven days after the opening of the bids. The bid deposits of the three lowest Bidders will be returned (1) within 48 hours after the contract shall have been awarded to the successful Bidder, the signed agreement has been delivered, and the required bonds have been approved by the Owner, or (2) after rejection of all bids.

E. Proposal Form

The Bidder is to complete the Bid Proposal Documents that are included in the Project Specification book (online or hard copy), referring to the table of contents to identify the exact order of these documents. Regardless of how the bid documents are received, a hard copy (paper copy) of the Bid Proposal Documents must be submitted for bidding purposes. *No electronically-submitted Proposals will be accepted.* The Bid Proposal Documents include: Bid Proposal Checklist and Bid Proposal.

The Bidder must provide the signed Bid Proposal Documents in either type written or hand written (in ink) form and clearly and completely set forth all required lump sum amounts, unit prices or other costs in a legible and understandable manner. Illegibility of any work or figure in the proposal may be sufficient cause for rejection of the proposal by the Owners. *No electronically-submitted Proposals will be accepted.*

Any conclusions or information obtained or derived from Contract Documents will be at the user's sole risk. Prein&Newhof will maintain the master copy (hard copy), from which all electronic copies are based in its Grand Rapids Office. In the case of any contract discrepancy, the Master Copy (hard copy) shall be considered the controlling document.

Each proposal must be enclosed in a sealed envelope addressed to City of Muskegon, 933 Terrace Street, Muskegon, MI 49440 and labeled "**Proposal for City of Muskegon, Muskegon County, Michigan, Beach Street Transmission Main Flow Meter**" No electronically submitted Proposals will be accepted.

F. Proposal Data

Proposals shall be carefully prepared in strict accordance with contract requirements and these instructions and shall include all pertinent information required by the proposal form. Failure of the bidder to comply in any respect shall be grounds for rejection of the bidder's proposal.

The proposal for work is on a lump sum basis.

No partial bids will be considered.

6. TIME AND LIQUIDATED DAMAGES

Bidder's attention is directed to the completion date(s) as indicated in Section 00 11 13 Advertisement and to the liquidated damage and expense clauses in the Agreement.

7. BONDS AND INSURANCE

See General Conditions, Article 6; Supplementary Conditions Article 6 and Section 00 73 16 Insurance Specifications.

8. AWARD AND EXECUTION OF THE CONTRACT

The contract shall be deemed as having been awarded when formal Notice of Award shall have been duly provided by the Owner upon the Bidder.

The Bidder to whom the contract shall have been awarded will be required to execute an Agreement in the form included in the Contract Documents and to furnish sureties, insurance policies and certificates all as required within fifteen (15) days after the award. In case of his refusal or failure to do so, he will be considered to have abandoned all his rights and interest in the award, and his bid deposit may be declared forfeited to the Owner and the work may be awarded to another Bidder.

9. STAKING, CONTROLS, MONUMENTS

Refer to Section 01 10 00 Summary of Work, Section 1.08 Staking, Controls, Monuments.

10. COORDINATION

Refer to Section 01 10 00 Summary of Work, Section 1.05 Work Sequence and Coordination.

11. PERMITS

Bidder's attention is directed to the required permits as indicated in Section 01 10 00 Summary of Work, Section 1.07 Permits.

12. UTILITIES

Refer to Section 01 10 00 Summary of Work, Section 1.11 Utilities.

Project Name: Water Filtration Plant - Beach Street Transmission Main Flow Meter
Project Number: 2221055

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

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Bid Proposal

Owner:	City of Muskegon
Owner Address:	933 Terrace Street, Muskegon, MI 49440
Project Title:	Water Filtration Plant - Beach Street Transmission Main Flow Meter
Bid Date & Time:	August 29, 2023 at 2:00 pm Project #: 2221055

The undersigned, being familiar with the site, drawings, specifications, and related documents, proposes to furnish all required labor, materials, tools and equipment to construct the project in accordance with the lump sum on the following sheets.

Date Prepared: _____

Receipt of Addenda

Receipt of Addenda _____ through _____ is hereby acknowledged.

Summary of Bids

Total Lump
Sum Bid \$ _____

The Owner reserves the right to accept or reject any or all bids and to waive any irregularities in the bidding. No partial bids will be accepted.

Contractor's Signature

Contractor's Name	Telephone Number	
Business Address	City	Zip Code
Signature	Title	Date

Seal (if bidder is a corporation)

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Bid Proposal

Owner:	City of Muskegon
Owner Address:	933 Terrace Street, Muskegon, MI 49440
Project Title:	Water Filtration Plant - Beach Street Transmission Main Flow Meter
Bid Date & Time:	August 29, 2023, at 2:00 pm Project #: 2221055

1. This bid is submitted on the basis of using the following subcontractors:

- Site Work _____
- Electrical _____
- Integration _____

No change from the subcontractors listed above will be allowed after the Proposal is submitted except by mutual consent of the Contractor and Owner in writing.

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Project Name: Water Filtration Plant - Beach Street Transmission Main Flow Meter
Project Number: 2221055

SECTION 00 43 93
BID PROPOSAL CHECKLIST

Bid Proposal Checklist

Owner: City of Muskegon

Project Title: Water Filtration Plant - Beach Street Transmission Main Flow Meter

Project #: 2221055

This checklist is for the bidder's convenience and the Engineer's use. It should be reviewed thoroughly before submitting a bid.

- Bid submitted on time.
- Bid surety properly completed and enclosed.
- Addenda, if applicable, have been acknowledged and any revisions to the proposal completed.
- Bid proposal legally signed in ink.
- Contract Prices are completed in ink.
- All supplemental data required for equipment submitted as an alternate to Base Bid equipment.

[Intentionally left blank]

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

This Agreement is by and between City of Muskegon, 933 Terrace Street, Muskegon, MI 49440 (“Owner”) and [Contractor Name & Address] (“Contractor”).

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

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

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

Construction of a metering manhole, and installation of a full-profile insertion electromagnetic flow meter on the existing 30-inch transmission main. Also included is all associated equipment, piping, electrical, controls, and site work.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: *Water Treatment Plant – Beach Street Transmission Main Flow Meter*

ARTICLE 3—ENGINEER

3.01 The Owner has retained Prein&Newhof, 4910 Stariha Dr, Norton Shores, MI 49441 (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by Prein&Newhof.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

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

4.02 *Contract Times: Dates*

A. The Work will be substantially complete on or before **April 26, 2024**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **April 26, 2024**.

~~4.03 *Contract Times: Days*~~

~~A. The Work will be substantially complete within [number] days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the~~

~~General Conditions within [number] days after the date when the Contract Times commence to run.~~

~~4.04 Milestones~~

~~A. Parts of the Work must be substantially completed on or before the following Milestone(s):~~

- ~~1. Milestone 1 [event & date/days]~~
- ~~2. Milestone 2 [event & date/days]~~
- ~~3. Milestone 3 [event & date/days]~~

4.05 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion:* Contractor shall pay Owner **\$500** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$500** for each day that expires after such time until the Work is completed and ready for final payment.
- ~~3. *Milestones:* Contractor shall pay Owner **[\$number*]** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved, or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.05.A.1 will apply, rather than the Milestone rate.~~
4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.

B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

~~C. *Bonus:* Contractor and Owner further recognize the Owner will realize financial and other benefits if the Work is completed prior to the time specified for Substantial Completion. Accordingly, Owner and Contractor agree that as a bonus for early completion, Owner shall pay Contractor **[\$number]** for each day prior to the time specified above for Substantial Completion (as duly adjusted pursuant to the Contract) that the Work is substantially complete. The maximum value of the bonus will be limited to **[\$number]**.~~

4.06 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor’s failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Work other than Unit Price Work, a lump sum of \$[number].
 All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.
- ~~B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).~~

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

~~The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.~~

- ~~C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) \$[number].~~
- ~~D. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.~~

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

- a. **90** percent of the value of the Work completed (with the balance being retainage).

- 1) If 50 percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

- b. **0** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **98** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **100** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the rate of **0** percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. Specifications as listed in the table of contents of the project manual.
 6. Drawings (not attached but incorporated by reference) consisting of 4 sheets with each sheet bearing the following general title: Water Treatment Plant – Beach Street Transmission Main Flow Meter.
 7. Addenda (numbers ___ to ___, inclusive).
 8. Exhibits to this Agreement (enumerated as follows):
 - a. **Contractor’s Bid (pages 1 to 2, inclusive)**
 - b. Insurance Specifications (pages 1 to 11, inclusive).
 - c. The 2020 Standard Specifications for Construction adopted by the Michigan Department of Transportation are hereby incorporated into these contract documents.
 9. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.

- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 - 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 - 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 - 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 - 8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

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

Owner:

Contractor:

City of Muskegon

(typed or printed name of organization)

(typed or printed name of organization)

By: _____

(individual's signature)

By: _____

(individual's signature)

Date: _____

(date signed)

Date: _____

(date signed)

Name: _____

(typed or printed)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Title: _____

(typed or printed)

(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

(individual's signature)

Attest: _____

(individual's signature)

Title: _____

(typed or printed)

Title: _____

(typed or printed)

Address for giving notices:

Address for giving notices:

933 Terrace St

Muskegon, MI 49440

Designated Representative:

Designated Representative:

Name: _____

(typed or printed)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Title: _____

(typed or printed)

Address: _____

Address: _____

Phone: _____

Phone: _____

Email: _____

Email: _____

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

License No.: _____

(where applicable)

State: _____

PERFORMANCE BOND

<p>Contractor</p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>
<p>Owner</p> <p>Name: City of Muskegon</p> <p>Mailing address <i>(principal place of business)</i>: 933 Terrace St Muskegon, MI 49440</p>	<p>Contract</p> <p>Description <i>(name and location)</i>: Water Treatment Plant – Beach Street Transmission Main Flow Meter</p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____ <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form: <input checked="" type="checkbox"/> None <input type="checkbox"/> See Paragraph 16</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
_____ <i>(Full formal name of Contractor)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- 6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
- 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
- 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
- 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with

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

14. Definitions

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

14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

16. Modifications to this Bond are as follows: **None**

PAYMENT BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Muskegon Mailing address <i>(principal place of business)</i> : 933 Terrace St Muskegon, MI 49440	Contract Description <i>(name and location)</i> : Water Treatment Plant – Beach Street Transmission Main Flow Meter Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input checked="" type="checkbox"/> None <input type="checkbox"/> See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

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

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

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

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

Prepared By



Endorsed By



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by

- Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or

communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
29. *Notice to Proceed*—A written notice 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.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor’s plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *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.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *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, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *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.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *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 of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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 a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*: 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 Article 10 or any other provision of the Contract Documents.
- C. *Day*: The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*: The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 3. 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 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word “furnish,” when used in connection with services, materials, or equipment, means 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, means 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, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. 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 Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), 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;
 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.

2.04 *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 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, 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 and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *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 the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will 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 the component parts of the Work.
 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document 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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

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

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or 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) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
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 part of the Contract Documents prepared by or for Engineer take

precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

- a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers 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 versions, or 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; or
 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract 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 Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *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.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, 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 Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. Abnormal weather conditions;
 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 4. Acts of war or terrorism.
- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the

effect of the delay, disruption, or interference on the critical path to completion of the Work.

- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing 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.
- 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 permanent improvements are to be made 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.

5.02 *Use of Site and Other Areas*

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

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
- 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise;

(b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, 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 any such claim, and against all 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will 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 and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
 - 2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
 - 3. Technical Data contained in such reports and drawings.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on 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;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement

to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, 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 fall within any one or more of the categories described in Paragraph 5.04.A;
- 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 Paragraph 13.03; and,
- c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

- a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise;
- b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
- c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities.

Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;
 3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then 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 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written

statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. 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 Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on 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;
 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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. 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, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. 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, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond 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 must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the

required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party’s full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party’s obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner’s option, may purchase and maintain Owner’s own liability insurance. Owner’s liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner’s liability policies for any of Contractor’s obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker’s compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor’s liability policies) on each Subcontractor’s commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
 - I. If either party does not purchase or maintain the insurance required of such party by the Contract, 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.
 - J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
 - K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.
 - L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
 - M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
 - N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 1. include at least the specific coverages required;
 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is 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; and
 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);
 4. not seek contribution from insurance maintained by the additional insured; and
 5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.
 - 1. Owner and Contractor waive all rights against each other and the 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, risks, 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 Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, 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.
 - 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. 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 all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights 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 insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, 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 fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at

Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *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.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *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 maintain good discipline and order at the Site.
- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. 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 will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *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, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will 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 must 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.

7.05 "Or Equals"

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) 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;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
 - b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an “or-equal” item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

- A. *Contractor’s Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in

Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. 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.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or

otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *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 an 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 will be disclosed 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.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *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.

7.11 *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. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and 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

such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

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

7.13 *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.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. 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, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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 at its expense (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).

- E. 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.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. 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.
- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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.

7.15 *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 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 by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 Submittals

A. Shop Drawing and Sample Requirements

1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.
3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. Submittal Procedures for Shop Drawings and Samples: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. Shop Drawings

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings must 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 7.16.C.

2. Samples

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall 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 7.16.C.

3. 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. Engineer's Review of Shop Drawings and Samples

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of 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, or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.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 will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

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.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two

resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.

- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *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 is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, 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.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
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;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or
 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, 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 losses, damages, costs, and judgments (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 from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage 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 7.18.A will 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.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.
- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. 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.
- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be

set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) 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 any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *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.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *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 (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- 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.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *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.

10.02 *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 10.07. 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.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.
- E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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, will 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 Contractor under Paragraph 15.06.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 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in 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;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
- B. If Owner has issued a Work Change Directive and:
1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-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. Changes involving

the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 - 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 - 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will 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 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 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 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
- d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
- e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
- f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
 4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *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.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 - 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal

and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will 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 in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe

benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will 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 accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will 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, which 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 will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
5. Other costs consisting of 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, 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.
 - 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.
 - c. *Construction Equipment Rental*
 - 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment,

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

- 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed 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 builder's risk or other property insurance established in accordance with Paragraph 6.04), 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 include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will 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 communication 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 that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:
1. Payroll costs and other compensation of Contractor's officers, executives, principals, general 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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.
3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
5. 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.
6. Expenses incurred in preparing and advancing Claims.
7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 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*: Contractor agrees that:
 - 1. 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
 - 2. 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 for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's 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 for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- 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. 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, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.
- E. *Adjustments in Unit Price*
 - 1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

- b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction 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 with such procedures and programs as applicable.

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- 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, obtaining, and paying for all inspections and tests required:
 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. 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. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages 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. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. 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, 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *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, then 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 will 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.

14.07 *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 defective Work as required by Engineer, then

Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

- B. In exercising the rights and remedies under this Paragraph 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

- A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *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.
 - 2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 13.03, 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; 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;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

- c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; 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 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. Reductions in Payment by Owner

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
- a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

- e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. 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; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- 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 preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. 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 punch list.

15.04 *Partial Use or Occupancy*

- 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. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be 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 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 15.03 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 6.04 regarding builder's risk or other property insurance.

15.05 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

- B. *Engineer's Review of Final Application and Recommendation of Payment:* 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 have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *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 Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
1. correct the defective repairs to the Site or such adjacent areas;
 2. correct such defective Work;
 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, 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. Contractor shall pay all 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). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. 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.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, 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.
- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);
 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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.

- F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 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; and
 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 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 16.03.
- 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, 7 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

SUPPLEMENTARY CONDITIONS

Water Treatment Plant – Beach Street Transmission Main Flow Meter

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Caption and Introductory Statements

Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2018 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

Unless otherwise noted, the terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ADDITIONS, DELETIONS AND CHANGES TO GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01 Defined Terms

SC-1.01 Add the following new paragraph immediately after Paragraph 1.01.A.22:

22.1 *Falsework*--temporary construction work on which a main work is wholly or partly built and/or supported until the main work is strong enough to support itself.

SC-1.01 Add the following new paragraph immediately after Paragraph 1.01.A.32:

32.1 *Project Manual* – the written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

SC-1.02 Terminology

SC-1.02 Add the following new sentence immediately after the last sentence in Paragraph 1.02.B:

The use of any such term or adjective is not intended to and shall not be effective to relieve the Contractor of responsibility to comply with all Laws and Regulations applicable to the performance of the Work, or to perform the Work in accordance with the provisions of Article 7, or to comply with any other provision of the Contract Documents.

ARTICLE 2 - PRELIMINARY MATTERS

SC-2.03 Before Starting Construction

SC-2.03 Delete Paragraph 2.03.A in its entirety and insert the following in its place:

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement, Contractor shall submit to Owner and Engineer for timely review:
 - 1. A preliminary Progress Schedule indicating the times (number 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.

SC-2.05 Acceptance of Schedules

SC-2.05 Delete Paragraph 2.05.A in its entirety and insert the following in its place:

- A. Upon Owner's, Engineer's or Contractor's request at least ten days before submission of the first Application for Payment a conference, attended by Contractor, Owner, Engineer and others as appropriate, will be held to review for acceptability to Owner as provided below the schedules submitted in accordance with paragraph 2.03.A. If a schedule is not acceptable, Contractor shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. Upon notice by Owner, no progress payment shall be made to Contractor until acceptable

schedules are submitted and accepted by Owner.

1. The Progress Schedule will be acceptable to Owner if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Time, and if acceptable to Engineer. Such acceptance will not impose on Owner or 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 Owner if acceptable to Engineer and if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Owner as to form and substance if it is acceptable to Engineer and if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01 Intent

SC-3.01 Add the following new sentence immediately after the last sentence in Paragraph 3.01.B:

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.

SC-3.02 Reference Standards

SC-3.02.A.2 Delete Paragraph 3.02.A.2 in its entirety and insert the following in its place:

No provision of any such standard specification, manual, reference standard, 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 part of the Contract Documents prepared by or for Engineer. 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 part of the Contract Documents prepared by or for Engineer.

SC-3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies

SC-3.03 Delete Sub-Paragraph 3.03.A.3 in its entirety and insert the following in its place:

3. Contractor shall not be entitled to any increase in the Contract Amount or Contract Time for any conflicts, errors, ambiguities or discrepancies in the Contract Documents that were known, or that should have been known to Contractor, or which could have been discovered by Contractor as part of its review of the bidding requirements and Contract Documents prior to bidding or its review of the Contract Documents prior to undertaking any part of the Work.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.01 Commencement of Contract Times; Notice to Proceed

SC-4.01 Delete Paragraph 4.01.A in its entirety and insert the following in its place:

A. The Contract Times will commence to run on the day indicated in the Notice to Proceed.

SC-4.05 Delays in Contractor's Progress

SC-4.05 Add the following new paragraph immediately after Paragraph 4.05.G

H. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under Paragraph 4.05 within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 - SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 *Subsurface and Physical Conditions*

SC-5.03.A Delete Paragraph 5.03.A in its entirety and insert the following in its place:

A. *Reports and Drawings:* The Contract Documents may identify:

1. Those soil borings, plans, drawings, surveys or other reports of explorations of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents;
2. Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site, (Except Underground Facilities) that Engineer has used in preparing the Contract Documents; and
3. Technical Data contained in such *Reports and Drawings*.

The soil borings, plans, drawings, surveys, technical data, and other documents referenced in Paragraphs 5.03.A.1, 2 and 3 are collectively called "*Reports and Drawings*."

SC-5.03.C Delete Paragraph 5.03.C in its entirety and insert the following in its place:

C. *Reliance by Contractor Not Authorized.* Contractor may not rely upon the *Reports and Drawings* referenced in 5.03.A or make any claim against Owner, Engineer, or any of Owner's or Engineer's Consultants or Subcontractors related to the *Reports and Drawings*. This limitation includes but is not limited to:

1. The accuracy or 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. The accuracy or completeness of other data, interpretations, opinions, and information contained in, shown on, or indicated in the *Reports and Drawings*; or
3. Any Contractor interpretation of or conclusion drawn from any of the *Reports and Drawings* or any other Technical Data, data, interpretations, opinions or information referenced in the *Reports and Drawings*.

The *Reports and Drawings*, including the information contained therein, are offered to the Contractor only as information relied upon by Engineer in the preparation of the Contract Documents, and the Contractor is solely responsible for confirming actual conditions. Neither the Engineer nor the Owner, nor the Consultants or Subcontractors of either have any responsibility for any conclusion, interpretation or analysis contained therein or made by the Contractor based upon the Contractor's review of the *Reports and Drawings*.

Neither Owner nor Engineer has any responsibility for and does not warrant that the soils or water table encountered during construction will be as shown in the *Reports and Drawings*.

SC-5.03.D

Delete Paragraph 5.03.D in its entirety and insert the following in its place:

- D. Contractor warrants that before submitting a bid the Contractor has determined the soil and subsoil conditions, including the water table elevation and the conditions to be encountered by Contractor in the performance of the Work and that said conditions and factors have been evaluated by Contractor and incorporated into his Contract with Owner. Contractor further warrants that the Contractor is fully aware of the soil conditions, subsoil conditions, water table and all applicable State and Federal Regulations related to the excavation, removal, transportation, placement and relocation of the materials involved in the Work to be performed by the Contractor and that Contractor will complete the Work under whatever

conditions he may encounter or create without extra cost, expense to or claim against the Owner or Engineer, their Consultants or Subcontractors.

Contractor has identified all locations where the Contractor's operations are near public roadways, the properties of railroads or contiguous physical structures. Work shall not take place until Contractor has made all arrangements necessary to identify the location and/or elevation of the roadways, the properties of railroads or contiguous physical structures and foundation or appurtenances and has taken all necessary steps to protect the roadways, the properties of railroads or contiguous physical structures from damage. Contractor is solely responsible for any and all damage to roadways, the properties of railroads or contiguous physical structures and any personal injury, death or property damage or consequential damages arising from Contractor's operations.

SC-5.04 *Differing Subsurface or Physical Conditions*

SC-5.04.A Delete Paragraph 5.04.A in its entirety and insert the following in its place:

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
1. is of such a nature as to require a change in the Contract Documents; or
 2. 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, within 48 hours 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 7.15), 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. If notice as provided in the section is not given, no change in Contract Price shall be considered or allowed.

SC-5.04.B Delete Paragraph 5.04.B in its entirety and insert the following in its place:

- B. *Engineer's Review:* After receipt of written notice as required by Paragraph 5.04.A, Engineer will review the information provide by Contractor. If Engineer, in Engineer's sole discretion, determines that additional explorations and/or tests are needed to evaluate Contractor's belief that there are differing subsurface or physical conditions, then Contractor, at Contractor's sole expense, shall promptly undertake those additional explorations and/or tests, and provide the results to Engineer. Engineer will then review the information provided by Contractor along with any other information Engineer believes is pertinent, and advise Owner in writing (with a copy to Contractor) of Engineer's findings, conclusions and recommendations.

If after receipt of written notice as required by Paragraph 5.04.A, Engineer, in Engineer's sole discretion, determines that additional explorations and/or tests are not needed to evaluate Contractor's belief that there are differing subsurface or physical conditions, Engineer will review the information provided by Contractor, along with any other information Engineer believes is pertinent, and advise Owner in writing (with copy to Contractor) of Engineer's findings, conclusions and recommendations.

Owner reserves the right at its own expense to undertake additional exploration and/or testing. This reservation in no way waives the responsibility of the Contractor to undertake additional explorations and/or tests, if required, as set forth above.

SC-5.05 *Underground Facilities*

SC-5.05.A Delete Paragraph 5.05.A in its entirety and insert the following in its place:

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent 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.

1. The Underground Facilities shown on or indicated in the Contract Documents are located according to the information available to the Engineer at the time of the preparation of the Contract Documents. Neither the Engineer nor the Owner guarantee the accuracy or completeness of any such information or data, including but not limited to information provided by the Owner;
2. The Contractor is solely responsible for identifying the actual location of all Underground Facilities and shall verify the location and/or elevations of the Underground Facilities prior to undertaking construction;
3. At all locations where the Contractor's operations are near, will cross or contact Underground Facilities, no part of the Work shall commence until Contractor has made all arrangements necessary to identify the location and/or elevation of the Underground Facility, including contacting MISS DIG, has notified the owner of the Underground Facility, and has taken all necessary steps to protect the Underground Facility from damage.
4. 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 information and data regarding Underground Facilities at the Site;
 - b. complying with applicable state and local utility damage prevention Laws and Regulations;
 - c. locating all Underground Facilities shown or indicated in the Contract Documents;
 - d. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the

Work, by exposing such Underground Facilities during the course of construction;

- e. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction;
 - f. the safety and protection of all such Underground Facilities and related above ground structures, including but not limited to shoring, bracing, supporting and maintenance of all Underground Facilities and related above ground structures affected by the Contractor's operations;
 - g. repairing any damage to Underground Facilities and related above ground structures resulting from the Work; and
 - h. any personal injury, death or property damage or consequential damages arising from Contractor's Work.
5. In the event of the interruption of or damage to an Underground Facility as the result of Contractor's operations, the Contractor shall immediately notify the Underground Facility owner and shall take all steps necessary to cooperate with and assist the Underground Facility owner in the restoration and repair of the Underground Facility. Said repair work shall be continuous and shall not result in any delay of the Project or increased cost or expense to Owner, or claim against Owner, Engineer or their Consultants.

SC-5.05.B Delete Paragraph 5.05.B in its entirety and insert the following in its place:

- B. *Notice by Contractor:* If an Underground Facility is uncovered or revealed at or adjacent to the Site which was not shown or indicated 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 paragraph 7.15), identify the owner of such Underground Facility

and give written notice to that owner and to Owner and Engineer.

SC-5.05.C Delete Paragraph 5.05.C in its entirety and insert the following in its place:

- C. *Engineer's Review:* Engineer will 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. If Engineer concludes that a change in the Contract Documents is required, Engineer shall prepare recommendations to the Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. At all times, Contractor shall be solely responsible for the safety and protection of such Underground Facility.

SC-5.05.F. Delete Paragraph 5.05.F.1 in its entirety and insert the following in its place:

F. *Possible Price and Times Adjustment*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated in the Contract Documents, subject to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - 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 Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

d. Contractor gave the notice required in Paragraph 5.05.B.

SC-5.06 *Hazardous Environmental Conditions at Site*

SC-5.06.A Delete Paragraph 5.06.A in its entirety and insert the following in its place:

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. The following reports regarding Hazardous Environmental Conditions at the Site were utilized by the Engineer in the preparation of the Contract Documents:

a. *[list reports or state "None"]*

2. The following drawings regarding Hazardous Environmental Conditions at the Site were utilized by the Engineer in the preparation of the Contract Documents:

a. *[list drawings or state "None"]*

3. Technical Data contained in such *Reports and Drawings*.

SC-5.06.B Delete Paragraph 5.06.B in its entirety and insert the following in its place:

B. *Reliance by Contractor Not Authorized*: Contractor may not make any Claim against Owner, Engineer or the Consultants of either with respect to:

1. The completeness of such reports, drawings and/or Technical Data, 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, the cost of Work and safety precautions and programs incident thereto; or

2. The accuracy of any Technical Data, or any other data, interpretations, opinions and information contained in such reports or shown or indicated on such drawings; or

3. Any Contractor interpretation of or conclusion drawn from any

such report, drawing or Technical Data.

ARTICLE 6 - BONDS AND INSURANCE

6.02 *Insurance—General Provisions*

SC-6.02 Delete Paragraph 6.02.A in its entirety and insert the following in its place:

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Insurance Specification.

SC-6.02 Delete Paragraphs 6.02.B through 6.02.N in their entirety and replace with Insurance Specification.

6.03 *Contractor's Insurance*

SC-6.03 Delete Paragraph 6.03.A in its entirety and insert the following in its place:

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Insurance Specification.

SC-6.03 Delete Paragraphs 6.03.B through 6.03.C in their entirety and replace with Insurance Specification.

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete the last sentence of Paragraph 6.04.A and insert the following in its place:

The specific requirements applicable to the builder's risk insurance are set forth in the Insurance Specification.

SC-6.04 Delete Paragraphs 6.04.B through 6.04.E in their entirety and replace with Insurance Specification.

6.05 *Property Losses; Subrogation*

SC-6.05 Delete Paragraphs 6.05.A through 6.05.D in their entirety and replace with Insurance Specification.

6.06 *Receipt and Application of Property Insurance Proceeds*

SC-6.06 Delete Paragraphs 6.06.A through 6.06.C in their entirety and replace with Insurance Specification.

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

SC-7.01 *Contractor's Means and Methods of Construction*

SC-7.01.A Add the following new sentence immediately after the last sentence in 7.01.A:

Nothing in the design, specifications or Contract Documents shall be deemed to constitute a specific means, method, technique, sequence, or procedure of construction. Contractor shall be solely responsible for ensuring that the completed Work conforms accurately to the Contract Documents.

SC-7.05 *"Or-Equals"*

SC-7.05.A Add the following sub-paragraph immediately after Paragraph 7.05.A.1.b.2:

3) the item will be functionally equal to the named item of material or equipment. Contractor warrants and assumes sole responsibility for the adequacy, performance and functioning of the "or-equal" material or equipment.

SC-7.06 *Substitutes*

SC-7.06.A.3.f Add the following sub-paragraph immediately following paragraph 7.06.A.3.d:

f. Contractor warrants that, if approved and incorporated into the Work, the "substitute item" will be functionally equal to the named item of material or equipment. Contractor assumes sole responsibility for the adequacy, performance and functioning of the "substitute" item of material or equipment.

SC-7.07 *Concerning Subcontractors and Suppliers*

SC-7.07.D Delete Paragraph 7.07.D in its entirety and replace with the following paragraph:

- D. No later than two (2) business days after the bid opening, the Contractor shall submit to the Owner and Engineer for acceptance a list of the names and addresses of the Contractor's Subcontractors, Suppliers and such other individuals and entities as the Owner requests.

SC-7.07 Add the following sub-paragraphs immediately following paragraph 7.07.M:

- N. Contractor shall require all Subcontractors, prior to commencement of any Work by the Subcontractor, to secure and keep in force the insurance coverages set forth in and required by the Insurance Specification.
- O. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors and Suppliers, whether initially or as a replacement, performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

SC-7.08 *Patent Fees and Royalties*

SC-7.08.B Delete paragraph 7.08.B in its entirety.

SC-7.11 *Laws and Regulations*

SC-7.11.D Add the following new paragraph immediately after Paragraph 7.11.C:

- D. Contractor shall be solely responsible for compliance with all Federal and State Occupational Safety and Health Act ("OSHA") requirements related to the Work and the Site, including, if applicable, the requirements of the Michigan Occupational Safety and Health Act ("MIOSHA"). Neither Owner nor Engineer shall have any responsibility for construction site safety or OSHA or MIOSHA compliance. Contractor will indemnify and hold harmless Owner and Engineer from all claims, costs, fees, fines, penalties and expenses (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court, administrative proceeding, and dispute resolution costs) related in any way to claims related

to construction site safety, OSHA or MIOSHA violations or charges.

SC-7.13 Safety and Protection

SC-7.13.A Amend the first sentence of Paragraph 7.13.A to read as follows:

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work, including but not limited to the enforcement of safety precautions and programs of all Subcontractors.

SC-7.13.D Amend Paragraph 7.13.D to read as follows:

- E. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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 at its expense.

SC-7.16 Submittals

SC-7.16.B.1 Amend paragraph 7.16.B.1.a to read as follows:

- a. Contractor shall submit to Engineer for approval eight (8) copies of all shop drawings.

SC-7.16.B.2 Amend paragraph 7.16.B.2.a to read as follows:

- a. Contractor shall submit to Engineer for approval eight (8) duplicates of each Sample.

SC-7.16.E Add the following new paragraph immediately after Paragraph 7.16.E.1.d:

- e. Contractor shall submit to Engineer for approval eight (8) duplicates of each submittal.

SC-7.17 Contractor's General Warranty and Guarantee

SC-7.17.A Delete Paragraph 7.17.A in its entirety and replace with the following paragraph:

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 Contractor's warranty and guarantee. Contractor's warranty and guarantee that all Work will be in accordance with the Contract Documents and will not be defective includes but is not limited to all materials and equipment incorporated into the Work. Unless a longer duration is required by the Project Specifications, Contractor's warranty and guarantee that all Work will be in accordance with the Contract Documents and will not be defective will extend for at least one year after the date of Substantial Completion.

SC-7.17.D.8 Amend paragraph 7.17.D.8 to read as follows:

8. Any inspection, test, review, or approval by Engineer, the Resident Project Representative (if one is assigned to the Site), or by others;

SC-7.17.D.9 Amend Paragraph 7.17.D.9 to read as follows:

9. Any correction of defective Work by Owner; or

SC-7.17.D.10 Add the following new paragraph immediately after Paragraph 7.17.D.9:

10. Any acceptance by Owner, or any failure to do so.

SC-7.19 *Delegation of Professional Design Services*

SC-7.19.B Add the following new sentence immediately after the last sentence in 7.19.B:

The design professional must be licensed in the state or states where the Project is located.

SC-7.19.D Delete Paragraph 7.19.D in its entirety and replace with the following paragraph:

Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, drawings, calculations, specifications, Submittals, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

ARTICLE 9 – OWNER’S RESPONSIBILITIES

SC-9.06 Insurance

SC-9.06.A. Delete Paragraph 9.06.A in its entirety and replace with the following paragraph:

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in the Insurance Specifications.

ARTICLE 10 - ENGINEER’S STATUS DURING CONSTRUCTION

SC-10.01 Owner’s Representative

SC-10.01.A Delete Paragraph 10.01.A in its entirety and insert the following in its place:

- A. Engineer will be Owner’s representative during the construction period. The Engineer will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents. The authority and responsibilities of the Engineer as set forth in the Contract Documents shall not be restricted, extended or otherwise modified without the written consent of the Engineer and the Owner. Nothing in the Contract Documents shall create for the benefit of the Contractor, any Subcontractor, Supplier or other individual or entity, any contractual relationship between Engineers and any such Contractor, Subcontractor, Supplier or other individual or entity.

SC-10.02 Visits to Site

SC-10.02.A Amend Paragraph 10.02.A by striking the following words from the first sentence:

“at intervals appropriate to the various stages of construction”

SC-10.03 Resident Project Representative

SC-10.03.C Add the following new paragraphs immediately after Paragraph 10.03.C:

- C. If Engineer furnishes a Resident Project Representative (RPR), the RPR

will be Engineer's employee or agent at the Site. The RPR's authority and responsibility is expressly limited to making observations of the progress that has been made and the quality of the various aspects of Contractor's executed Work, and reporting same to Engineer. RPR will not be required to make exhaustive or continuous observations or inspections on the Site to check the quality or quantity of the Work. RPR'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. In addition to the limitations set forth in Paragraph 10.07, The RPR does not have the authority or responsibility to:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor's superintendent.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
5. Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals.
8. Authorize Owner to occupy the Project in whole or in part.
9. Interpret for Contractor or Owner any provision of the Contract Documents.

10. Stop the Work for any reason.

SC-10.07 Limitations on Engineer's Authority and Responsibilities.

SC-10.07.B Add the following sentence immediately after the last sentence in Paragraph 10.07.B:

Engineer may not stop the work or interfere with the progress of the Work. No decision made by the Engineer in good faith either to exercise or not exercise any authority or responsibility delegated to Engineer in the Contract Documents or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall be construed as interference with the progress of the Work. Engineer shall have no authority or responsibility to recommend alternate or possible safety activities or changes for the safety of the project, Contractor, Subcontractors, Suppliers, Owner, employees, third persons or their property.

SC-10.07.F Add the following new paragraph immediately after Paragraph 10.07.E:

F. Engineer will not be responsible for Contractor's failure to pay Subcontractors, Suppliers, employees, taxes, fees, permits, patent fees, copyright fees, royalties, licenses or monies due to any individual or entity.

SC-15.01 Progress Payments

SC-15.01.C Delete Paragraph 15.01.C.3.a and insert the following in its place:

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; or

SC-15.01.C Delete the period at the end of the sentence in Paragraph 15.01.C.4.e and insert the following in its place:

, or

SC-15.01.C Add the following new paragraphs immediately after Paragraph 15.01.C.4.e:

f. for Contractor's failure to construct the Work or any part of the Work in conformance with the Contract Documents, or

- g. for defective Work.

SC-15.04 *Partial Use or Occupancy*

SC-15.04 Delete Paragraph 15.04.A.4 in its entirety and insert the following in its place:

- 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of the Insurance Specifications regarding builder's risk or other property insurance.

SC-15.07 *Waiver of Claims*

SC-15.07.A Delete Paragraph 15.07.A in its entirety and insert the following in its place:

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising (1) from unsettled Liens, (2) from defective Work, (3) from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, (4) from outstanding Claims by Owner, (5) from Contractor's continuing obligations under the Contract Documents, and (6) from late completion by Contractor, including without limitation liquidated damages or other damage.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SC-17.01 *Methods and Procedures*

SC-17.01.B Delete Paragraph 17.01.B.1 in its entirety and insert the following in its place:

- 1. At Owner's sole option, Owner may demand in writing arbitration of the dispute;

SC-17.01.C Add the following new paragraph immediately after Paragraph 17.01.B

SC-17.01.C *Arbitration of Claims at Election of Owner*

- 1. If the Owner elects in writing to demand arbitration as set forth in Paragraph 17.01.1, the dispute will be decided by arbitration in accordance with the rules of the American Arbitration Association in effect as of the Effective Date of the Agreement
- 2. The demand for arbitration will be filed in writing with the Contractor

and with the selected arbitrator, and a copy will be sent to Engineer for information.

3. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include: (i) a concise breakdown of the award; and (ii) a written explanation of the award specifically citing the Contract Document provisions deemed applicable and relied on in making the award.
4. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal except as provided by the controlling law governing vacating or modifying an arbitration award.
5. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

SC-18.01 Delete Paragraph 18.01.A.3 in its entirety.

INSURANCE SPECIFICATIONS

Insurance Required to be Purchased and Maintained by the Contractor

Contractor shall comply with all requirements of this Insurance Specification. Contractor shall purchase and maintain (i.e. keep in force) insurance which conforms to the requirements of this Insurance Specification.

1.1 Insurance—General Provisions

- 1.1.1** Contractor shall obtain and maintain insurance as required in this Insurance Specification.
- 1.1.2** All insurance required by the Contract to be purchased and maintained by Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverage's. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- 1.1.3** Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Insurance Specification, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverage's, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- 1.1.4** Failure of Owner to demand such certificates or other evidence of the 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 the Contractor's obligation to obtain and maintain such insurance.
- 1.1.5** If Contractor does not purchase or maintain all of the insurance required of Contractor by the Contract, Contractor 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.
- 1.1.6** If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against

payment, and exercise Owner's termination rights under Article 16 of the General Conditions of the Contract.

- 1.1.7** Without prejudice to any other right or remedy, if Contractor has failed to obtain required insurance, Owner may elect to obtain equivalent insurance to protect Owner's interests at the expense of the Contractor, and the Contract Price shall be adjusted accordingly.
- 1.1.8** Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- 1.1.9** The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

1.2 Contractor's Insurance - Liability

- 1.2.1 Owner's & Contractor's Protective Liability:** Contractor shall purchase and maintain an Owner's & Contractor's Protective Liability Policy ("OCP" Policy). The OCP policy shall name the Owner, the Engineer, their consultants, agents, and employees, as the insureds (hereinafter collectively called the "named insureds"). The OCP policy will protect the named insureds for any actual or alleged liability arising out of the work performed by the Contractor, the Subcontractor(s), or Suppliers, on this Project. The OCP policy will provide primary, non-contributing coverage.
- 1.2.2 Workers' Compensation and Employer's Liability:** Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1.2.2.1** Claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 1.2.2.2** United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 1.2.2.3** Claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 - 1.2.2.4** Foreign voluntary worker compensation (if applicable).
- 1.2.3 Commercial General Liability—Claims Covered:** Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
 - 1.2.3.1** Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 - 1.2.3.2** Claims for damages insured by reasonably available personal injury liability coverage.

1.2.3.3 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.

1.2.4 Commercial General Liability—Form and Content: Contractor’s commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverage’s and endorsements:

1.2.4.1 Products and completed operations coverage: Such insurance shall be maintained for three years after final payment.

1.2.4.2 Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.

1.2.4.3 Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor’s contractual indemnity obligations in Paragraph 7.18.

1.2.4.4 Premises/operations liability.

1.2.4.5 Personal and advertising injury.

1.2.4.6 Broad form property damage coverage.

1.2.4.7 Severability of interest (the CGL policy shall apply to each named insured as if that named insured was the only named insured and the policy shall apply separately to each insured against whom claim is made or suit is brought).

1.2.4.8 Underground, explosion, and collapse coverage.

1.2.4.9 Personal injury coverage, including employees (with no exclusions pertaining to employment).

1.2.4.10 Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

1.2.4.11 For design professional additional insureds, ISO Endorsement CG 20 32 07 04, “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.

- 1.2.5 Automobile liability:** Contractor shall purchase and maintain comprehensive automobile liability insurance against 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, including owned, non-owned, and hired motor vehicles. In light of standard policy provisions concerning (a) loading and unloading, and (b) definitions pertaining to motor vehicles licensed for road use versus unlicensed or self-propelled construction equipment, it is recommended that the comprehensive automobile liability insurance policy and the commercial general liability policy be written by the same insurance carrier, though not necessarily in one the policy. The comprehensive automobile liability policy shall be written on an occurrence basis.
- 1.2.6 Umbrella or excess liability:** Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, aviation liability and automobile liability insurance described in the paragraphs above and in Section 1.2.10 below. The coverage afforded shall be at least as set for in Section 1.5.6. But if no box is checked in Section 1.5.6, then the umbrella/excess liability coverage limits will be \$2,000,000 per occurrence and \$2,000,000 general aggregate. The umbrella or excess liability insurance policy(ies) shall be an occurrence policy(ies)
- 1.2.7 Contractor's pollution liability insurance:** Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- 1.2.8 Railroad Protective Liability:** Contractor shall purchase and maintain a Railroad Protective Liability policy, where such an exposure exists, to provide coverage in the name of each railroad company having jurisdiction over rights-of-way across which Work under the Contract Documents is to be performed. The form of the policy and the limits of liability shall be determined by the railroad company(ies) involved.
- 1.2.9 Contractor's professional liability insurance:** If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall purchase and maintain applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

1.2.10 Aviation Liability Insurance: If required on this project as indicated by a check mark in Section 1.5.10, Contractor shall procure and maintain for the duration of the Contract insurance against claims for injuries to persons or damage to property which may arise from or in connection with the ownership, maintenance or use of Manned or Unmanned Aerial Vehicles, including but not limited to drone(s).

1.2.10.1 Minimum Scope and Limit of Insurance: Aviation Liability Insurance on an "occurrence" basis, including products and completed operations, property damage, bodily injury with limits no less than \$1,000,000 per occurrence, and \$2,000,000 in the aggregate. This coverage may also be provided by endorsement to the Contractor's Commercial General Liability policy.

1.3 The policies of insurance required to be purchased and maintained by the Contractor shall:

1.3.1 Additional insureds: The Contractor's commercial general liability, automobile liability, umbrella or excess, pollution liability policies and aviation liability insurance, shall include and list as additional insureds the Owner and Engineer, and the following individuals and entities:

Name	Address	Telephone
County of Muskegon	990 Terrace Street Muskegon, MI 49442	231-724-6520
_____	_____	_____
_____	_____	_____

The additional insured coverage shall include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and every additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements. Each additional insured endorsement shall state that each additional insured is entitled to the same rights as the named insured in the event of cancellation, including but not limited to prior notice of cancellation.

1.3.2 Deductible Liability: Any and all deductibles in the policies described in this Insurance Specification shall be assumed by, for the account of, and be the sole responsibility of Contractor. The amount of any deductible is subject to approval by the Owner.

1.3.3 Insurance will be primary: The insurance required to be purchased and maintained by the Contractor under this Insurance Specification shall be primary

(i.e. pay first) as respects any insurance, self-insurance or self-retention maintained by the Owner, Engineer, and any other insureds. Any insurance, self-insurance or self-retention maintained by the Owner, Engineer, or any other insureds, shall be in excess of the insurance purchased and maintained by the Contractor under this Insurance Specification, and shall not contribute with it.

1.3.4 Coverages: Include at least the specific coverage's provided in this Insurance Specification.

1.3.5 Minimum Limits: Be written for not less than the limits of liability provided in this Insurance Specification and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

1.3.6 Notice of Cancellation: Contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least ten (10) days prior written notice has been given to Contractor. Within three (3) days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

1.3.7 Duration: Remain in effect at least until final payment (and longer if expressly required in this Insurance Specification or the Supplementary Conditions) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.

1.3.8 Be appropriate for the Work being performed and provide protection to Contractor, Owner, Engineer, and any other additional insured, from claims that may arise out of or result from Contractor's, Sub-contractor's or Supplier's performance of the Work, 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.

1.3.9 The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

1.4 Contractor's Insurance - Property

1.4.1 Builder's Risk: If required on this project as indicated by a check mark in Section 1.5.7, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in this Insurance Specification, or the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1.4.1.1 Include the interests of Owner, Contractor, Subcontractors, Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors, of any of them, and any other individuals or entities

required by this Insurance Specification and/or the Supplementary Conditions to be insured under such builder's risk policy. Each of whom shall be listed as a named insured (the parties required to be insured shall collectively be referred to as "insureds").

- 1.4.1.2** 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; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; 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 this Insurance Specification and/or the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
- 1.4.1.3** Cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
- 1.4.1.4** Cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
- 1.4.1.5** Extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
- 1.4.1.6** Extend to cover damage or loss to insured property while in transit.

- 1.4.1.7** Allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- 1.4.1.8** Allow for the waiver of the insurer's subrogation rights, as set forth below.
- 1.4.1.9** Provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
- 1.4.1.10** Not include a co-insurance clause.
- 1.4.1.11** Include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
- 1.4.1.12** Include performance/hot testing and start-up.
- 1.4.1.13** 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 Insured.
- 1.4.2 Notice of Cancellation or Change:** All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this section shall contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least ten (10) days prior written notice has been given to the purchasing policyholder. Within three (3) days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- 1.4.3 Deductibles:** Contractor shall pay for costs not covered because of the application of a policy deductible.
- 1.4.4 Partial Occupancy or Use by Owner:** If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04 of the General Conditions of the Contract, then Owner, through Contractor, will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- 1.4.5 Additional Insurance:** If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this section, it may do so at Contractor's expense.
- 1.4.6 Insurance of Other Property:** If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity

or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

1.4.7 Waiver of Rights: All policies purchased in accordance with this Section 1.4, expressly including the builder's risk policy, 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 insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the 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 Engineer, its consultants, all Subcontractors, all individuals or entities identified in this Insurance Specification, or the Supplementary Conditions as insureds, 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 or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

1.4.8 Sub-Contractors Waiver of Rights

Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in this Insurance Specification or the Supplementary Conditions, as insureds, the Engineer and its consultants, 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 builder's risk insurance and any other property insurance applicable to the Work.

1.4.9 Receipt and Application of Property Insurance Proceeds

Any insured loss under the builder's risk and other policies of insurance required by this section will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by this section shall distribute such proceeds in accordance

with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of the Contract or applicable Laws and Regulations.

If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

1.5 Minimum limits

1.5.1 The minimum limits for the insurance required by this Insurance Specification shall provide coverage for not less than the following amounts or greater where required by Laws or Regulations:

1.5.2 Owner’s & Contractor’s Protective Liability Policy

1.5.2.1	Each Occurrence	\$1,000,000
1.5.2.2	General – Aggregate	\$2,000,000

1.5.3 Contractor’s Commercial General Liability Policy

1.5.3.1	General – Aggregate	\$2,000,000
1.5.3.2	Products – Completed	
	Operations Aggregate	\$2,000,000
1.5.3.3	Personal and Advertising Injury	\$1,000,000
1.5.3.4	Each Occurrence	\$1,000,000
1.5.3.5	Fire damage	\$50,000
1.5.3.6	Medical Expense	\$5,000

1.5.4 Comprehensive Automobile Liability Policy (In accordance with Michigan’s No Fault Statute)

1.5.4.1	Combined Single Limit of	\$1,000,000
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1.5.5 Worker’s Compensation and Employer’s Liability Policy

1.5.5.1	Michigan	Statutory Limits
1.5.5.2	Employer’s Liability	
	1.5.5.2.1 Each accident	\$ 500,000
	1.5.5.2.2 Disease – each employee	\$ 500,000
	1.5.5.2.3 Disease – policy limit	\$ 500,000
1.5.5.3	Federal, if applicable (e.g. FELA, Longshoreman’s, etc. . . .)	Statutory Limits

1.5.6 Excess or Umbrella Liability Policy

Unless increased limits are required as checked below, the limits shall be:

1.5.6.1	General Aggregate	\$2,000,000
1.5.6.2	Each Occurrence	\$2,000,000

Owner may select increased limits for this project as checked below; otherwise, the above limits shall apply if neither below option is checked:

Option One Check if required

1.5.6.1	General Aggregate	\$5,000,000
1.5.6.2	Each Occurrence	\$5,000,000

Option Two Check if required

1.5.6.1	General Aggregate	\$10,000,000
1.5.6.2	Each Occurrence	\$10,000,000

1.5.7	Builder's Risk "all risk" policy	Full Replacement Cost
	<input type="checkbox"/> Check if required	

Items to be covered by Builder's Risk include:

1.5.8	Contractor's Pollution Liability Policy	\$1,000,000
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1.5.9	Railroad Protective Liability	\$
	<input type="checkbox"/> Check if required	\$

1.5.10 Aviation Liability Insurance

Check if required

1.5.10.1	General – Aggregate	\$2,000,000
1.5.10.2	Products – Completed Operations Aggregate	\$2,000,000
1.5.10.4	Each Occurrence	\$1,000,000

1.5.11	Other insurance	<input type="checkbox"/> Check if required	(List Type)
	\$		



CERTIFICATE OF LIABILITY INSURANCE

OP ID: JF

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

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

PRODUCER - - -	Phone:	CONTACT NAME:	
	Fax:	PHONE (A/C, No, Ext):	FAX (A/C, No):
		E-MAIL ADDRESS:	
		PRODUCER CUSTOMER ID #: _____	
INSURER(S) AFFORDING COVERAGE			NAIC #
INSURED Owner's Name and Address - -	INSURER A: INSURANCE COMPANY		AM BEST FINANCIAL
	INSURER B:		
	INSURER C:		
	INSURER D:		
	INSURER E:		
	INSURER F:		

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

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

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
-- - - -	GENERAL LIABILITY						EACH OCCURRENCE	\$ 1,000,000
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	\$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR						MED EXP (Any one person)	\$
	<input checked="" type="checkbox"/> Owner's & Contractor's Prot						PERSONAL & ADV INJURY	\$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	\$ 2,000,000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						PRODUCTS - COMPI/OP AGG	\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	\$
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person)	\$
	<input type="checkbox"/> ALL OWNED AUTOS						BODILY INJURY (Per accident)	\$
	<input type="checkbox"/> SCHEDULED AUTOS						PROPERTY DAMAGE (Per accident)	\$
	<input type="checkbox"/> HIRED AUTOS							\$
	<input type="checkbox"/> NON-OWNED AUTOS							\$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR						EACH OCCURRENCE	\$
	EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE						AGGREGATE	\$
	DEDUCTIBLE							\$
	RETENTION \$							\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						<input type="checkbox"/> WC STATUTORY LIMITS	<input type="checkbox"/> OTHER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)		Y / N				E.L. EACH ACCIDENT	\$
	If yes, describe under DESCRIPTION OF OPERATIONS below		N / A				E.L. DISEASE - EA EMPLOYEE	\$
							E.L. DISEASE - POLICY LIMIT	\$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER**CANCELLATION**

Contractor's Name and Address - -	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE

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CERTIFICATE OF LIABILITY INSURANCE

OP ID: JF

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

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

PRODUCER - - -	Phone:	CONTACT NAME:	
	Fax:	PHONE (A/C, No, Ext):	FAX (A/C, No):
		E-MAIL ADDRESS:	
		PRODUCER CUSTOMER ID #: _____	
		INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED Contractor's Name and Address - -	INSURER A: INSURANCE COMPANY		AM BEST FINANCIAL
	INSURER B:		
	INSURER C:		
	INSURER D:		
	INSURER E:		
	INSURER F:		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

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

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
-	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPI/OP AGG \$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC						
-	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
-	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE						EACH OCCURRENCE \$ 2,000,000 AGGREGATE \$ 2,000,000
	DEDUCTIBLE RETENTION \$						
-	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y / N <input checked="" type="checkbox"/> N / A If yes, describe under DESCRIPTION OF OPERATIONS below						<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000
-	Builder's Risk "ALL RISK" PROPERTY POLLUTION LIABILITY						CONTENTS Full Replacement Cost \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Name of Additional Insured

CERTIFICATE HOLDER**CANCELLATION**

Owner's Name and Address -	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE

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GENERAL REQUIREMENTS

DIVISION 1

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01 51 00	Temporary Utilities
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01 60 00	Materials and Equipment
01 75 00	Starting and Adjusting

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PART 1 - GENERAL

1.01 GENERAL

- A. Related Sections: Some Sections of the Specifications (Divisions 1 through 48) may include a paragraph titled "Related Sections." This paragraph is an aid to the Project Manual user and is not intended to include all Sections that may be related. It is the Contractor's obligation to coordinate all Sections whether indicated under "Related Sections" or not.

1.02 SUMMARY OF WORK

- A. The work covered by the Contract Documents consists of improvement to the **Muskegon Water Filtration Plant Beach Street Transmission Main** located across from the filtration plant located at **1900 Beach St, Muskegon, MI 49441**. Included in this work is furnishing all supervision, labor, materials, equipment, activities and related costs necessary for completing the improvements. Work includes but is not limited to:

Construction of a metering manhole, and installation of a full-profile insertion electromagnetic flow meter on the existing 30-inch transmission main. Also included is all associated equipment, piping, electrical, controls, and site work.

- B. The Contractor shall visit the site of the work and shall completely inform himself relative to construction hazards and procedure, labor, and all other conditions and factors, local and otherwise, which would affect execution and completion of the work and its cost. Such considerations shall include the arrangement and condition of the existing structures and facilities, the availability and cost of labor and facilities for transportation, handling and storage of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the Contractor's proposal. There will be no subsequent financial adjustment for lack of such prior information.
- C. The Contractor shall guarantee all equipment and work for one year from the date of substantial completion.
- D. Phasing:
1. The existing 30-inch transmission main shall remain in operation during the entire duration of the project.
 2. Refer to work sequence and coordination outlined below.

1.03 STANDARD SPECIFICATIONS

The specifications as provided in Appendix A are hereby made a part of this contract and are specifically referenced in other Sections of these specifications.

Where a standard construction method or contract procedure is not specifically covered by the Contract Documents or shown on the plan, the most recent edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction shall apply. Specific references made in these documents will be abbreviated as follows: MDOT 000.00.

1.04 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow Owner access to and operation of all existing treatment facilities.

- B. The water treatment plant facilities shall remain operational during the entire project to assure the distribution system demands are met. Construction shall proceed and Contractor shall coordinate with the Owner such that satisfactory operation of the Water Treatment Plant is maintained.

It is not possible to remove the Water Treatment plant from service during the work. Contractor may coordinate with the Owner to have flows reduced or adjusted in the transmission main to the extent possible.

The Contractor shall not encumber the site with material and equipment that would interfere with operation.

Construction activities will be conducted near the Beach Street right-of-way. The Contractor shall be responsible for all required traffic control as part of this project.

- C. Access to Site

1. During construction, all roadways, streets and alleys may not be obstructed unless special permission is received from Owner.

- D. Construction Operations: Limited to areas noted on Drawings. Limits of construction shall be confined to property owned by the Owner. Contractor shall coordinate access, site utilization, and work area limits with the Owner.

- E. Time Restrictions for Performing Work: Work shall be performed during normal business hours. No night or weekend or Holiday work allowed unless permission is received from the Owner.

- F. Utility Outages and Shutdowns: Any utility outages required shall be approved in advance by the Owner. Temporary utilities shall be provided by the Contractor to ensure the full functionality of the facility during temporary outages.

- G. The Owner desires to limit tree removals on site during construction of the improvements. Only trees specifically marked "Remove" on the Drawings shall be removed unless specifically authorized by the Owner.

- H. Use of Site for Storage and Field Office: Space for storage and field office for the Contractor is the Contractor's responsibility. Any structures or facilities needed for storage or field office shall be constructed by the Contractor at Contractor's own expense and no separate payment will be made therefor. The Contractor shall not unreasonably encumber the site with materials and equipment and shall obtain and pay for use of additional storage or work areas needed for operations. The Contractor shall not load structure with weight that will endanger the structure. The Contractor shall move any stored products which interfere with operations of the Owner or other Contractors.

All security requirements for such facilities shall be provided and maintained by the Contractor. The Contractor shall remove any temporary facilities and all surplus materials when there is no further need of them. Each Subcontractor shall be held responsible to the General Contractor for all damages to existing site facilities disturbed through the performance of his work, or in the delivery of materials or equipment for his use, and shall pay all costs in connection with repairing of same. The General Contractor shall be held responsible that all damage be repaired.

- I. During performance of the work, the Contractor shall, at all times, keep the site or sites of the work and adjacent premises as free from material, debris and rubbish as is practical and shall remove it from any portion of the sites, if in the opinion of the Engineer, such material, debris or rubbish constitutes a nuisance or is objectionable.

At the conclusion of the work, all erection plant tools, temporary structures and materials belonging to the Contractor shall be promptly removed from the construction site and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.

The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished and new-appearing condition.

Areas of work shall be clean and dust free prior to beginning operation of new equipment.

1.05 WORK SEQUENCE AND COORDINATION

- A. The Contractor shall maintain the Owner's ability to operate its Water Treatment Plant at all times during the construction process.
- B. All equipment and materials shall be on site or securely stored and insured by Contractor prior to commencement of any on site construction activities.
- C. The Contractor shall be responsible for sequencing construction operations in an efficient manner and to minimize the length of service interruptions. Contractors shall coordinate and cooperate with each other such that the necessary work items and dates can be met.
- D. The Contractor may submit a written proposal for changing elements of the sequence of events. Any changes to the sequence of events shall be reviewed and approved by the Owner and Engineer in writing prior to initiation of such by the Contractor.
- E. The following is a sequence of the major items of work and is not intended to include each and every work item:
 - 1. Expose and field verify the 45 degree bend and transmission main joints as noted on the Drawings. Select appropriate location for meter manhole and meter.
 - 2. Excavate location of proposed meter. Field verify outside diameter of transmission main. Select appropriately sized tapping sleeve. Coordinate sizes of pipe and sleeve to meter manufacturer to ensure properly sized meter rod.
 - 3. Install tapping sleeve, valve, and tap transmission main. Valve shall be provided by the meter manufacturer and installed by the Contractor. Tap shall be performed by the Contractor, through the valve supplied by the meter manufacturer.
 - 4. Construct the remainder of the metering manhole, install electrical conduit and wiring for proposed flow meter.
 - 5. Install flow meter per manufacturer recommendations, perform startup and calibration as required.
 - 6. Perform accuracy testing of the flowmeter per Section 01 75 00 Starting and Adjusting to complete installation. Accuracy testing shall be performed in the presence of the Owner, Engineer, Contractor, and Manufacturer's Service Engineer.
 - 7. Begin two-week trial operation of meter and accessories.

- F. Disinfection of the work area, tools, and equipment is necessary to ensure that the water supply system is not compromised. The disinfection procedure shall be as follows:
1. Prepare the pipe for installation of the tapping sleeve by cleaning and hand chlorinating the exterior of the pipe with a 500 ppm chlorine solution.
 2. Hand chlorinate all wetted surfaces of the ball valve and tapping machine.
 3. Install tapping sleeve, complete the tap, and flush the ball valve.
 4. Hand chlorinate all wetted portions of the insertion flowmeter and install via the tap.

1.06 PROGRESS SCHEDULE

To enable the work to be laid out and prosecuted in an orderly and expeditious manner, the Contractor shall submit to the Engineer a proposed progress schedule within 20 days after the signing of the Contract. This schedule shall indicate the construction starting date and completion date for each of the various operations to be performed under this Contract. This schedule shall be in the form of a bar chart or of a network diagram showing, in a visual and logical manner, the various work functions or activities necessary to complete the work under this Contract, and the critical relationships between these activities. Activities conducted to ensure operational status of the water treatment plant and the distribution system shall be outlined. Required interruption of service to complete activities under this contract shall be addressed in a manner that includes scope of work, preparation tasks prior to service interruption that will minimize down time, estimate of duration of service interruption, and activities that will be requested of the Owner. The Engineer and the Owner will review the proposed progress schedule to determine conformity to the Contract Documents. If such conformity is demonstrated, the Engineer will accept the proposed schedule.

During the course of the Contract, the Contractor shall submit to the Engineer every 60 days a revised progress schedule indicating any anticipated change from the original progress schedule. The revised schedule shall include provisions for performing work authorized under approved Change Orders. If the Engineer determines that the modifications in the revised progress schedule are reasonable and that they conform to the Contract Documents, the Engineer will accept the revised schedule.

If the Contractor fails to adhere to the approved progress schedule as revised, he shall promptly adopt such other or additional means and methods of construction as will make up for the time lost, and will assure completion in accordance with such schedule.

Once construction has commenced it shall continue through to completion without interruption.

1.07 PERMITS

- A. General: The Contractor shall obtain all permits necessary for construction of this project not obtained by the Owner. The Contractor shall pay for any charges or bonds required by agencies for permits, inspections or similar charges to construct this project as shown on the Drawings.
- B. Soil Erosion and Sedimentation Control - The Owner has obtained a Soil Erosion and Sedimentation Control permit (Permit number 23-045), provided in Appendix B. Contractor shall meet all requirements of the permit and abide by all applicable rules and regulations as established by the State of Michigan and the local regulating agency in conjunction with Soil Erosion and Sedimentation Control Act (Act 347 P.A. of 1972) as amended. Copies of the state guidelines "Better Environment through Soil Erosion and Sedimentation Control" may be obtained from the local regulating agency.
- C. The Owner has obtained an Act 399 Water Supply System Permit from the Michigan Department of Environment, Great Lakes, and Energy. Contractor shall abide by all relevant requirements of this permit, provided in Appendix B.

- D. Comply with the EGLE/Army Corps of Engineers Critical Dunes Joint permit obtained for the project, a copy of which will be provided when received.

1.08 STAKING, CONTROLS, MONUMENTS

The Owner will provide control stakes for alignment and grade of the proposed project for buildings and pipelines. The Contractor shall preserve these controls and shall furnish additional intermediate controls to assure accurate line and grade. The Contractor may request staking on one (1) occasion. Contractor shall be responsible for cost of additional visits or restaking.

The Contractor shall pay for replacement of destroyed controls and benchmarks or monuments.

The Contractor shall exercise proper care in the preservation of all stakes set for their use or the use of the Engineer and if such stakes are damaged, lost or removed by the Contractor's operation, the cost of resetting may be charged to the Contractor. The Contractor shall pay for replacement of destroyed controls and benchmarks or monuments.

Any irregularity in grade and/or line stakes discovered by the Contractor shall be reported to the Engineer for correction before proceeding with the work.

The Contractor shall provide additional methods, materials, or equipment as may be necessary to facilitate laying out, inspecting and constructing the work. The Contractor shall assume full responsibility for all detailed dimensions and elevations measured from the lines, grades and elevations established by the Engineer.

The construction stakes shall be left in place until each phase of the work has been completed and inspected. In the event of discrepancies in the location or grade of the work, the Contractor shall be responsible for making the necessary corrections unless grade stakes are left in place that shows evidence of an error in staking.

1.09 DATUM PLANE

All elevations indicated or specified refer to the NAVD 1988 datum and are expressed in feet and decimal parts thereof, or in feet and inches.

Retrofit activity shall integrate new facilities with existing. Existing facility dimension data was established by field measurement. The Contractor shall field verify actual site conditions.

1.10 BIDDERS RESPONSIBILITY ON UNDERGROUND CONDITIONS

The Bidder will be responsible for making his own sub-surface soil investigations and shall make his own determinations therefrom.

The Bidder hereby waives all claims for damages which he may suffer by reason of the inadequacies or discrepancies of the information shown on these soil boring logs and understands that no compensation will be paid to him due to any inadequacy or discrepancy in this data.

1.11 PROTECTION OF EXISTING UTILITIES

- A. The Contractor must comply with Act 174 of 2013, as amended, MCL 460.721 et seq., and all other Laws concerning Underground Utilities. Before performing site Work, all Underground Utilities, lines and cables both public and private must be located and marked. The Contractor shall notify MISS DIG to locate and mark utilities. The Contractor shall be responsible for locating and marking all utilities not otherwise located through the MISS DIG system including private utilities.

- B. Various underground and overhead structures and utilities are shown on the Drawings. The location and dimensions of such structures and utilities, where given, are believed to be reasonably correct, but do not purport to be absolutely so. These structures and utilities are plotted on the Drawings for the information of the Bidders, but information so given is not to be construed as a representation or assurance that such structures will be found or encountered as plotted, or that such information is complete or accurate. Bidders, therefore, shall satisfy themselves by such means as they may deem proper as to the location of all structures and utilities that may be encountered in the construction of the work. Specific utility locations and elevations, where shown on the Drawings, shall be field verified by the Contractor prior to the start of construction.
- C. The Contractor shall notify the utility companies of his schedule and obtain any necessary permits from them.
- D. The Contractor shall pay for any charges by the utility companies for permits, inspections, or similar charges required to construct the project as shown on the Drawings.
- E. In addition, the Contractor shall immediately notify the Owner of any contact with or damage to Underground Utilities. Contractor shall be solely responsible for the safety, protection of, and repairing any damage done to any Work, surface and subsurface structures and utilities at no additional cost.

1.12 PROTECTION OF NATURAL RESOURCES

- A. The Contractor shall take all necessary steps to prevent damage to fish and game habitat and to preserve the natural resources of the State. Construction shall be carried out so as to minimize discharge of damaging material into any stream, lake, or reservoir.
- B. The Contractor shall exercise caution in the discharge of waters from pumps, deep wells, or well point systems, in order that such discharges do not cause erosion, siltation, soil depositions, etc., in sewers, streams or other water courses or drainage structures.
- C. The Contractor shall not permit any sand or debris of any kind to enter the existing ditches, streams, storm sewers or culverts.
- D. The rules and regulations of all work shall comply with Part 31 (Water Resources Protection), Part 301 (Inland Lakes and Streams Act), Part 91 (Soil Erosion), and Part 303 (Wetland Protection) of P.A. No. 451(Natural Resources and Environmental Protections Act of 1994).

1.13 PROTECTION OF ADJACENT STRUCTURES AND LANDSCAPING

The Contractor shall be entirely responsible for all damage to water pipes, electric conduits or cables, drains, sewers, gas mains, poles, telephone and telegraph lines, railroad bridges and tracks, streets, pavements, sidewalks, curbs, fences, street and highway bridges and culverts, building foundations, retaining walls or other structures of any kind met with during the progress of the work, and shall be liable for damages to public or private property resulting therefrom.

The cost of protection, replacement in their original positions and conditions or payment for damages thereto of pipe lines and structures affected by the work and the removal, relocation and rebuilding of pipe lines and structures called for on the Drawings or specified shall be deemed included in the contract lump sum. No additional payment will be made therefor.

The Contractor shall, at all times in performance of the work, employ approved methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage or destruction of public utility installations and structures; and shall, at all times in the performance of the work, avoid unnecessary

interference with, or interruption of, public utility services, and shall cooperate fully with the Owner and utility owners thereof to that end.

All pipe lines carrying liquid shall be adequately protected from freezing. All fire hydrants, valves and appurtenances on the various water systems shall be maintained in service, and temporary connections shall be provided where necessary.

Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor and shall be left in as good a condition as before the start of work. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the Engineer. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate Contract Item or Items, or if no specific Item is provided therefor, as part of the overhead cost of the work, and no additional payment will be made therefore.

1.14 WARRANTY

The Contractor shall warranty and guarantee all equipment and work for a minimum of one year from the dates of substantial completion. Greater warranty duration may be required by the project specifications for specific equipment and/or work.

1.15 SAFETY

The Contractor is solely responsible for safety in accordance with the General Conditions.

PART 2 - PRODUCTS

*** Not Used ***

PART 3 - EXECUTION

*** Not Used ***

END OF SECTION

[Intentionally left blank]

PART 1 - GENERAL

1.01 GENERAL:

Project meetings for coordination of Contractor activity with the operation of the water treatment plant will be held as detailed in this section with additional meetings as requested by the Owner or Engineer, as dependent on the staging requirements for specific portions of the project. Meetings will be held at a location chosen by the Owner.

1.02 PRE-CONSTRUCTION MEETING

- A. Schedule: Meeting shall be prior to the start of work at a time and place designated by the Engineer. Contractor shall be required to attend with major Subcontractors.

1.03 PROGRESS MEETINGS

- A. Schedule: Meetings will be scheduled as required at a time and place designated by the Engineer. Contractor shall attend all progress meeting and shall have Subcontractors attend as relevant to the current status of the project.

PART 2 - PRODUCTS

*** Not Applicable ***

PART 3 - EXECUTION

*** Not Applicable ***

END OF SECTION

[Intentionally left blank]

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Data to be furnished by the Contractor.

1.02 CONSTRUCTION PROGRESS SCHEDULE

- A. See requirements for Contractor submission of a construction progress schedule in Section 01 10 00 – “Summary of Work.”

1.03 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- A. General: Where required by the Specifications, the Contractor shall submit descriptive information which will enable the Engineer to advise the Owner whether the Contractor's proposed materials, equipment, or methods of work are in general conformance to the design concept and in compliance with the Drawings and Specifications. The information to be submitted shall consist of drawings, specifications, descriptive data, certificates, samples, test results and such other information, all as specifically required in the Specifications. Shop drawings shall be in accordance with the General Conditions and Supplementary Conditions and the requirements outlined herein.
- B. Submittal Content and Format: Submittals shall be numbered consecutively and distinctly present the following:
 - 1. All working and erection dimensions.
 - 2. Arrangements and sectional views.
 - 3. Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.
 - 4. Electrical wiring connections between all equipment furnished under the Contract, including all internal wiring between internal components of equipment and controls.
 - 5. Kinds of materials and finishes.
 - 6. Parts lists and description thereof.
 - 7. Drawings for mechanical and electrical equipment shall present, where applicable, such data as dimensions, weight, and performance characteristics. These data shall show conformance with the performance characteristics and other criteria incorporated in the Contract Documents.
- C. Contractor Responsibility
 - 1. Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that the material and equipment described in each submittal conform to the requirements of the Specifications and Drawings. If the information shows deviations from the Specifications or Drawings, the Contractor shall insure that there is no conflict with other submittals and notify the Engineer in each case where submittal may affect the work of another Contractor or the Owner. The Contractor shall insure coordination of submittals among the related crafts and Subcontractors.
 - 2. The Contractor shall be responsible to check and verify all field measurements, all dimensions on shop and setting drawings and all schedules required for the work of all the various trades.
 - 3. The Contractor may authorize in writing a material or equipment supplier to deal directly with the Engineer or with the Owner with regard to a submittal. These dealings shall be limited to contract interpretations.

4. The Contractor shall stamp each submittal with stamp, initialed and signed, certifying to review of the submittal by the Contractor, verification of field measurements and compliance with Contract Documents.
- D. Transmittal Procedure
1. Submittals shall be submitted promptly in accordance with dates in proposals, approved schedules and in such sequence that there is no delay in the Work or the work of any other Contractor. Submittals may be submitted by mail or electronically per the requirements listed below.
 2. Submittals regarding material and equipment shall be accompanied by clear identification of the equipment and any variations from these Specifications.
 3. A unique number, sequentially arranged, shall be noted on the transmittal form accompanying each item's submittal. Original submittal numbers shall have the following format "XXX-Y"; where "XXX" is the originally assigned submittal number, and "Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd and 3rd resubmittals, respectively. Submittal 025-B, for example, is the second resubmittal of submittal 25.
- E. Electronic Transmittal Procedure – Submittals shall be submitted electronically via the Prein&Newhof Plan Room in accordance with the above “Transmittal Procedure” requirements as well as the following requirements and procedures.
1. Contractor shall be given a Login ID and Password to the Prein&Newhof Plan room. The website for the Prein&Newhof Plan Room is <http://www.preinnewhof.com/plan-room/>.
 2. Upon logging into the website, the Contractor will have access to a project folder labeled with the name of the Owner and Project. This folder will only be accessible to the Contractor, the Owner, and the Engineer.
 3. Login and password will not be provided to Subcontractors. If the Contractor provides their login information to their Subcontractors, the Contractor assumes responsibility for the Subcontractor’s actions.
 4. The Contractor may request automatic notifications by email of an “Upload” of both submitted and reviewed documents.
 5. Within the “Project Folder” there will be a “To Be Reviewed” folder and a “Reviewed” Folder. Contractor shall upload submittals in PDF format to the “To Be Reviewed” subfolder. The time and date of the upload will be logged and automatic email notifications will be sent.
 6. All submittals shall be prepared in accordance with this Section 01 33 00 of the specifications. Electronic submittals shall have the following naming format:

Submittal Number – Specification Section – Description.pdf

For example –001-033000-Concrete Mix Design.pdf

A letter shall be added after the submittal number for resubmittals. For example, 001B-033000-Concrete Mix Design.pdf would be the second resubmission.
 7. Within 15 days, reviewed submittals will be posted in the “Reviewed” folder. Automatic email notifications of the upload will be sent.
 8. The Engineer will update the “Shop Drawing Status Log” and post it in the Project Folder as submittals are received, where it will be accessible by the Owner, Contractor, and Engineer.
 9. Contractor shall submit any submittal requiring an Engineer’s seal as a hard copy. In addition, all submittals with an original size greater than 11 inches by 17 inches shall be submitted as a hard copy. All hard copy submittals shall also be submitted electronically.
- F. Deviation from Contract: If the Contractor proposes to provide material or equipment which does not conform to the Specifications and Drawings, he shall indicate so under "deviations" on the

transmittal form accompanying the submittal copies. Contractor shall prepare reason for a change, including cost differential, and request a change order to cover the deviations.

- G. Submittal Completeness: Submittals which do not have all the information required to be submitted, including deviations, are not acceptable and will be returned without review.
- H. Review Procedure
1. When the contract documents require a submittal, the Contractor shall submit five (5) copies of all submittal data (or one (1) electronic copy if submitting electronically), of which two (2) copies will be retained by the Engineer. For samples this number may vary. For samples, submit the number stated in each Specifications Section.
 2. If the review indicates that the material, equipment or work method is in general conformance with the design concept and complies with the Drawings and Specifications, submittal copies will be marked "NO EXCEPTIONS TAKEN". In this event the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.
 3. If the review indicates limited corrections are required, submitted copies will be marked "FURNISH AS CORRECTED". The Contractor may begin implementing the work method by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in Operation and Maintenance data, a corrected copy shall be provided.
 4. If the review reveals that the submittal is insufficient or contains incorrect data, submitted copies will be marked "REVISE AND RESUBMIT". Except at its own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "FURNISH AS CORRECTED".
 5. If the review indicates that the material, equipment or work method is not in general conformance with the Drawings and Specifications, copies of the submittal will be marked "REJECTED". Submittals with deviations which have not been identified clearly may be rejected. Except at its own risk the Contractor shall not undertake the work covered by such submittals until it has been revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "FURNISH AS CORRECTED".
 6. If the review indicates that the material or equipment is not from an acceptable manufacturer, as indicated in the Specifications, copies of the submittal will be marked "REJECTED". Except at its own risk, the Contractor shall not undertake the work covered by such submittals until it has been revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "FURNISH AS CORRECTED".
 7. If the review indicates "ACKNOWLEDGED RECEIPT", the submittal under review has been appropriately noted and filed. No further action is required for a submittal so noted.
 8. If the review indicates "ON HOLD", the submittal is being held in the office of the Engineer pending the submittal of additional information, etc. so that the review can be completed. No further action on the submittal shall be taken until the information needed has been received and the submittal is returned marked either "NO EXCEPTIONS TAKEN" or "FURNISH AS CORRECTED".
- I. Effect of Review of Contractor's Submittal
1. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges. Recovery of the administrative and review costs will be discussed prior to completing review of all resubmittals as the project progresses.
 2. Review of Drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility

for errors therein and shall not be regarded as an assumption of risks or liabilities by the Engineer or the Owner, or by an officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed.

3. Review of Drawings also shall not relieve the Contractor of responsibility for the proper fitting and construction of the work nor for the furnishing of materials or work required by the Contract and not indicated on the Drawings.
4. A mark of "NO EXCEPTIONS TAKEN" or "FURNISH AS CORRECTED" shall mean that the Owner has no objection to the Contractor, upon its own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

1.04 LIST OF SHOP DRAWING SUBMITTALS

A. Requirements

1. Within two (2) weeks after Notice of Award, the Contractor shall submit for review by the Engineer an anticipated list of shop drawing submittals and submittal dates. If more than one shop drawing submittal is anticipated for a specification section, the Contractor shall identify what will be included in each submittal.

1.05 OPERATION AND MAINTENANCE DATA

A. Requirements

1. Compile product data for all equipment and associated controls systems furnished and installed under this Contract. Provide all necessary information for Owner's operation and maintenance of products furnished.
2. Prepare data in the form of an instructional manual for use by Owner's personnel. Prepare three (3) copies or complete sets compiled, bound in hard stock, and indexed.
3. A USB drive shall be provided of the entire manual in electronic, PDF, format.
4. The manuals shall include detailed operation and maintenance instructions for all equipment, the name and phone number of the manufacturer, and a complete parts list.
5. Submittal of operation and maintenance manuals shall be prior to final payment request.
6. Each hard copy of the manual shall be prepared and arranged as follows:
 - a. One hard copy of all approved shop drawings and diagrams for all equipment furnished. If the Contractor originally submitted the shop drawings electronically, a hard copy of each shall be printed and provided by the Contractor in each O&M manual. All sheets larger than 8-1/2 by 11 inches shall be folded to 8-1/2 by 11 inches.
 - b. One copy of each manufacturer's operation, lubrication, maintenance instructions and spare parts list for all equipment and controls furnished. All equipment operating, lubrication and maintenance instructions and procedures and parts lists shall be furnished on 8-1/2 by 11 inch commercially printed typed forms. Such forms shall include equipment name, serial number and other identifying references.
 - c. One valve schedule, giving the valve number, location, fluid and fluid destination for each valve installed, prepared on 8-1/2 by 11 inch printed or typed forms as specified. All valves in the same piping system shall be grouped together in the schedule. A sample of the valve numbering system to be used will be furnished by the Engineer.
 - d. List of electrical relay settings and control and alarm contact settings.
 - e. Electrical interconnection wiring diagram for equipment furnished including all control and lighting systems.
 - f. Each copy of the manual shall be assembled in one or more binders, each with title page, typed table of contents, and heavy section dividers with copper reinforced holes and numbered plastic index tabs. Each manual shall be divided into sections paralleling the Special Specifications equipment specifications.

- Binders shall be 3-ring, hard-back type. All data shall be punched for binding and composition and printing shall be arranged so that punching does not obliterate any data. The cover and binding edge of each manual shall have the project title, and manual title printed thereon, all as approved by Engineer.
- g. Where more than one binder is required they shall be labeled Vol. 1, Vol. 2, and so on. The table of contents for the entire set, identified by volume number, shall appear in each binder.
7. When the work reaches 80 percent completion, the Contractor shall submit to the Engineer two copies of the Operation and Maintenance Manual with all specified material that is available at that time. The submittal shall accompany the Contractor's partial payment request for the specified completion. Within 30 days after the Engineer's approval of the two-copy submittal, the Contractor shall furnish to the Engineer the remaining copies of the manual. Appropriate space shall be left in the manual for material non available at the time of the initial submittal. Manual shall be complete prior to request for final payment.
The costs of the Operation and Maintenance Manual shall be included in the Contract Price and no separate payment will be made therefore.

1.06 RECORD DOCUMENTS

A. Requirements

1. The Contractor shall maintain on the construction site a minimum of one (1) complete set of contract documents amended by "RED LINE" or highlight inclusion to reflect the most immediate status methods, materials, and locations and routings of construction. Supplementary sketches shall be included, if necessary, to clearly indicate all work as constructed.
2. At conclusion of work, the Contractor shall submit to the (Engineer) one (1) complete amended record set of these site documents.
3. Submittal shall be prior to final payment.
4. Failure of the Contractor to maintain an up-to-date set of Record Drawings on the project site shall be reason to withhold payments.

PART 2 - PRODUCTS

*** Not Used ***

PART 3 - EXECUTION

*** Not Used ***

END OF SECTION

[Intentionally left blank]

PART 1 - GENERAL

1.01 GENERAL

- A. This section covers provision of temporary utilities by the Contractor or Owner during the Work.

1.02 TEMPORARY SERVICES

- A. Temporary Power: Within the limits of the available power supply from the existing service, the Owner will furnish necessary electricity to the Contractor without charge, providing the Contractor takes reasonable means to conserve it. Distribution of the electricity is the Contractor's responsibility.
- B. Temporary Water: Within the limits of the available water supply from the existing service, the Owner will furnish necessary water to the Contractor without charge, provided the Contractor coordinates use with the Owner and takes reasonable means to conserve it. The Contractor shall be responsible for the distribution of the water.
- C. Temporary Sanitary Facilities: The General Contractor shall provide temporary facilities for use of all workers on the project. Maintain in clean, sanitary condition and remove same, and all contents upon completion of the work.
- D. Temporary Internet Service: There is no internet service available for Contractor use on the site. If the Contractor desires to have internet service for himself and/or Subcontractor it shall be the responsibility of the Contractor to obtain and pay for internet service. If internet service is obtained by the Contractor, Contractor shall provide internet access to the Owner and Engineer upon request.

PART 2 - PRODUCTS

*** Not Used ***

PART 3 - EXECUTION

*** Not Used ***

END OF SECTION

[Intentionally left blank]

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section includes the work required to provide and maintain temporary soil erosion and sedimentation control.

1.02 JOB CONDITIONS

- A. Scheduling: Clean-up shall occur within one week after erosion control measures are no longer required.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 – “Submittals.”
- B. Operational Data: Contractor shall submit a plan for the control of soil erosion and sedimentation to the local agency regulating soil erosion and sedimentation. Plan shall comply with the Soil Erosion and Sedimentation Control permit obtained by the Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials used for temporary erosion and sedimentation control shall be approved by the regulating agency.

PART 3 - EXECUTION

3.01 PERFORMANCE

- A. General: Abide with all applicable rules and regulations as established by the State of Michigan and the local regulating agency in conjunction with Part 91 Soil Erosion and Sedimentation Control of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Copies of the state guidelines "Better Environment through Soil Erosion and Sedimentation Control" may be obtained from the local regulating agency.
- B. Sediment Removal: Take such steps as are necessary to assure the retention and removal of any sediment which enters a drainage system along the construction route before said system discharges into a stream, pond, or lake.
- C. Soil Erosion and Sedimentation Control Measures: Contractor shall obtain a Soil Erosion and Sedimentation Control Permit from the regulating agency. Furnish, install and maintain soil erosion and sedimentation control measures in accordance with the Soil Erosion and Sedimentation Control Permit and any additional measures as needed to prevent any sediment from entering surface water.
 - 1. Maintain controls during non-working hours and during working hours if weather so requires.
 - 2. Remove silt or solids retention at control structures following construction.
 - 3. Contractor shall be responsible for the degree of control required, subject to the Permit requirements.

END OF SECTION

PART 1 - GENERAL

1.01 MATERIALS AND EQUIPMENT:

- A. Materials and equipment incorporated into the Work:
 - 1. Shall conform to applicable specifications and standards.
 - 2. Shall comply with size, make, type and quality specified or as specifically approved by the Engineer.
 - 3. Manufactured and Fabricated Products.
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gages to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
 - 4. Do not use material or equipment for any purpose other than that for which it is designed or specified.

1.02 MANUFACTURER'S INSTRUCTIONS:

- A. When Contract Documents, require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two sets to the Engineer.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.
- B. Handle, install, connect, clean, and condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
- C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedures unless specifically modified or exempted by Contract Documents.

1.03 TRANSPORTATION AND HANDLING:

- A. Arrange deliveries of products in accord with construction schedules; coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging with identifying labels intact and legible.
 - 2. Immediately upon delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.04 STORAGE AND PROTECTION:

- A. Store products in accord with manufacturer's instructions, with seals and labels intact and legible.
 - 1. Store products subject to damage by the elements in weather tight enclosures.
 - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- B. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections to assure that products are maintained under specified conditions and free from damage or deterioration.

1.05 SUBSTITUTIONS/ALTERNATE EQUIPMENT:

- A. Where materials and equipment items are identified in the Drawings or specifications by manufacturer's name or catalog number, bids shall be based on the products of one of the manufacturers so named or added thereto by addendum during the bidding period. All cost associated with utilizing equipment provided by other Manufacturers shall be included in the add or deduct including all building, electrical, mechanical or any other changes necessary to install the equipment. In addition, Contractor shall be responsible for reimbursing Owner for all engineering and design related to contract modifications necessary to utilize alternate equipment.
- B. Documentation for alternate equipment must be provided as detailed in this section. Review of documentation will be completed by the Engineer and Owner after the bid.
- C. Required documentation for substitutions/alternate equipment must be received by the Engineer not later than 24 hours after the bids are received. This information will be required from each bidder who submitted one of the three lowest base bids.
- D. A request for a substitution/proposed alternate equipment constitutes a representation that the Contractor has investigated and determined the proposed product is equal to, or superior in all respects to that specified.
- E. The Contractor shall coordinate the installation of an accepted substitution into the Work and make the Work complete in all respects.
- F. The Engineer shall be the judge of the acceptability of the proposed substitutions.
- G. Requests for substitutions shall be submitted on the accompanying form. In addition to the form, supporting documentation shall be submitted providing technical details of the equipment for this application including complete equipment drawings and scope of supply, review of the specifications including any proposed deviations from it, manufacturer's company history, financial ability of the manufacturer, similar installations of the proposed equipment with reference information including dates of service and contact phone numbers, and any other information deemed necessary by the Engineer for a thorough review. Contractor shall include a complete and detailed list describing all deviations where proposed equipment differs from this specification.

PART 2 - PRODUCTS

*** Not Applicable ***

PART 3 - EXECUTION

*** Not Applicable ***

**APPLICATION FOR APPROVAL OF SUBSTITUTE
MATERIAL/EQUIPMENT**

<u>Material/Equipment</u>	<u>Manufacturer</u>	<u>Model No. Certificate No. or Other Description</u>
_____	_____	_____
	_____	_____
	_____	_____

Proposed Substitute Material/Equipment:

<u>Material/Equipment</u>	<u>Manufacturer</u>	<u>Model No. Certificate No.</u>
_____	_____	_____

Approval of Substitution _____
Contractor _____ Date _____

Not Approved _____
Engineer _____ Date _____

END OF SECTION

PART 1 - GENERAL

1.01 GENERAL

- A. Prior to Substantial Completion, Contractor shall conduct startup and adjustment of all portions of the work to provide a fully functional water treatment plant. All equipment provided shall be subject to the requirements of this section and further requirements in each section where specific equipment is specified.

PART 2 - PRODUCTS

*** Not Used ***

PART 3 - EXECUTION

3.01 GENERAL

Due to the sequencing required to maintain operation of the water treatment plant during construction, specified startup activities for equipment shall be required each time an individual unit is placed in operation. Training of the Owner for a specific type of equipment shall only be required once.

3.02 MANUFACTURER'S SERVICE ENGINEER

Contractor shall furnish the services of a competent Manufacturer's Service Engineer, if necessary during construction. A Manufacturer's Service Engineer shall be on the site at the time of initial operation of the manufacturer's equipment and must approve the installation before it is placed into service.

3.03 PERFORMANCE TEST AND TRIAL OPERATION

Performance tests of the new meter will be required and will be made in the presence of the Owner, Contractor, Engineer, and a Manufacturer's Service Engineer. All areas where work has been performed shall be thoroughly cleaned before beginning any performance tests. Operating personnel and power will be provided by the Owner.

Performance testing of the flowmeter will be accomplished by comparing flow from the installed flowmeter and flow measured in the existing channel crossing meter. The Contractor shall coordinate with the Owner to have valves serving side streets along Beach Street closed, if possible. The Owner will monitor flow in the installed flowmeter and existing channel crossing meter to determine if the monitored flow rate from the installed meter matches the flow from the existing meter within published accuracy tolerances.

If any part of the equipment does not meet specifications, the Contractor shall correct the situation to the approval of the Engineer. The Contractor shall provide personnel and bear all costs of correcting any malfunctions in the work under this Contract.

A two week trial operation period shall be conducted for the proposed meter. Training of water treatment plant personnel shall be conducted as requested by the Owner during the performance test and trial operation period. The performance test will be considered complete when the Contractor has corrected any malfunctions in the work and the Owner indicates the test has been completed to his satisfaction.

END OF SECTION

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OPENINGS
DIVISION 8
TABLE OF CONTENTS

SECTION	TITLE
08 31 00	Access Hatches

[Intentionally left blank]

PART 1 - GENERAL

1.01 SCOPE

Work includes provision and installation of access hatches as shown in the drawings.

The Contractor shall be responsible to coordinate all details of the installation of specified equipment with other related parts of the Work.

1.02 SUBMITTALS

A. Submit in accordance with the General and Supplementary Conditions and Section 01 33 00.

B. Submit detailed shop and installation drawings to the Engineer for review.

1.03 Warranty

A. The manufacturer shall guarantee against all defects in materials and/or workmanship for a period of five years.

PART 2 - PRODUCTS

2.01 ACCESS HATCHES

Access hatch shall be installed as shown on the plans and meet the requirements as specified herein. Acceptable manufacturers will be Bilco Company or Engineer approved equal.

Access hatches shall be capable to withstand a live load of 300 psf. Door leaf shall be ¼" aluminum diamond pattern. The frame shall be extruded aluminum angle with a continuous 1 ½" anchor flange around the perimeter. Exterior of frame that comes in contact with concrete shall be coated with two coats of Tnemec Series 49, 4 to 6 mils each coat.

Hatches shall be equipped with heavy 316 stainless steel hinges, Type 316 stainless steel pins, and hold-open arm with release handle. A stainless steel slam lock with removable handle and a threaded aluminum keyway plug and locking hasp shall be provided. A recessed padlock shall be provided. Hatches shall have a continuous EPDM debris gasket provided to prevent intrusion of debris into the chamber. All hardware shall be 316 stainless steel.

PART 3 - EXECUTION

3.01 GENERAL

Installation shall be performed per the manufacturer's instructions. The manufacturer shall guarantee against all defects in materials and/or workmanship for a period of five years.

3.02 HATCH DRAIN

Hatch drain pipe shall be routed to the outside of the chamber lid. Contractor shall coordinate orientation of the hatch drain with manufacturer and Engineer during submittal review.

END OF SECTION 08 31 00

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ELECTRICAL SPECIFICATIONS
DIVISIONS 26
TABLE OF CONTENTS

SECTION	TITLE
26 05 00	Electrical General Provisions
26 05 19	Electrical Conductors
26 05 26	Grounding
26 05 33	Conduit
26 05 34	Electrical Boxes
26 05 53	Electrical Identification

[Intentionally left blank]

PART 1 - GENERAL

1.01 SECTION INCLUDES:

- A. General provisions for electrical work for addition of Beach Street Transmission Main flow meter at the City of Muskegon Water Filtration Plant located in Muskegon, Michigan.
- B. Coordinate construction activities and installation for electrical related systems with other trades.
- C. All applicable requirements of the NEC must be met by the contractor.
- D. Coordinate with owner all work associated with rewiring instrument loops in the plant SCADA Control Panel P.

1.02 SUMMARY OF WORK:

- A. General:
 - 1. Prior to performing the work, the Contractor shall familiarize himself with the site, and be aware of limitations to consider when accessing the work location with construction equipment. Coordinate all work on site with the Engineer, particularly related to sequence, placement, storage, lifting, etc. of all construction equipment and materials.
 - 2. Obtain permits required by the county and other local jurisdictions for work performed by this Contract.
 - 3. Coordinate demolition, layout and installation of all work for this Contract with other Contractors on site and through the Engineer.
 - 4. Furnish and install all support devices including: miscellaneous steel, hangers, brackets, clamps, anchors, etc. as required to adequately install, support, and maintain all conduit, cable tray, cables, lighting, distribution equipment, instruments, devices, and fixtures installed by this Contract.
 - 5. Layout, coordinate, furnish and install all sleeves, flashing, and patching as required for all wall, roof, floor, grating, etc. penetrations for all work by this contract. Utilize a roofing contractor for cutting and patching at all roof penetrations for piping and supports.
 - 6. Field touch-up paint to existing condition, all equipment damaged or installed by work performed by this Contract in accordance with Owner's painting standards and the technical specifications.
 - 7. Coordinate deliveries, receipt, handling, offloading, storage and security for all Contractor furnished materials. Owner or Engineer will not be responsible for lost or stolen materials furnished by Contractor and will not assume responsibility for materials until satisfactory installation. Coordinate on site storage of all Contractor furnished materials and equipment with the Engineer.
 - 8. Receive, inspect, offload, store, stage, and protect all equipment, devices, and materials furnished by the Owner for this Contract.
 - 9. Furnish and install all equipment grounding.
 - 10. "Commission" or energize all equipment and systems installed by this contract including coordination with Engineer and other contractors.
 - 11. Provide start-up assistance for systems furnished under this contract.
 - 12. Maintain on site a detailed as-built record set of all work installed by this Contract as applicable. Final set to be submitted to Engineer upon completion of work.
- B. Electrical Scope Description:
 - 1. Refer to the drawings for the extent of work at the water filtration plant.

1.03 STANDARDS:

SECTION 26 05 00
ELECTRICAL GENERAL PROVISIONS

- A. Applicable Standards and Codes:
 - 1. Institute of Electrical and Electronic Engineers (IEEE).
 - 2. Underwriters Laboratories, Inc. (UL).
 - 3. National Electrical Manufacturers Association (NEMA).
 - 4. National Electrical Code (NEC).
 - 5. American Society for Testing and Materials (ASTM).
 - 6. American National Standards Institute (ANSI).
 - 7. National Board of Fire Underwriters (NBFU).
 - 8. National Fire Protection Association (NFPA).
 - 9. National Electrical Contractors "Standard of Installation" (NECA)
 - 10. Joint Industrial Council (JIC).
 - 11. Code of Federal Regulations (CFR). Title 29 Labor, Subpart S-Electrical.

- B. Where quantities, sizes, or other requirements shown on the Drawings or specified herein exceed the requirements of the above standards and codes, the Drawings and Specifications shall govern.

1.04 SUBMITTALS:

- A. Submit under provision of Section 01 33 00 Submittals.

- B. Submit materials and equipment for review to ENGINEER as required in each SECTION. Each sheet of descriptive literature submitted shall be clearly marked to identify the material or equipment, and shall show the specification paragraph for which the equipment applies.
 - 1. Submit schematics and connection diagrams for all electrical equipment. A manufacturer's standard connection diagram or schematic showing more than one scheme of connection will not be accepted unless it is clearly marked to show the intended connections.
 - 2. Submittals showing more than the particular item under consideration shall have the pertinent description paragraph for which the equipment applies circled, or highlighted with a marker intended for that purpose.

- C. Prepare and maintain Record Drawings current with work completed. Show all changes to underground and other hidden work. Submit to ENGINEER on completion of project.

- D. After award of the contract and prior to starting any work the CONTRACTOR shall submit to the ENGINEER:
 - 1. List of Sub-Contractors scheduled and planned for utilization on the project.
 - 2. Detailed work plan outlining methods and procedures to accomplish the intent and purpose of the Contract.
 - 3. Work schedule detailing dates of principle events and completion date. All downtime needed in the schedule shall be approved by the OWNER.

- E. Operating and Maintenance Instructions:
 - 1. Upon completion of all Work and tests, instruct the OWNER in the operation and maintenance of all components.
 - 2. Furnish sets of written Operation and Maintenance Manuals per Section 01 33 00 "Submittals."

1.05 CLEARANCES:

- A. Equipment:
 - 1. Maintain clearances from electric panels, and other electrical installations as required by NEC and CFR.
 - 2. Maintain working clearances around electrical equipment as required for proper maintenance and operation.

1.06 IDENTIFICATIONS:

- A. Provide identification signs on all electrical equipment, control panels, switches, breakers, and panels.
- B. Provide a type written circuit identification schedule in each distribution or branch circuit panelboard under glass or plastic. Each circuit to be identified by load.

1.07 CODES AND STANDARDS:

- A. These specifications are minimum requirements and shall govern except where made more stringent by other sections of this specification or local, state, or federal laws or regulations. In the event of conflict between these specifications and applicable codes and regulations, the codes and regulations shall govern.

1.08 PERMITS AND INSPECTIONS:

- A. Obtain all necessary permits and pay all fees in connection with all permits, inspections, and approval by the proper authorities in local jurisdiction of such work. Final inspection by the OWNER will not occur until necessary certificates of satisfactory inspection are received.

1.09 DRAWINGS:

- A. Drawings and Specifications are provided for assistance to the CONTRACTOR and are diagrammatic only to indicate the general arrangement and location of circuits, outlets, etc. Exact locations will be determined by field conditions. Deviations from the arrangement indicated to meet actual conditions shall be made with no expense to the OWNER. Throughout the progress of construction, the CONTRACTOR shall keep a set of detailed field record drawings, including the exact location of concealed work and underground utilities. This requirement does not authorize any deviations from the Contract Drawings without prior approval from the OWNER. The field record information shall be marked in a legible manner on prints of the Drawings. At the completion of work, the CONTRACTOR shall deliver the field record information to the OWNER.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. All electrical equipment and material shall be furnished new and shall be accepted, or certified, or listed or labeled or otherwise determined to be safe by a nationally recognized testing laboratory (NRTL).
 - 1. Equipment shall be accepted, certified listed labeled by Underwriters Laboratory, Inc. (UL) Factory Mutual, Inc. (FM).
 - 2. Equipment or material accepted certified, listed or labeled by an accepted NRTL shall be used in preference to equipment or material that does not have that acceptance.

SECTION 26 05 00
ELECTRICAL GENERAL PROVISIONS

3. If equipment or material has been inspected or tested by a Federal Agency or by the State of Michigan or by the municipality having jurisdictional responsibility for enforcing occupational safety provisions of the National Electrical Code (NEC) and found in compliance with the provisions of the NEC as applied in Paragraph 1910.309 of Department of Labor General Industry Safety Standards Commission Bulletin.
 4. Custom manufactured or installed equipment shall use components accepted, certified, listed or labeled by a NRTL and manufactured shall submit data indicating such acceptance, certification listing or labeling to the ENGINEER.
- B. Substitutions for materials and equipment listed herein must be of equal standards, quality and desired operation, or superior. There will be no approval or consideration for approval of equipment or material submittals for substitution prior to Award of the Contract.
- C. All packaged equipment shall be completely factory wired prior to delivery to the job site. Connection to and bonding of this equipment is required under this section of the specifications.
1. Check all prewired controls before energizing to verify that all internal wiring is properly coordinated to the voltage to be applied.

2.02 SHOP/FACTORY/FINISHING:

- A. Provide baked enamel finishes on exposed surfaces.
- B. Provide galvanized finishes for damp or wet locations.
- C. Touch up or refinish damaged paint.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Provide and install all equipment as specified, required or implied in this specification except as noted. This requirement shall include all labor, materials, and incidentals in a manner consistent with good practice necessary to a complete operable installation.
- B. The CONTRACTOR shall implement cooperation with other trades by his reference to the Structural and Mechanical Drawings and Specifications for work by other trades and to be carried on simultaneously or sequentially with the electrical work. This requirement is to facilitate construction to proceed with no harm to the OWNER due to the absence of cooperation. All other Drawings and Specifications shall become part of the Electrical Specifications as they relate to electrical work.
- C. Verify equipment dimensions to insure dimensional compatibility.
- D. All excavation, backfilling, and concrete work shall conform to the applicable Sections of these Specifications.
- E. The CONTRACTOR is responsible for connecting wiring and circuitry to all equipment furnished by others and the CONTRACTOR that requires electrical power or control.
- F. The CONTRACTOR shall demonstrate to the satisfaction of the OWNER at final inspection that the wiring is complete and free from open circuits, short circuits between circuits or ground and that systems operate satisfactorily. The entire electrical installation shall be demonstrated to operate in accordance with the specifications. This test shall be made

SECTION 26 05 00
ELECTRICAL GENERAL PROVISIONS

with no devices connected to prevent damage to equipment, and resistance shall be greater than one megaohm.

3.02 TEST AND OPERATION:

- A. Equipment:
1. Thoroughly clean, lubricate, and protect from damage and dirt during operation.
 2. Test and operate in accordance with manufacturer's recommendations.

END OF SECTION

[Intentionally left blank]

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Work of this Section includes wire and cable for all types of applications 600V and below.

1.02 SUBMITTALS:

- A. Submit under provision of Section 01 33 00 Submittals.
- B. Provide voltage and insulation test data from the cable manufacturer.

1.03 DELIVERY, STORAGE, AND HANDLING:

- A. Cable shall be on original reels or in boxes and shall be new and unused.
- B. Store cables in dry protected area and protect cable ends in accordance with manufacturers' recommendations.

PART 2 - PRODUCTS

2.01 LOW VOLTAGE, LIGHTING AND POWER CONDUCTORS:

- A. Conductors provided on 120/208 and 277/480 volt power and lighting systems to be stranded per ASTM B-8 soft drawn copper.
- B. Insulation system shall be type THHN or THWN-2 rated 600V as defined and listed in Article 310 of NEC.
- C. Minimum size conductor utilized shall be #14 AWG for control circuits and #12 AWG for power and lighting circuits.
- D. Color code conductor insulation as follows:
 - 1. Line Voltage - Black
 - 2. Grounding Conductor - Green
 - 3. Neutral - White
 - 4. Control - Red
 - 5. DC Circuits - Blue
 - 6. Voltage from External Source - Yellow
 - 7. Color shall be integral with the insulation compound applied by cable manufacturer.
- E. Phase conductor color code as follows:
 - 1. Under 250VAC; black, red, blue.
 - 2. Over 250VAC; brown, orange, yellow.

2.02 INSTRUMENTATION CABLES:

- A. Instrumentation conductors shall be stranded copper conductors minimum size #18 AWG.
- B. Instrumentation conductors shall be paired and each pair twisted, and 100% shielded.
- C. Instrumentation cables to have minimum 300 volt insulation on each conductor and have a jacket overall.
- D. Acceptable Manufacturers: Houston Wire and Cable, Belden or approved.

PART 3 - EXECUTION

3.01 LOW VOLTAGE LIGHTING AND POWER CABLES:

- A. Install only after completion of work which might cause damage to wires or conduit.
- B. Clean out or replace conduit in which dirt, water, concrete, or other foreign matter has been allowed to accumulate, before installing wiring.
- C. Identify each end of each conductor by wire marking tape or sleeve. Mark on outer cover giving voltage, type, size and circuit number.
- D. Splices:
 - 1. No wire splices allowed in entire length of conduit or raceway.
 - 2. Make splices in electrical enclosures.
 - 3. Splice Insulation: Equal to original factory insulation.
 - 4. Splicing Copper to Aluminum: Use aluminum-copper connections; approved as suitable for the purpose.
- E. Termination of Conductors:
 - 1. Insulated type compression lugs.
 - 2. At distribution equipment containing aluminum bus bars; use aluminum copper lugs rated and approved for the application.
- F. Provide separate conduit for each type of circuit (power, controls, and communications).
- G. Conductors terminating at outlets shall be left not less than 8 inches long within outlet box.

3.02 INSTRUMENTATION CABLE:

- A. Install only after completion of work which might cause damage to wires or conduit.
- B. Clean out or replace conduit in which dirt, water, concrete, or other foreign matter has been allowed to accumulate, before installing wiring.
- C. Splices: No wire splices allowed in entire length of conduit or raceway.
- D. Provide separate conduit for instrumentation circuits.
- E. Mark on outer cover the control loop number at each end and each conductor the wire number by wire marking tape or sleeve.
- F. RF cable shall be installed in metal conduit.

3.03 FIREPROOFING OF CABLES:

- A. Fireproofing of wires and cables shall be accomplished by half lapped taping using electrical arc and fireproofing tape made of heat resistant organic coated on one side with a flame retardant elastomer. The fireproofing tape shall be held in place by spiral wrapping at 18-inch intervals using pressure sensitive glass cloth tape 2 inches in width.

3.04 GROUPING OF CABLES:

- A. Lace or plastic band groups of feeder conductors at distribution centers, pull boxes and wire ways.

3.05 WIRE PULLING:

- A. Use wire pulling lubricant for pulling (No. 4 AWG) and larger wire. Do not pull cables through conduit with more than allowable bends specified in NEC 345-11. Only approved pulling compound that is suitable for the type wire insulation is allowed.

END OF SECTION

[Intentionally left blank]

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. The Work of this Section includes equipment for an effective grounding system.

1.02 SUBMITTALS:

- A. Submit under provision of Section 01 33 00 Submittals.
- B. Certified ground resistance tests on each ground rod and the complete service system consisting of multiple rods and grounding conductor.
- C. Ground resistance tests on total systems.

1.03 STANDARDS:

- A. IEEE Standard 142.
- B. NEC Article 250.

PART 2 - PRODUCTS

2.01 GROUNDING ELECTRODE:

- A. Grounding electrode to be ground rods.
- B. Ground rods shall be bonded copper type steel core with thick copper covering inseparably bonded together 3/4" diameter X 10 ft length. Ground rod couplings are to be used if rod length of greater than 10 feet is required.

2.02 GROUNDING CONNECTIONS:

- A. To be thermoweld when concealed or where required by OWNER.
- B. To be mechanical where exposed to view.
- C. Where the grounding conductor penetrates a concrete surface use a 5/8 inch solid copperweld rod or a thermoweld antisiphon water stop.

2.03 GROUNDING ELECTRODE CONDUCTOR:

- A. Grounding electrode conductor is to be as shown and sized in accordance with Table 250-66 of NEC.

2.04 EQUIPMENT GROUNDING CONDUCTORS:

- A. Equipment grounding conductors shall be copper sized in accordance with Table 250-122 of NEC.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Ground resistance tests of each ground rod shall be made and results signed as correct by the CONTRACTOR.

SECTION 26 05 26
GROUNDING

- B. Provide grounding with ground rods of length required to achieve specified ground resistance of 25 ohms or less (per ground rod). Use three rods driven in triangle formation and connected in parallel. Provide ground rods at location shown (multiple rods may be required to achieve specified resistance).
- C. Bond the non-current carrying parts of all electrical equipment installed under this contract including metallic raceways, raceway supports, motors, equipment enclosures, and metallic cable sheaths by means of bare copper cable or copper strap to the station grounding system or as shown.
- D. All power, lighting over 120 volts and receptacle circuit conduits shall include a ground conductor sized per the NEC. Attach grounding conductors to equipment by means of approved copper alloy solderless grounding lugs or clamps which shall be secured to the equipment and the grounding point by means of hexhead cap screws or machine bolts after the contact surfaces have been cleaned to bright metal.
- E. Ground conductors run in conduit with circuit conductors are to be securely connected inside the junction boxes or enclosures. Splices in ground conductors shall be made by the "Cadweld" process by Erico Products, Inc., Continental Industries "Thermoweld", or equal.
- F. Support ground straps at intervals not exceeding two (2) feet by means of round head bronze machine screws and approved type anchors.
- G. Electrical grounding system in well houses are to be grounded to the metallic well casing.
- H. All circuits in non-metallic raceways shall include a ground conductor sized per the NEC or as shown. Attach grounding conductors to equipment by means of hexhead cap screws or machine bolts after the contact surfaces have been cleaned to bright metal. Ground conductors terminating at the motor control centers, switch gear, to be terminated at the ground bus.
- I. Bond grounding electrode to water pipe main, building foundation steel and all other acceptable locations as required per the NEC Article 250.
- J. Signal and Communications: For telephone, alarms, and communication systems, provide a #4 AWG minimum green insulated copper conductor in raceway from the grounding electrode system to each terminal cabinet or central equipment location.
- K. Ground Rods: Locate a minimum of one-rod length from each other and at least the same distance from any other grounding electrode. Interconnect ground rods with bare conductors buried at least 24 inches below grade. Connect bare-cable ground conductors to ground rods by means of exothermic welds except as otherwise indicated. Make these connections without damaging the copper coating or exposing the steel. Drive rods until tops are 6 inches below finished floor or final grade except as otherwise indicated.
- L. Bond interior metal piping systems and metal air ducts to equipment ground conductors of pumps, fans, and electric heaters.
- M. Exothermic Welded Connections: Use for connections to structural steel and for underground connections. Install at connections to ground rods and plate electrodes. Comply with manufacturer's written recommendations. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Work of this Section includes electrical conduit systems.

1.02 SUBMITTALS:

- A. Submit under provision of Section 01 33 00 Submittals.

1.03 RELATED WORK:

- A. SECTION 26 05 34 – Electrical Boxes.

PART 2 - PRODUCTS

2.01 CONDUIT:

A. Rigid Metal Conduit (RMC):

1. Rigid metal conduit (RMC) shall be threaded, hot dipped galvanized inside and out conforming to U.L. Standard 6 and ANSI C80.1.
2. Acceptable manufacturers: Allied Tube and Conduit, Republic and Wheatland Tube.

B. Rigid Nonmetallic Conduit:

1. Rigid nonmetallic conduit shall be PVC schedule 40 or schedule 80 heavy wall, rated for 90 degrees C conductors and for use in direct sunlight conforming to UL 651 and Federal Specification W-C-1094A.
2. Use only couplings and fittings designed specifically for the type of conduit noted. Follow the manufacturer's recommendations regarding the handling, bending, coupling and installation.

C. Liquidtight Flexible Metal Conduit:

1. Liquidtight Flexible Metal Conduit shall have flexible interlocking steel, spiral strip, galvanized with oilproof and waterproof flexible PVC jacket, conforming to UL standards.
2. For hazardous areas, provide explosion proof flexible conduit with insulated wire duct, threaded end fittings, bronze braid covering with flexible brass inner core, (overall neoprene protecting coating), in accordance with U.L. 886.

2.02 COUPLINGS AND CONNECTORS:

- A. For rigid metal conduits, provide RMC couplings galvanized, threaded, and of the same manufacturer.
- B. For rigid non-metallic PVC conduit, couplings to be PVC, liquid tight, suitable for the conduit with which the couplings are used and of the same manufacturer.
- C. Flexible conduit connectors shall be compression gland, liquid tight type.
- D. Connectors to metallic boxes or conversion to metallic conduit: Provide adapters as recommended by conduit manufacturer to provide a watertight threaded connection.

2.03 FITTINGS:

- A. UL listed.

- B. For metallic conduit, liquid tight, malleable iron alloy body and cover, zinc coated and stainless steel screws.
- C. For nonmetallic conduit, liquid tight, utilizing the same non-metallic material as used in the conduit for body and the cover. Cover screws shall be stainless steel.

2.04 CLAMPS & HANGERS:

- A. Hot dipped galvanized malleable iron straps with back spacers, and hot dipped galvanized strap hangers with zinc plated threaded rods and hardware.
- B. PVC or other nonmetallic straps as recommended by the conduit manufacturer for the non metallic conduit. Any metallic screws, bolts, nuts or other attachment hardware to be stainless steel.
- C. Trapeze type hangers shall be:
 - 1. For galvanized conduit, use galvanized steel channel support system with (zinc plated) threaded rod and hardware, as manufactured by Super-Strut or Unistrut.
 - 2. For nonmetallic conduit, use fiberglass strut support system or PVC coated strut support system with plastic coated or stainless steel hardware.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Install the conduit in accordance with the manufacturer's recommendations. All buried conduits outside of buildings shall have locations marked on drawings. Minimum conduit size shall be $\frac{3}{4}$ ". In no event shall the conduit size be less than required by National Electric Code for the wire size and number indicated. Galvanized conduit shall not be painted except where shown.
- B. General Installation Guidelines:
 - 1. Metal conduit systems shall be bonded to grounding systems.
 - 2. Run conduit parallel to or at right angles to building lines, except when in concrete slab or run under base slab. Support conduit at a maximum of 8 feet on center.
 - 3. Installation of conduit in concrete slabs and walls shall maintain two times (2X) the conduit diameter spacing between conduits. Maintain a distance of 3" from floor openings and wall penetrations. Maintain a minimum of 3" below all finished concrete surfaces.
 - 4. Bends for low voltage wiring shall be standard ells with a maximum equivalent of (4) four quarter bends in any run between pulling joints. Bends for medium voltage wiring shall be wide radius ells with a maximum equivalent of (3) three quarter bends in any run between pulling joints.
 - 5. Paint the ends of RMC/IMC joint couplings or threaded fittings with zinc rich coating of at least 90% purity zinc. Use cold galvanizing compounding ZRC Products Co. or Zinc-It or equal.
 - 6. Fasten all conduits entering boxes with locknut and bushing in the inside and locknut on the outside.
 - 7. Furnish and install Liquidtight Flexible Metal Conduit connections to all motors, solenoids and vibrating equipment. Conduit shall be a minimum 18 inches in length and shall be sufficiently long to enable motor to be moved to allow the disconnecting of the motor coupling without disconnecting the motor and shall be equipped with approved type grounding devices to ensure continuity between the conduit and the connection. In all cases, Liquidtight Flexible Metal Conduit runs shall not exceed 6 feet in total length.
 - 8. Clean all conduit thoroughly inside and outside after installation and just before pulling cables. All conduits not terminated in metal fittings or metal cabinets and secured with locknuts shall be terminated with grounding bushings.

9. Install only undamaged conduit. Plug ends to prevent entry of dirt and moisture.
 10. Layout conduit routing to avoid structural obstructions and minimizing crossovers. Conduit runs must be installed in a neat and well-planned arrangement and in a manner that will not interfere with access to equipment or with the use of access ways.
 11. Provide conduit sealing fittings and seal conduit with duct seal where conduits leave heated area and enter unheated area.
 12. Provide flashing and pitchpockets in making watertight joints where conduits pass through roof or waterproofing membranes.
 13. Install UL approved expansion fittings complete with grounding jumpers where conduits, metallic or non-metallic cross building expansion joints. Provide bends or offsets in conduit adjacent to building expansion joints where conduit is installed above suspended ceilings. In exposed PVC conduit runs longer than 50 feet, provide expansion couplings near boxes or devices. In exposed PVC conduit runs which do not have devices or boxes, an expansion coupling shall be installed for every 100 lineal feet of conduit.
 14. Whenever PVC is used, install a separate ground wire, and use rigid ells where exterior or poured concrete surfaces are penetrated. Also, provide rigid elbows where necessary to prevent "burn-through" of PVC conduit when pulling wire.
 15. Make transitions between nonmetallic conduits and conduits of other materials with the manufacturer's standard adapters designed for such purposes.
 16. Conduit shall be securely attached to the building structure. Unless otherwise indicated, all electrical equipment shall be spaced at least 1/2 inch from the wall with hanger clamps to Unistrut, Super Strut, or equal.
 17. For single metallic conduit runs use galvanized conduit straps or ring bolt type hangers with specialty spring clips. Perforated strap is not allowed. Groups of conduits shall be supported on trapeze type hangers, Unistrut, or equal. Individual conduits not supported on conduit straps shall be provided with clevis type hangers. Hanger support shall be rod with threaded connections.
- C. Anchor Methods:
1. Hollow Masonry: Toggle bolts or spider type expansion anchors.
 2. Solid Masonry: Lead expansion anchors or preset inserts.
 3. Metal Surfaces: Machine screws, bolts, or welded studs.
 4. Wood Surfaces: Wood screws.
 5. Concrete Surfaces: Self-drilling anchors or power-driven studs.
- D. Conduit runs as indicated on drawings are schematic, exact routing of conduit to be approved by the Engineer. Make field bends and offsets uniform and symmetrical, without flattening conduit or scarring conduit finish and of minimum radius for each size as given in NEC Article 346.
- E. Conduit shall be as shown on plans and/or as required for the installation of outlets and devices shown on drawings. All conduits shall be supported from the structure or provided rods independent of all other trades. Proper location of conduits shall be the responsibility of the Electrical Contractor who shall avoid interferences with other trades.
- F. Install a pullwire in all empty conduits. All empty conduits installed for future use shall be capped or plugged and properly identified.
- G. Conduits that enter NEMA Type 2, 3, 3R, 4, 4X, and 12 enclosures; provide NEMA rated conduit hub type fittings with O-ring gaskets suitable for the environment served. Grounding hubs shall be used with nonmetallic enclosures.

END OF SECTION

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PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Work of this Section includes junction boxes, pull boxes, and outlet boxes for interior, exterior, and hazardous locations.

1.02 RELATED SECTIONS:

- A. Section 26 05 33 - Conduit.

1.03 SUBMITTALS:

- A. Submit under provision of Section 01 33 00 Submittals.
- B. Product data.

PART 2 - PRODUCTS

2.01 JUNCTION, PULL, AND OUTLET BOXES:

- A. All boxes used outdoors with rigid steel galvanized conduits shall have malleable iron body and cover with stainless steel screws. The finish shall be zinc electroplate and aluminum polymer enamel.
- B. All boxes used indoors with rigid steel galvanized conduits shall be pressed steel hot dip galvanized as specified in Part C below.
- C. Junction boxes set flush in interior concrete ceiling and walls shall be PVC.
- D. Junction boxes set flush in exterior walls shall be PVC.
- E. Junction boxes set flush in exterior concrete slabs shall be hot dipped galvanized cast iron. Cover shall be same material as box with checkered plating design and neoprene gasket. Box shall be an OZ- Gedney Type Y-T or equal by Appelton. Box shall have a minimum 6" depth.
- F. Junction and pull boxes used with non-metallic conduits shall be (PVC).
- G. All boxes shall be UL listed and conforming to area classification. Boxes shall be NEMA 1, NEMA 4X and NEMA 7 unless specified otherwise on drawings.

PART 3 – EXECUTION

3.01 INSTALLATION:

- A. Clean interior of boxes of moisture, dirt, metal filings or other foreign matter.
- B. Assure that all conduit fittings that enter the box are tight and secure.
- C. Locate boxes in walls and on other surfaces as shown on the drawings.
- D. Coordinate installation of poured-in-place flush junction boxes with other trades.
- E. In hazardous areas use only explosion proof boxes.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes electrical identification of electrical materials, equipment and installations. It includes requirements for electrical identification components including, but not limited to, the following:
 - 1. Buried electrical line warnings.
 - 2. Identification labeling for raceways, cables and conductors.
 - 3. Operational instruction signs.
 - 4. Warning and caution signs.
 - 5. Equipment labels and signs.
 - 6. Spare future conduits.
- B. Refer to other Division 26 sections for additional specific electrical identification associated with specific items.

1.02 SUBMITTALS:

- A. Submit under provision of Section 01 33 00 Submittals.
- B. Product data.

1.03 QUALITY ASSURANCE

- A. Comply with ANSI C2.
- B. Comply with NFPA 70.
- C. Comply with ANSI A13.1 and NFPA 70 for color coding.

PART 2 - PRODUCTS

2.01 CABLE LABELS

- A. Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Vinyl or vinyl-cloth, self-adhesive, wraparound, cable/conductor markers with preprinted numbers and letters.
- C. Color: Black letters on white field.
- D. Label Information: Indicate voltage and if applicable service.

2.02 NAMEPLATES AND SIGNS

- A. Safety Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145.
- B. Engraved Plastic Nameplates and Signs: Engraving stock, melamine plastic laminate, minimum 1/16 inch thick for signs up to 20 sq. in, or 8 inches in length; and 1/8 inch thick for larger sizes.
- C. Color: Black letters on white face except for emergency systems listed in NFPA 70, Article 700, or as directed by the Owner.

- D. Nameplates shall be punched or drilled for mechanical fasteners.
- E. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, non-fading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for the application. 1/4-inch grommets in corners for mounting.
- F. Fasteners for Nameplates and Signs: Self-tapping, stainless steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.03 UNDERGROUND LABELS

- A. Underground line marking tape: permanent, bright-colored, continuous printed, plastic tape compounded for direct-burial service not less than 6 inches wide by 4 mils thick. Printed legend indicative of general type of underground line below.

2.04 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Self-Adhesive Tape: Electronic Label Maker, imprinted, pressure-sensitive, abrasion-resistant plastic tape.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Identification Materials and Devices: Install at locations for most convenient viewing without interference with operation and maintenance of equipment, in accordance with manufacturer's written instructions and requirements of NEC.
- B. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations with corresponding specified or indicated. Install numbers, lettering and colors as approved in submittals and as required by code.
- C. Identify high-voltage feeder conduits (over 600V) by words "DANGER-HIGH VOLTAGE KEEP OUT" in black letters 2 inches tall, stenciled at 10-foot intervals over painted orange background.
- D. Sequence of Work: If identification is applied to surfaces that require finish, install identification after completing finish work.
- E. Self-Adhesive Identification Products: Clean surfaces before applying.
- F. Install nameplates and labels parallel to equipment lines.
- G. Identify junction, pull and connection boxes: Code-required caution sign for boxes shall be pressure-sensitive, self-adhesive label indicating system voltage in black, preprinted on orange background. Install on outside of box cover. Also label box covers with identity of contained circuits. Use pressure-sensitive plastic labels at exposed locations and similar labels or plasticized card stock tags at concealed boxes.
- H. All surface and flush mounted wiring devices (light switches, receptacles, etc.) shall have the power circuit identified, in permanent marker or pen, on the back (inside) of the device cover plate.
- I. Underground electrical line identification: During trench backfilling, for exterior underground power, signal and communication lines, install continuous underground plastic line marker, located 12 inches directly above conduit. Where multiple lines installed

in a common trench or concrete envelope, do not exceed an overall width of 16 inches: install a single line marker.

- J. Labeling Legend: List panel and circuit number or equivalent in a legible manner.
- K. Color-Coding of Secondary Phase Conductors: Refer to Section 26 05 19.
- L. Wiring for control systems shall be color-coded in accordance with wiring diagrams furnished with the equipment.
- M. Tag or label conductors as follows:
 - 1. Future connections: Conductors indicated to be for future connection or connection under another contract with identification indicating source and circuit numbers.
 - 2. Multiple circuits: Where multiple branch circuits or control wiring or communications/signal conductors are present in the same box or enclosure (except for three-circuit, four-wire home runs), label each conductor or cable. Provide legend indicating source, voltage, circuit number, and phase for branch circuit wiring. Phase and voltage of branch circuit wiring may be indicated by means of coded color of conductor insulation. For control and communication/signal wiring, use color coding or wire/cable marking tape at terminations and at intermediate locations where conductors appear in wiring boxes, troughs and control cabinets. Use consistent letter/number conductor designations throughout on wire/cable marking tapes.
- N. Factory apply color the entire length of conductors, except the following field-applied, color-coding methods may be used instead of factory-coded wire for sizes larger than No. 10 AWG.
- O. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Use 1-inch wide tape in colors specified. Adjust tape bands to avoid obscuring cable identification markings.
- P. Warnings, Cautions, and Instructions: Install to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.
- Q. Emergency Operation: Install engraved laminated signs with white legend on red background with minimum 3/8 inch high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.
- R. Switch Identification Labels: Self-Adhesive Tape. Install on each switch when there are more than two switches under one faceplate or if switches are used to control exhaust fans or other equipment. Unless otherwise indicated, provide a single line of text with 1/8-inch high black lettering on clear background. Label shall indicate load controlled.
- S. Apply circuit/control/item designation labels of engraved plastic laminate for disconnect switches, breakers, pushbuttons, pilot lights, motor control centers and similar items for power distribution and control components above, except panelboards and alarm/signal components, where labeling is specified elsewhere. For panelboards, provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker.

SECTION 26 05 53
ELECTRICAL IDENTIFICATION

- T. Furnish and install a sign at the service entrance equipment indicating type and locations of on-site emergency power sources. Sign shall be 8x10-inch minimum size mounted on the face on the switchboard.
- U. Provide suitable permanent means of labeling spare conduits. Provide legible means of identifying the location of where each conduit originates. Provide the same identification at each end.
- V. Equipment Identification Labels: Engraved plastic laminate. Install on each unit of equipment, including central or master unit of each system. This includes power, lighting, communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Unless otherwise indicated, provide a single line of text with 1/2 inch high lettering on 1-1/2 inch high label; where two lines of text are required, use labels 2 inches high. Use white lettering on black field. Apply labels for each unit of the following categories (not all categories may be required on the project) of equipment using mechanical fasteners:
 - 1. Panelboards, electrical cabinets, and enclosures. Include series rated labeling if required.
 - 2. Access doors and panels for concealed electrical items.
 - 3. Electrical switchgear and switchboards. Include series rated labeling if required.
 - 4. Emergency system boxes and enclosures.
 - 5. Motor-control centers.
 - 6. Disconnect switches.
 - 7. Enclosed circuit breakers.
 - 8. Motor starters.
 - 9. Push-button stations.
 - 10. Contactors.
 - 11. Remote-controlled switches.
 - 12. Control devices.
 - 13. Transformers.
 - 14. Automatic transfer switches.
 - 15. Variable frequency drives.
 - 16. Power generating units.
 - 17. Timers/time clocks.

END OF SECTION

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EARTHWORK
DIVISION 31
TABLE OF CONTENTS

SECTION	TITLE
31 23 00	Site Grading, Excavation, and Backfill
31 23 19	Dewatering

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PART 1 - GENERAL

1.01 SUMMARY

- A. The work covered by this section consists furnishing all supervision, labor, materials, and equipment necessary for site grading including stripping of topsoil, excavation, trenching and backfilling for utilities, shaping of earth to match proposed grades in the Drawings, and backfilling proposed structures.
- B. Refer to the general specifications provided in Appendix A that are hereby made a part of this contract: “Specifications for Excavating, Trenching, and Backfilling for Utilities”, and “Specifications for Surface Restoration”.
- C. Refer to Section 01 57 13 – “Temporary Erosion and Sediment Control” for Soil Erosion and Sedimentation control requirements.

1.02 REGULATIONS AND STANDARDS

- A. All work shall conform to relevant requirements of the State of Michigan Soil Erosion and Sedimentation Part 91, Act 451 of the Public Acts of 1994, as amended.
- B. Compaction: Density of fill material shall be compared to maximum density as determined by the ASTM D-1557 (Modified Proctor Method).
- C. Datum Elevation: Elevations as shown on the site plan and all elevations for the work shall be referenced to NAVD 1988. The General Contractor shall be held responsible for the correct elevation of the work.

1.03 SUBMITTALS

- A. If requested by the Engineer, provide verification from an approved laboratory that all MDOT Class II granular material meets MDOT requirements.

1.04 QUALITY ASSURANCE

- A. The Contractor shall provide compaction testing for fill soils and aggregate. The Contractor shall pay for additional tests if the results show the material to be under the specified percentage of maximum density.

1.05 JOB CONDITIONS

- A. Should the Contractor encounter any unusual conditions during excavation operations, he shall advise the Engineer and call for an inspection.
- B. Ground contours have been provided in the Drawings for reference only. Bidders shall be expected to have inspected the Site and satisfied themselves as to actual grades and levels and conditions under which the work is to be performed.
- C. The benchmark provided for elevation reference shall be preserved. If replacement of the benchmark is necessary it will be at the Contractor’s expense.
- D. Utilities: Existing utilities as shown on the Drawings are for reference only. The Contractor shall be responsible for hand digging as necessary to properly locate all existing utilities prior to excavating and shall be responsible for replacement of any damaged utility at no additional cost.

PART 2 - PRODUCTS

- A. Fill: All fill material brought on site and fill placed around structure walls and/or as pipe/trench fill shall be controlled fill meeting requirements of MDOT Class II granular material. The fill shall be placed in even layers not exceeding nine inches in depth and shall be thoroughly compacted to 95% of maximum density as determined by the Modified Proctor Method.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Utilities:
 - 1. Before starting excavation establish location and extent of underground utilities occurring in work area.
 - 2. Notify utility companies to remove and relocate lines which are in conflict with design locations.

3.02 EXCAVATION

- A. Excavate as required for construction of the work. Utilize or dispose of excavated materials as required.
 - 1. Protect excavation and adjacent structures by shoring, bracing, sheet piling or other methods as required.
 - 2. Remove unsuitable material to firm underlying soils beneath footings, floor slabs, paved areas and walks.
- B. Preparation of Subgrade:
 - 1. Compact granular material under footings, slabs, pavement and walks to 95% maximum density unless otherwise specified.
- C. Utilities:
 - 1. Comply with requirements of "Specifications for Excavating, Trenching, and Backfilling for Utilities" included in Appendix A.
 - 2. Maintain, reroute or extend as required, existing utility lines to remain which pass through excavation area.
 - 3. Protect utility services uncovered by excavation.
 - 4. Cap off, plug or seal, discontinued utility services and remove from site within excavated areas.

3.03 STABILITY OF EXCAVATIONS

- A. Comply with local codes, ordinances, and requirements of agencies having jurisdiction.
- B. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction.
 - 1. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
 - 2. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- C. Shoring and Bracing:
 - 1. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross braces, in good serviceable condition as required to carry out the Work.
 - 2. Maintain shoring and bracing in excavations regardless of time period excavations will be open.
 - 3. Extend shoring and bracing as excavation progresses.

3.04 ROUGH GRADING

- A. Rough grade to levels, profiles, contours and elevations required for finished grades and surface treatment.
- B. Maintain the following, rough grades unless otherwise directed by Engineer:
 - 1. Sidewalk: 4 inches below finished grade.
 - 2. Floor Slabs and Exterior Slabs: 6 inches below bottom slab elevation.
 - 3. Pavement Surfaces: As shown.
 - 4. Landscape Areas: 4 inches below finished grades to receive topsoil.

3.05 PLACEMENT AND COMPACTION

- A. Place backfill and fill materials in layers not more than 12 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand operated tampers.
- B. Under Floor Slabs and Exterior Slabs: MDOT Class II granular material placed in layers maximum 12 inches deep compacted to 95% maximum density.
- C. Landscaped Areas: Suitable excavated material or granular material placed in layers maximum 12 inches deep compacted to 90% maximum density.
- D. Properly place and compact all required materials and exert proper control over the moisture content of the material and other details necessary to obtain satisfactory results.
 - 1. Remove materials that cannot be compacted with manipulation and/or moisture control.
 - 2. Replace with suitable excavated materials or granular materials at no cost to the Owner.
- E. Correct any deficiencies resulting from insufficient or improper compaction. Retest if required.

3.06 GRADING

- A. Uniformly grade areas within limits of grading under this section, including adjacent transition areas.
- B. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated or between such points and existing grades.
- C. Grading Outside Building Lines:
 - 1. Grade areas adjacent to building lines to drain away from structures and to prevent ponding.
 - 2. Finish surfaces free from irregular surface changes.
- D. Grading Surface of Fill under Building Slabs:
 - 1. Grade smooth and even, free of voids, compacted as specified, and to required elevation.
 - 2. Provide final grades within tolerance of 1/2 inch when tested with 10 foot straightedge.

3.07 SURPLUS MATERIALS

- A. Surplus excavated or unsuitable excavated material becomes the property of the Contractor.
- B. Dispose of surplus or unsuitable excavated materials off site.

3.08 DUST CONTROL

A. Dust Control Measures:

1. Maintain dust control so as not to cause detriment to the safety, health, welfare, or comfort of any person or cause damage to property or business.
2. Perform at no additional cost to the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. The work covered by this section consists of furnishing all supervision, labor, materials, and equipment necessary for dewatering excavations required as part of the project.

1.02 JOB CONDITIONS

- A. When dewatering of groundwater is required, the Contractor shall limit the dewatering operation to the minimum time and depth required for construction. The Contractor shall submit to the Engineer, Owner and Muskegon County Road Commission a dewatering plan indicating how dewatering will be accomplished, along with how and where dewatering discharge will be directed and controlled. Dewatering flows shall not be directed immediately to any watercourse. All flow shall be directed to an "ecolobag" or Engineer approved equal sediment trap. The sediment trap shall be located to allow a minimum overland flow 100 feet prior to entering any water course.

PART 2 - PRODUCTS

*** Not Used ***

PART 3 - EXECUTION

- 3.01 See "Specifications for Excavating, Trenching & Backfilling for Utilities" in Appendix A, which are hereby make part of this specification.

END OF SECTION

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EXTERIOR IMPROVEMENTS

DIVISION 32

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SECTION	TITLE
32 92 00	Surface Protection and Restoration

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PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section includes the work required for protection and restoration of surface features such as site improvements, concrete sidewalks, asphalt pavement, and all trees, shrubs, lawns, and other landscape features as well as installation of new surface improvements.
- B. All areas disturbed by construction operations shall be restored to the original condition thereof or better as determined by the Engineer using information from drawings, surveys, and photographs or video tapes when available.
- C. The work shall be performed in accordance with the specifications and drawings, the MDOT 2020 Standard Specifications for Construction, the “Specifications for Surface Restoration” provided in Appendix A, and the following specifications.

1.02 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 – “Submittals.”

1.03 JOB REQUIREMENTS

- A. Areas Disturbed by Construction Operation:
 - 1. Restoration along all utility (water) installation including all connection points near buildings and all other areas disturbed during construction.
 - 2. Restoration on site including all areas disturbed during construction.
- B. Scheduling:
 - 1. Restoration of Lawns and Other Surface Features: Promptly following site utility work.
 - 2. Clean Up: Promptly following restoration.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil, Fertilizer, and Seed: See “Specifications for Surface Restoration”.
- B. Erosion Control Measures: See “Specifications for Surface Restoration”.
- C. Other Site Improvements: Provide materials equal to or better than those that existed prior to start of construction whether shown or not shown on the drawings.

PART 3 - EXECUTION

3.01 PREPARATION

- A. All streets, drives, non-motorized paths, sidewalks, and other improved surfaces disturbed by construction operations shall be replaced to uniform lines and grades established by the Engineer. The finish grade line will be established within three (3) inches of the existing ground profile shown on the drawings unless a proposed grade is shown which indicates otherwise.
- B. The Contractor shall perform all grading, compacting, shaping, and related work required to prepare the subgrade to the satisfaction of the Engineer.

3.02 RESTORATION

Refer to "Specifications for Surface Restoration" as provided in Appendix A.

END OF SECTION

UTILITIES
DIVISION 33
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SECTION	TITLE
33 06 63	Concrete Meter Chambers

[Intentionally left blank]

PART 1 - GENERAL

1.01 SUMMARY

The work covered by this section consists furnishing all supervision, labor, materials, and equipment necessary for installation of precast concrete meter chamber structures and accessories.

1.02 RELATED SECTIONS

- A. SECTION 01 33 00 – “Submittals”
- B. SECTION 08 31 00 – “Access Hatches”
- C. Division 31 - Earthwork

1.03 SUBMITTALS

- A. Submit under provisions of SECTION 01 33 00 – “Submittals.”
- B. Submit data on all structures, gaskets, damproofing, and expansion material

1.04 JOB CONDITIONS

- A. Maintain existing water system during construction. Limit service interruptions to existing systems to minimum time required for installation of proposed structures and accessories.

PART 2 - PRODUCTS

2.01 PRECAST UNITS

Precast reinforced concrete chambers shall conform to the requirements of ASTM C478, Precast Reinforced Concrete Manhole Sections. Bituminous waterproofing shall be applied to the outer surface of manhole at a rate of one gallon per 100 square feet. Manholes shall be free of holidays and open pitholes.

Joints for chambers shall be premium rubber, butyl rubber compositions seals, “RAM-NEK”, or Engineer approved equal. Chambers shall be water tight.

2.02 STEEL REINFORCEMENT

Steel reinforcement shall conform to the requirements for steel reinforcement of Section 905 of the MDOT 2020 Standard Specifications for Construction.

2.03 STEPS

Manhole steps shall be plastic coated steel steps conforming to the requirements of ASTM C478, spaced at sixteen inches on center.

2.04 ACCESS HATCHES

Access hatch shall be provided following the provisions of Section 08 31 00 – Access Hatches.

2.05 EXPANSION JOINTS

Expansion joint material shall asphalt-saturated cellulosic fiber conforming to requirements of ASTM D 1751, by W. R. Meadows, or Engineer approved equal.

2.06 MARKING POST

The edge of the concrete chamber lid closest to the access hatch handle shall be marked with a suitable marking post indicating the presence of the chamber. Marking post shall be RhinoDome™ marker post, as manufactured by Rhino Marking & Protection Systems, or Engineer approved equal. Topper color shall be blue, with text noting the presence of water pipelines. Post color shall be white. Marking post length shall be as required to properly anchor the post into the surrounding sand per manufacturer's recommended installation instructions.

PART 3 - EXECUTION

3.01 INSTALLATION

Furnish and install precast concrete chambers as indicated on the Drawings and in accordance with the "Standard Specifications for Excavating, Trenching and Backfilling", found in Appendix A.

END OF SECTION

PROCESS INTEGRATION

DIVISION 40

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<u>SECTION</u>	TITLE
40 05 76.13	Tapping Sleeves and Valves
40 70 00	Instrumentation

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PART 1 - GENERAL

1.01 SUMMARY

- A. The work covered by this section consists furnishing all supervision, labor, materials, and equipment necessary for installation of tapping sleeve, valve, and accessories.
- B. Work to be completed by a contractor with a minimum of 10 years' experience with their primary work focus being line tapping, line stopping, and similar work.

1.02 RELATED SECTIONS

- A. SECTION 01 33 00 – “Submittals”
- B. Division 31 – Earthwork
- C. Division 40 91 00 – Process Instrumentation

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 – “Submittals.”
- B. Submit data on tapping sleeve and ball valve.
- C. Statement of experience by contractor showing 10 years' experience with line tapping, line stopping and similar work.

1.04 JOB CONDITIONS

- A. Maintain existing water system during construction. Limit service interruptions to existing systems to minimum time required for installation of new system. Transmission main shall remain in operation during entire tapping procedure. Contractor shall coordinate with Owner to have flows reduced in the transmission main, if possible.

PART 2 - PRODUCTS

2.01 TAPPING SLEEVE:

Tapping sleeve shall be JCM Industries Model 418 Threaded Outlet Tapping Sleeve. Design and fabrication shall be in accordance with AWWA standards. Tapping sleeve body shall be steel, ASTM A36, A516 GR 70 or equal. Gasket material shall be Nitril Butadiene Rubber (NBR, Buna-N) per ASTM D2000.

All tapping sleeve fastening components shall be stainless steel. All steel components shall be coated with fusion bonded epoxy. Wetted components shall be NSF-61 approved. Sleeve shall have a minimum working pressure of 250 psi. Tapping connection shall be 2-inch female NPT size to match meter supplier requirements.

Based on record plans, tapping sleeves shall be specific for 30-inch pressure class 200 ductile iron pipe. Pipe outside diameter shall be verified prior to submittal of shop drawings.

2.02 Ball Valve:

Ball valves shall be full port, quarter turn, stainless steel valves with stainless steel nipple. Wetted components shall be NSF-61 approved.

Valve connection shall be 2-inch NPT coupling to match meter supplier requirements. Contractor shall use stainless steel ball valve provided by the meter manufacturer. Valve data shall be submitted with the flowmeter submittal.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Contractor shall verify tapping sleeve assembly configuration and dimensions in shop drawing and confirm with Engineer prior to installation.
- B. Installation to be completed by a qualified contractor.
- C. Coordinate with instrumentation supplier and installer.
- D. Secure valve directly from meter supplier.
- E. Furnish tapping sleeves and valves per Pipe and Tapping Sleeve Manufacturer recommendations. Pipe shall be tapped through the stainless steel ball valve supplied by the meter manufacturer. Pipe tap shall be a minimum diameter of 1-7/8".
- F. Coordinate water system operation with Muskegon Water Filtration Plant staff to allow tapping operation.
- G. Install sleeve and vales in accordance with Drawings, Shop Drawing and manufacturer's recommendations.
- H. Installation shall be free of all PFAS containing materials.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. The work of this Section includes furnishing and installing all (process) instrumentation, and controls for monitoring Beach Street Transmission Main flow.

1.02 RELATED SECTIONS:

- A. SECTION 26 05 00 – Electrical General Provisions

1.03 REFERENCES:

- A. Applicable Standards and Codes:
 1. American National Standards Institute (ANSI).
 2. American Society for Testing & Materials (ASTM).
 3. Institute of Electrical & Electronic Engineers (IEEE).
 4. Instrument Society of America (ISA).
 5. National Electrical Code (NEC).
 6. National Electrical Contractors "Standard of Installation" (NECA).
 7. National Electrical Manufacturers Association (NEMA).
 8. National Board of Fire Underwriters (NBFU).
 9. National Fire Protection Association (NFPA).
 10. Underwriters' Laboratories, Inc. (UL).

1.04 GENERAL REQUIREMENTS:

- A. Provide all components necessary. Some components (i.e., power supplies, interposing relays, signal converters, intrinsically safe relays and barriers, etc.) and mounting hardware may not be specifically itemized.
- B. Provide components which are compatible with process equipment.
- C. Functionally similar components shall be products of a single Manufacturer.

1.05 SUBMITTALS:

- A. Submit under provision of Section 01 33 00 – Submittals.
- B. Itemized Listings:
 1. Description of deviations from the requirements of this Section.
 2. Re-submittals shall contain response(s) to each comment made by Engineer.
- C. Shop Drawings:
 1. General: Shop drawing submittal material shall be project specific.
 2. Provide shop drawings and product data for all process control and instrumentation equipment, to include:
 - a. Manufacturer's name and model number.
 - b. Equipment description, type, scale or range.
 - c. Product data sheet(s).
 - d. Standard drawings and illustrations.
 - e. Dimensions.
 - f. Materials of construction.
 - g. Details of construction and installation.
 - h. Project specific wiring diagrams, clearly indicating all field wiring requirements.

- i. Accessories list.
- D. Operation and Maintenance Manuals:
- 1. At project substantial completion provide 3 copies of operation and maintenance manuals bound in a spiral hard cover binder containing detailed Record Drawings as provided above and renewal parts information including source location and maintenance recommendations and the following:
 - a. Equipment function, normal operating characteristics and limiting conditions.
 - b. Assembly, installation, alignment, adjustment and checking instructions.
 - c. Operating instructions for start-up, routine and normal operating, regulation and control, and shutdown and emergency conditions.
 - d. Maintenance instructions.
 - e. Guide to “troubleshooting.”
 - f. Parts lists and predicated life of parts subject to maintenance replacement.
 - g. Test data and performance curves.
 - h. Field calibration/start-up sheets.
- 1.01 CITY OF MUSKEGON PREFERRED INTEGRATOR:
- A. System integration of Beach Street Transmission Main Flow Meter into the Water Filtration Plant SCADA System shall be performed by Tetra Tech. Integrator shall provide graphics and scale the 4-20mA flow signal to the existing plant SCADA system. Contact Mick Jones, 734-665-6000 for quote and coordination.
- 1.06 QUALITY ASSURANCE:
- A. Manufacturer’s Services: Provide Manufacturer’s field service as specified herein. Submit field service calibration/start-up checklist for each instrument.
 - B. All materials, installation and testing shall be in accordance with ISA Standards and Recommended Practice.
 - C. Contractor shall conduct field investigations as required to verify existing conditions, instrument ranges/calibration and signal types.
- 1.07 DELIVERY, STORAGE AND HANDLING:
- A. All instrumentation equipment shall be stored and protected from dampness and humidity during construction.
- 1.08 MAINTENANCE:
- A. Touch up or refinish damaged paint.

PART 2 - PRODUCTS

2.01 GENERAL:

- A. Provide all mounting hardware required.
- B. All mounting hardware shall be of the following corrosion resistant material. Coordinate mounting material with surrounding environment:
 - 1. PVC.
 - 2. Stainless steel.
 - 3. FRP.

- C. Provide sufficient length of sensor to transmitter cable for each field device.
- D. Provide unions, bulkhead fittings, isolation valves, etc.
- E. Provide instruments rated for environment.
- F. Field verify Manufacturer's cable lengths prior to Shop Drawing submittal.
- G. Existing instruments that are relocated or modified shall be recalibrated.
- H. Tagging: Equip all instruments with a permanently attached, stamped or engraved identification tag. The tags shall include the device name, Engineer's tag identification, and manufacturer's tag identification if different from Engineer's.
- I. Finish: Finish on the instruments and accessories shall provide protection against corrosion by the elements in the environment in which they are to be installed.
- J. Temperature Rating: Instruments shall be suitable for the temperature in which they are to be exposed. Therefore, instruments located outdoors or in unheated spaces shall be suitable for -20 degrees F to 120 degrees F. Instruments exposed to direct sunlight (without sunshield) shall be suitable for temperatures up to 140 degrees F.
- K. Provide configuration software and cables or hand held device(s) for any instrument which cannot be fully programmed via keypad/interface which is integral to device.

2.02 ELECTROMAGNETIC FLOW METERS – INSERTION TYPE (FE/FIT):

- A. New flow meter sensors and remote transmitters will be furnished, installed, calibrated and configured by the contractor.
- B. Meters:
 - 1. FE/FIT-32-3 (Water Treatment Plant): 30" flow sensor with remote transmitter shall be located in the new Meter Chamber as indicated on the plans. Flow meter shall indicate and totalize flow in forward and reverse directions. Flow indication shall be in gallons per minute with totalized flow units of thousand gallons per day. Totalized flow shall also be displayed at the transmitter. Normal operation will be between 2,500 and 10,000 gallons per minute with an operation range of 0 to 20,000 gallons per minute.
- C. Insertion type electromagnetic flow meters shall conform to the following Specification unless otherwise noted:
 - 1. General: Hot-tap, insertion type, 2-inch diameter, multiple point electromagnetic probe style.
 - 2. Accuracy: $\pm 0.5\%$ from 1.0 f/s to maximum velocity, up to $\pm 1.0\%$ for a velocity of 0.3 to 1.0 f/s.
 - 3. Flow Direction: Bidirectional.
 - 4. Provide required lengths of Manufacturer's cable between sensor and control panel mounted transmitter.
 - 5. Sensor (FE):
 - a. Material of Construction: 316 Stainless Steel with NSF 61 approved fusion bonded epoxy.
 - b. Compression Seal: Silicone Rubber.

- c. Electrodes: Hastelloy C.
 - d. Process Connection: 2-inch NPT.
 - e. Electrical Connection: IP68 compression gland strain relief cable fitting.
 - f. Environmental Protection: IP68/NEMA 6 and suitable for installation below grade.
6. Transmitter/Converter (FIT):
- a. Power: 120VAC.
 - b. Environmental Protection: IP65/NEMA 4.
 - c. Display: Back-lit LCD indication of rate and total.
 - d. Output: two (2) 4-20mA outputs, digital inputs & digital outputs.
7. Warranty: Standard 2 year warranty.
8. Manufacturer and Model:
- a. McCrometer (Full Profile Insertion) FPI Electromagnetic Flow Meter, Model 394, no equals.
9. Accessories:
- a. Provide Insertion tool.
 - b. Provide factory authorized field start-up services, minimum of 1 day, additional time as required.
 - c. Flow meter shall be wet calibrated in a NIST traceable calibration facility and delivered with a Certificate of Calibration.
 - d. Provide stainless steel instrument tag on transmitter and sensor.
 - e. Provide manufacturers recommended surge protection device (SPD) for sensor cable connections to the transmitter.
10. Verification: Contractor shall measure O.D. and I.D. of pipe and submit dimensions as part of Shop Drawing Submittal.
11. Coordination: Mechanical Contractor to provide the pipe tap, full flow ball valve and valve stack assembly. Coordinate with Mechanical Contractor to provide required connections and connection material sizes.

PART 3 – EXECUTION

3.01 INSTALLATION:

- A. Coordination of all field mounted instrumentation device installation shall be system Supplier's responsibility:
 - 1. Mounting of each device shall be designed with consideration to:
 - a. Manufacturer's installation recommendations.
 - b. Ease of removal for maintenance.
 - c. Safety.
- B. Install the control and instrumentation in accordance with Drawings, shop drawings, and manufacturer's recommendations.
- C. Low power DC control signal wires shall be shielded and installed in a separate steel raceway. No AC power or control wires are allowed in the same raceway. The shielded control wires shall be sized to be compatible with the distances involved and the equipment selected.
- D. AC control wires shall be in separate conduit and sized to keep voltage drop within acceptable limits.

- E. All wiring terminating in control panel or other devices shall be properly identified with one piece wrap on sleeve type tags or labels with machine lettering.
- F. Before any circuits are energized, all internal and external electrical and mechanical clearances shall be checked to assure that all installed equipment will function safely and properly.

3.02 FIELD QUALITY CONTROL:

- A. System Supplier's Field Service:
 - 1. Arrange and pay for process control and instrumentation system Supplier's engineer to:
 - a. Assist with start-up and conduct performance demonstration.
 - b. Demonstrate operation and maintenance to the system operators.
 - c. Review operations and maintenance manual with system operators.
 - 2. Schedule field services as soon as practical and at times approved by Engineer.
 - 3. Promptly make all changes and additions required by system Supplier's engineer and as necessary for proper operation of the system.
 - 4. System Supplier's engineer shall submit written approval of installation.

3.03 SYSTEM TRAINING

- A. System Supplier's engineer shall provide training for system operators.
- B. Provide training session(s) to demonstrate and explain operation of all instrumentation equipment and systems. Demonstrations and explanations shall utilize installed equipment and be "hands-on." Each training session shall be repeated so training is available during day/morning and afternoon/evening shifts to accommodate schedules of Owner's personnel. Training times shall be mutually agreed upon with Owner. Training sessions shall be held at project Site.

END OF SECTION

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Appendix A

Specifications for Excavating, Trenching, and Backfilling for Utilities Specifications for Surface Restoration

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SECTION 2

SPECIFICATIONS FOR EXCAVATING, TRENCHING, & BACKFILLING FOR UTILITIES

2.01 DESCRIPTION OF WORK

The work shall consist of furnishing all materials, equipment, and labor for excavating, trenching, and backfilling for utilities. The work also shall include the necessary clearing, sheeting and shoring, boring and jacking, dewatering, pipe embedment, and other appurtenant work.

The work shall be performed in accordance with the specifications and drawings, the MDOT 2020 Standard Specifications for Construction and the following specifications.

2.02 CLEARING, BRUSHING & TREE REMOVAL

2.02.01 General

The Contractor shall perform all clearing, brushing, and tree removal required for the proposed construction. Where indicated on the drawings for a specific area, that area shall be completely cleared in accordance with Sections 201 and 202 of the MDOT 2020 Standard Specifications for Construction. The Contractor shall notify the Engineer 48 hours (two working days) prior to commencement of clearing, brushing and tree removal. Clearing and brushing shall be confined to the limits of the right-of-way or easements unless otherwise directed and shall be kept to a practicable minimum.

Trees marked "Remove" on the drawings shall be taken down and removed from the right-of-way in a manner that does not endanger the adjoining property or persons or traffic using the right-of-way. Unless approved otherwise by the Engineer, stumps of trees are to be removed. All stump removal, shall be considered included in the major items of work to the project.

Selective pruning of trees will be permitted to allow operation of the Contractor's equipment. Trees shall be pruned neatly, and the scars from pruning or other damage by the Contractor's equipment shall be covered with a preservative.

2.02.02 Preservation of Trees

Because of the special concern for preservation of trees, all trees six (6) inches in diameter and larger, measured at a point 4 1/2' above the ground line at the base of the tree, which are to be removed have been marked on the drawings. Where there is more than one tree that has grown from a common stump, each tree is measured as a separate tree. All other trees are to be preserved unless written permission for

removal is obtained from the Owner and/or the Engineer. Where tunneling is necessary to preserve a tree, it shall be included in the major items of work. Trees that may have to be tunneled may or may not be specified on the drawings. Where tunneling is necessary, excavation may have to be done by hand to prevent damage to the tree or to its roots. When tunneling or excavating is done close to a tree to be preserved, every effort shall be made to preserve the main roots.

2.02.03 Disposal of Debris

All trees, brush, and stumps from clearing and brushing operations shall be disposed of by the Contractor by hauling from the site, or other suitable means approved by the Engineer. Burning of debris will be allowed if approved by the Engineer and Owner. The Contractor shall obtain the necessary burning permits and shall comply with the safety regulations required.

2.02.04 Measurement & Payment

The cost of all clearing, brushing, tunneling, and protection of trees which are left standing shall be considered included in the major items of work unless specific items have been provided in the Proposal in which case the prices shall be payment in full for performing this work as specified herein. All tree preservation shall be included in the major items of work to the project. Trees will be measured at a point 4-1/2' above the ground line at the base of the tree. Where more than one tree has grown from a common stump, each tree is measured as a separate tree. Trees six (6) inches in diameter and smaller will not be considered pay items.

2.03 REMOVAL OF SURFACE IMPROVEMENTS

Surface improvements such as sidewalks, improved lawns, drives, curb and gutter, and all types of pavement shall be removed just prior to excavating or trenching operations. All improvements shall be cut at the expected trench width prior to excavating using suitable equipment which does not damage the improvement outside of the trench area.

Concrete and bituminous pavement and drives shall be cut with a pavement cutting saw. The depth of the cut shall be the full depth of the pavement. Pavement crushers or breakers of any type are prohibited unless specifically authorized by the Engineer. Pavement which is removed shall not become mixed with backfill material. Power equipment may be used for pavement removal, provided that damage is not caused to improvements which are to remain.

Removal of surface improvements shall be included in the major items of work and no specific payment will be made therefore unless specific Proposal items are provided, in which case the prices bid shall be payment in full for performing this work as specified herein.

2.04 EXISTING SOIL / SUBSURFACE CONDITIONS

Where provided, soil borings are shown on the drawings only as information for use by the Engineer in preparing the contract documents. The Contractor is solely responsible for confirming actual soil conditions and depth of the water table.

2.05 EXISTING UNDERGROUND UTILITIES & STRUCTURES

2.05.01 Location

No less than three (3) working days prior to excavating, the Contractor is to call "MISS DIG" at 1-800-482-7171 or 811. Existing utilities are shown only at their approximate locations. The Contractor shall be responsible for determining their exact elevations and location in the field. The Contractor shall notify the owners of all underground utilities before starting any work. House sewer connections, water and gas services, and other utility lines may not be indicated on the drawings. However, the Contractor shall make every effort to locate all underground utilities from information obtained from the utility owner or by prospecting in advance of trench excavation.

2.05.02 Replacement

Certain underground utilities such as sewers may require removal and subsequent replacement in lieu of supporting or bracing during the proposed construction, or the Contractor may elect this option when temporary provisions to maintain essential services have been previously approved by the Engineer.

Unless otherwise specified, any utilities removed during the proposed construction shall be replaced by the Contractor. Materials and installation shall be equal to or better than original construction in every way. Salvaged materials may be reused when they are in good condition, and a satisfactory installation can be accomplished in the judgment of the Engineer.

Replacement of existing utilities shall be considered included in the major items of work unless specific items have been provided in the Proposal, in which case the prices bid shall be payment in full for performing this work as specified herein.

2.05.03 Relocation

Should any pipe or other existing utility require raising or lowering or moving to another location because of interference with the pipe or structure being constructed under these specifications, such changes which in the opinion of the Engineer are necessary shall be made by the Contractor unless otherwise specified. Relocation of existing utilities shall be included in the major items of work unless specific items are provided in the Proposal.

2.05.04 Reconnection

Where lateral services, house connections, or other pipe lines require reconnection to the proposed utility, as is the case when an existing utility is being reconstructed, the Contractor shall make these connections as specified or as shown on the drawings. All costs for making these connections, including provisions for maintaining flows and providing temporary service during the proposed construction, shall be included in the major items of work unless specific items are provided in the Proposal.

2.05.05 Utilities to be Abandoned

When pipes, conduits, sewers, or other structures are removed from the trench leaving dead ends in the ground, such ends shall be fully plugged or sealed with brick and mortar by the Contractor. Abandoned structures such as manholes or chambers shall be entirely removed unless otherwise specified or shown on the drawings.

All materials from abandoned utilities which can be readily salvaged shall be removed from the excavation by the Contractor and stored on the site or loaded on the Owner's truck as directed by the Engineer. Owner shall have first claim to salvageable materials. The Contractor is responsible to dispose of salvageable materials not desired to be kept by the Owner.

All costs for abandoning utilities and for removing and salvaging materials, when required, shall be considered included in the major items of work unless specific items have been provided in the Proposal, in which case the prices bid shall be payment in full for performing this work as specified herein.

2.06 EXCAVATING & TRENCHING

2.06.01 General

Excavating and trenching operations shall at all times be conducted in a safe, orderly manner using methods and equipment designed and suited to the intended use by personnel experienced in the work being performed.

None of the requirements or provisions specified herein or shown on the drawings shall nullify or restrict any safety provisions required by any regulation or law governing the protection and/or safety of persons or property.

2.06.02 Width of Trench

The width of the trench shall be ample to permit the pipe to be laid and joined properly and the pipe embedment material and backfill to be placed and compacted as specified. Trenches shall be of sufficient extra width when required as will permit the convenient placing of trench supports, sheeting, and bracing.

2.06.02.01 Width of Trench for Rigid Pipe

In order to limit excessive loads on rigid pipe, the maximum width of trench for pipe 36 inches and larger in diameter shall not be more than twice the nominal diameter. For smaller sizes of pipe, the maximum width of trench shall be not more than 3 feet greater than the nominal diameter of the pipe except as otherwise specified or directed. The above limiting restrictions on trench width apply from outside bottom of pipe to outside top of pipe.

Where the width of trench within these limits exceeds the maximum limit specified, the Contractor shall install a heavier class of pipe or use other means to provide additional load-carrying capacity at no additional cost to the Owner. Any changes in class of pipe or other variation shall be approved in writing by the Engineer before the work progresses.

When the trench width above the top of the pipe is appreciably greater than that which is reasonably required by project conditions in the judgment of the Engineer, any additional cost for backfill material, surface restoration, or other items that are the result of such excess width shall be borne by the Contractor.

2.06.02.02 Width of Trench for Flexible Pipe

Unless otherwise specified or approved by the Engineer, a minimum trench width of at least two (2) feet on each side of the pipe for placement of select embedment material will be required.

2.06.03 Excavating to Grade

The trench shall be excavated to a depth required for the proper installation of the pipe and placing of the pipe embedment material as specified.

Any part of the bottom of the trench excavated below the specified subgrade shall be refilled with approved materials compacted to 95% of maximum unit weight in accordance with MDOT procedures at no additional cost to the Owner. If additional excavation is required to correct unstable foundation conditions, payment will be made as specified in Section 2.08.

2.06.04 Sheeting, Shoring, Bracing, & Shelving

2.06.04.01 General

The Contractor shall brace or slope back the sides of all excavations in accordance with current MIOSHA regulations. The Contractor shall be responsible for compliance to such regulations and for the design, installation, and maintenance of all excavation safety measures.

2.06.04.02 Measurement & Payment

Unless otherwise specified in the Proposal, the costs incurred in the installation of bracing, sheeting, shoring, and shelving shall be included in the unit price bid for the work being performed.

Payment for sheeting left in place where directed by the Engineer shall be negotiated with the Contractor in accordance with the contract provisions for extra work unless specific items have been provided in the Proposal.

2.06.05 Rock Excavation

2.06.05.01 General

Wherever the word rock is used in these specifications, it shall mean boulders, solid ledge rock, and other minerals geologically placed and of a hardness when first exposed of 3 or greater in scales of mineral hardness, which in the opinion of the Engineer requires continuous use of drilling and blasting or special power equipment for its removal.

Soft disintegrated rock which can be removed with a power-operated excavator or with hand tools and loose, shaken, or previously blasted rock and broken stone in rock fillings shall not be classified as rock, nor will it be included in measurements for payment.

2.06.05.02 Hardness

The Engineer will determine the hardness of the material or minerals in question. The following accepted hardness will be used as a guide in the field for specific situations:

- Gypsum - hardness of 2
- Fingernail - hardness of approximately 2-1/2
- Calcite - hardness of 3
- Copper Coin - hardness of approximately 3
- Brass Pin - hardness of approximately 3

A mineral with a hardness of 3 will scratch a copper coin and can be scratched with a brass pin. Determinations of hardness which cannot readily be determined in the field shall be resolved by laboratory analysis of the material in question.

2.06.05.03 Blasting

Where blasting is necessary, the Contractor shall obtain the required permits and licenses at his own expense. This work shall be done with due regard to the safety of workmen, other people, and public and private property. The method of covering blasts, amounts of charges used, and the general procedure for doing this work shall

conform to the standard practice and shall meet all requirements of local ordinances and other regulations and shall be subject to the approval of the Engineer.

2.06.05.04 Clearance

Rock shall be removed to provide a clearance for all pipes, appurtenances, or structures of at least eight (8) inches below, and a minimum of eight (8) inches on each side of the pipe, appurtenance, or structure.

The specified minimum clearances are the minimum clear distance which will be permitted between any part of the pipe or appurtenances being laid and any part, point, or projection of the rock.

2.06.05.05 Measurement

Only boulders of 1 cubic yard or greater in volume that cannot be removed with power excavating equipment or rock as defined herein will be measured for payment. Measurements of rock will be made by the Engineer after rock is removed from the excavation by measuring the trench before the pipe is installed.

The cross sectional area will be measured at 25 foot intervals or closer if required to accurately measure the trench. The maximum depth which will be measured for payment shall be from the top of the rock formation to the specified subgrade for the pipe embedment material. The maximum width of trench to be considered for payment shall be as follows:

1. Below outside top of pipe, maximum width shall be the outside diameter of the pipe bell plus 12 inches but not less than 30 inches.
2. From outside top of pipe to top of rock formation, maximum width shall be computed based on a 5 on 1 slope vertically for the sides of the trench.

The volume will be computed by the Engineer using the method of average end areas based on measurements of rock actually removed subject to the maximum limits specified.

2.06.05.06 Basis of Payment

Rock excavation shall be paid for at the contract price per cubic yard, which price shall be payment in full for completing all work as specified herein including removal and disposal of the rock.

If a unit price has not been established in the Proposal, payment to the Contractor will be based on the contract provisions for extra work.

2.06.06 Dewatering

The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and ground water including water or sewage from exposed sewers or water mains, from all excavations and trenches, or other parts of the work. Each excavation shall be kept dry during the preparation of the subgrade and continually thereafter until the structure to be built or the installation of the pipe line is completed to such extent that no damage from hydrostatic pressure, flotation, or other cause will result.

Where work is in soil containing an excessive amount of water, the Contractor shall provide, install, and maintain suitable well points or wells connected to manifolds or reliable pumping equipment, or other suitable dewatering methods, and shall so operate the dewatering system to insure proper construction of the work. If the Contractor elects to use a trench underdrain or similar dewatering system, he shall receive prior approval of the Engineer as to location and installation methods for this type of system. The Contractor shall make every effort to prevent sand, sediment, or debris from entering any existing pipe line or conduit which he may use for drainage purposes. The repair or cleaning of drainage structures made necessary by the Contractor's operations shall be performed by and at the expense of the Contractor. Arrangements for discharge of ground water into any public sewer shall be previously approved by the Engineer and Owner of the receiving sewer.

Dewatering including the use of stone or gravel for dewatering purposes when required will not be paid for separately but shall be included in the contract price for the major items of work.

The Contractor shall limit his dewatering operation to the minimum time and depth required for construction. The Contractor will be required to furnish temporary water service and/or provide potable water at the direction of the Engineer to property owners whose wells are affected by the dewatering operations.

2.07 **BORING & JACKING**

2.07.01 General

Where so specified on the drawings, railroad tracks, streets, or other obstructions to be crossed by utilities shall be bored and/or jacked as hereinafter specified. These specifications describe the general method of conducting the boring and jacking operations and set forth minimum conditions. The location and details of the proposed installation will be shown on the Drawings.

Unless otherwise specified, the Contractor shall be responsible for obtaining any permits required for the work under the right-of-way, or other facility to be crossed, and shall carry out the details of his work in a manner that will fully meet the requirements of the authority having jurisdiction over the facility affected. No interruption of traffic will be permitted, and the Contractor shall take all precautions to that effect.

2.07.02 Casing Method

When the casing method is specified, a casing pipe shall be jacked into place and a carrier pipe shall then be installed in the casing pipe. The casing pipe shall be jacked into place by approved methods that will provide accurate alignment and grade and that will allow the carrier pipe to be installed within the casing at the specified alignment and grade.

The carrier pipe shall be joined together to form a continuous run through the casing. It shall be supported on wooden shoes or blocks which shall be securely fastened to each end of each piece of pipe or as recommended by the pipe manufacturer. The carrier pipe shall then be drawn or shoved through the casing. Junction with pipes of other materials at each end shall be made as shown on the Drawings. After the pipe has been inspected and accepted, the annular space between the pipe and the casing shall be filled with materials approved by the Owner, such as, peastone or flowable fill. After the casing has been filled, the ends of the casing shall be sealed as shown on the Drawings or in the Specifications.

2.07.03 Jacking Pipe Method

When specified or indicated on the Drawings, the pipe to be jacked shall also be utilized as the carrier pipe. The pipe shall be jacked into place by approved methods that will provide accurate alignment and grade. Excavation shall be performed ahead of the pipe by working inside the pipe or shall be performed by boring with approved equipment suitable for the intended use.

2.07.04 Measurement & Payment

The length of pipe to be measured for payment shall be the actual length of casing or jacking pipe actually jacked or pushed into place. When additional casing is specified or authorized, but is not actually jacked in place, the cost for furnishing and placing such additional casing will be paid for separately. If a unit price has not been established in the Proposal, payment will be based on the contract provisions for extra work. No additional payment will be made where the Contractor jacks or installs additional casing not shown on the Drawings or authorized by the Engineer.

The contract price per lineal foot for furnishing and jacking the pipe, or casing, where the casing method is used shall be payment in full for completing the work as specified herein including the necessary jacking pits and connections to pipes of other materials.

The carrier pipe shall be paid at the contract price for watermain, storm sewer, sanitary sewer, or force main per unit prices shown on the proposal and shall be payment in full for furnishing and installing the carrier pipe inside the casing.

2.08 SUBGRADE

The subgrade for pipe and/or structures shall be firm, dense, and thoroughly compacted and consolidated, free from mud and muck, and sufficiently stable to remain firm and intact under the feet of the workmen.

2.08.01 Unstable Foundation

When the soil beneath the normal pipe embedment area is soft or unstable, even with adequate dewatering, or in the opinion of the Engineer cannot support the pipe or utility, further depth shall be excavated and refilled to the proposed grade with MDOT Class II granular material (for plastic pipe the material must comply with ASTM D2321) compacted in twelve (12) inch layers as specified in Section 2.09.05, or other approved means shall be employed to assure a firm foundation for the utility. The volume of unstable foundation removed and replaced with approved materials for which payment will be allowed shall be determined in cubic yards unless otherwise specified on the Drawing or in the proposal. Said volume to be computed by assuming that the cross section area of the unstable foundation takes the form of a trapezoid as shown on the Standard Detail for Unstable Soil Removal for Utility.

Payment for removal and replacement of unstable foundation will be paid under the contract provisions for extra work, unless specific Proposal items have been provided, in which case, the unit price bid shall be payment in full for performing the work as specified. If the soil in the bottom of trench is soft due to excessive amounts of ground water, and/or the Contractor's method of operation, stabilization of the trench bottom shall be at the Contractor's expense.

2.08.02 Special Foundations

Where the subgrade at the bottom of the excavation consists of soil which is unstable or yielding to such a degree that, in the opinion of the Engineer, it cannot properly support the pipe or structure, the Contractor shall construct such additional foundation or reinforcement of the subgrade as may be specified, such as timber piling, geotextiles, or other means as approved by the Engineer to provide a proper foundation.

The construction of special foundations will be paid for separately based on the contract provisions for extra work, unless specific Proposal items have been provided, in which case the unit price bid shall be payment in full for performing the work as specified.

2.09 PIPE EMBEDMENT

2.09.01 General

Pipe embedment shall include the furnishing and placing of approved materials as specified or as directed from 4 inches under the outside bottom of the pipe to 12

inches over the outside top of the pipe. Various classes of pipe embedment may be specified or shown on the Drawings or Standard details in which case the limits of the various types will also be specified.

2.09.02 Flexible Pipe Embedment

Flexible pipe is any pipe having a pipe stiffness of less than 60 psi. as defined under the requirements of ASTM Designation D2412 (this includes all plastic pipe except Composite (Truss) pipe, and may include corrugated metal pipe, ductile iron pipe, and steel pipe, depending on pipe diameter and wall thickness).

Pipe embedment for flexible pipe shall be Class B as shown in the attached standard details. For pipes less than fifteen (15) inches in diameter, bedding material meeting the requirements of Section 902.07 of the MDOT 2020 Standard Specifications for Construction for granular materials Class II, modified to 100% passing a 1" sieve shall be used. If stone is used for bedding, it shall meet the requirements of ASTM D2321 (Table 1 – Embedment Classes for Plastic Pipe) for Class 1A crushed stone. An Engineer approved geotextile filter fabric shall be placed around all areas where Class 1A crushed stone pipe embedment is used as shown on the standard details. Transition zones between crushed stone and sand embedment shall be separated by a geotextile fabric. For pipes fifteen (15) inches in diameter and larger, bedding material meeting the requirements of Section 902.07 of the MDOT 2020 Standard Specifications for Construction for granular materials Class II, modified to 100% passing a 1 sieve shall be used.

2.09.03 Class B Pipe Embedment

Unless otherwise specified or shown on the Drawings, all pipe embedment shall be Class B pipe embedment as shown on the Standard details. When the soil in the bottom of the trench at pipe subgrade meets all the requirements for Granular Material Class II as specified in the MDOT 2020 Standard Specifications for Construction, Section 902.07 and in the opinion of the Engineer will provide suitable bedding for the pipe, such soil may be utilized as bedding material and prepared to receive the pipe as specified without undercutting and subsequent replacement.

Plastic pipe embedment shall comply with ASTM D2321.

2.09.04 Special Pipe Embedment

Various types of special pipe embedment may be specified or shown on the Drawings in locations where special conditions require their use. The Contractor shall perform all the work of constructing special pipe embedment where specified.

2.09.05 Placing Pipe Embedment Material

Pipe embedment material shall be placed in the bottom of the trench and shaped by hand to provide a firm and uniform bearing for the barrel of the pipe with additional shaping to accommodate the bells on bell and spigot pipe. After each pipe has been

graded, aligned, and placed in final position on the bedding material and jointing is complete, additional embedment material shall be carefully placed and compacted under and around each side of the pipe and over the pipe until it is completely covered by 12 inches of embedment material. Said material shall be distributed along both sides of the pipe uniformly and simultaneously to prevent lateral displacement of the pipe. All granular embedment material shall be compacted to 95% of maximum unit weight in accordance with MDOT procedures.

All the work of placing pipe embedment shall be considered an integral part of installing the pipe and shall be completed immediately after the pipe is laid to the correct alignment and grade.

2.09.06 Basis of Payment

All the work of furnishing and/or placing pipe embedment material as specified shall be included in the contract items for the proposed work as follows:

2.09.06.01 Class B Pipe Embedment

When a contract item has been provided in the proposal for special backfill, payment will be made under this item as specified in Paragraph 2.10 for approved granular material obtained off the site. When no specific item for special backfill has been provided, this work shall be included in the major work items.

2.09.06.02 Special Pipe Embedment

When one or more contract items have been provided in the Proposal for special pipe embedment, payment to the Contractor will be based on the prices bid for the respective items. When no specific items have been provided in the Proposal, the cost for completing this work as specified shall be included in the major work items except for authorized extra work in which case the contract provisions for extra work shall apply.

2.10 BACKFILLING ABOVE PIPE EMBEDMENT

2.10.01 General

All backfill material shall be free from cinders, ashes, refuse, sod, organic material, boulders, or rocks larger than 3 inches in diameter, frozen material or other material which in the opinion of the Engineer is unsuitable. The soil excavated from the trenches shall be used for backfilling when it is classified as suitable by the Engineer. If all or a portion of the excavated material is classified as unsuitable for backfilling, the Contractor shall remove and dispose of the unsuitable material and shall furnish and place granular material meeting the requirements of Section 902.07 of the MDOT 2020 Standard Specifications for Construction for Granular Material Class II.

All backfilling and compaction shall be performed by the Contractor using methods and equipment approved by the Engineer.

2.10.02 Trenches Requiring Compacted Granular Backfill

Trenches and excavations in the following locations shall be backfilled with approved granular material meeting the requirements of Section 902.07 of the MDOT 2020 Standard Specifications for Construction for Granular Material Class II:

- a. Improved areas, including drives, sidewalks, parking areas, around structures, etc.
- b. Within the limits of the roadway (within a 1 on 1 slope beginning two (2) feet from the edge of pavement or back of curb towards the right-of-way line).
- c. Within the limits of future improvements (shown on Drawings).
- d. Within limits specified on Drawings.
- e. All sanitary sewer lateral trenches within the limits of the right-of-way.

All backfill within these areas shall be placed in layers not exceeding twelve (12) inches thick, and shall be compacted to 95% of maximum unit weight in accordance with MDOT procedures. Tests for compaction will be made by the Engineer or other representative designated by the Engineer at no cost to the Contractor. When tests indicate a density which is less than that required, the methods or equipment being used shall be modified to obtain the density specified, and the section in question shall be recompacted until the required density is obtained. The cost of retesting shall be borne by the Contractor.

2.10.03 Trenches Not Requiring Compacted Granular Backfill

Where not otherwise specified or directed, backfilling above the pipe embedment shall be made with material which is originally excavated, which is suitable. Backfill materials shall be consolidated by mechanical equipment working longitudinally in the trench, or by other approved methods, so as to be free of large voids with any excess material mounded over the trench or removed as directed by the Engineer. The trench shall be graded to a reasonable uniformity and left in a neat condition.

2.10.04 Basis of Payment

Payment for backfilling including compaction shall be made as follows:

- a. When a contract item has been provided in the Proposal for special backfill, payment will be made under this item as specified in Paragraph 2.11 for approved granular material obtained off the site.

- b. When no specific item for special backfill has been provided in the Proposal, this work shall be included in the major items of work.

2.11 SPECIAL BACKFILL - MEASUREMENT AND PAYMENT

2.11.01 Measurement

When an item has been provided in the Proposal for special backfill, approved granular material obtained off the site which is required by these specifications or authorized by the Engineer shall be included in this item. Special backfill shall be measured compacted in place. The Contractor shall furnish a delivery ticket for each truck load at the time the material is delivered to the project. The delivery ticket shall be prepared at least in duplicate, one copy of which shall be furnished to the Engineer or his representative, the other copy to be retained in the Contractor's file. No payment shall be made for special backfill unless the individual truck delivery tickets are furnished in this manner. The Engineer will use the delivery tickets when calculating the compacted in place quantity.

2.11.02 Payment

The Proposal unit price per cubic yard for special backfill shall be payment in full for furnishing, placing, and compacting the special backfill and for disposing of the material excavated from the trench as directed and in accordance with the Drawings and Specifications.

Stone used specifically for dewatering procedures shall not be classified as special backfill and no specific payment will be made therefor.

2.12 DISPOSAL OF EXCESS EXCAVATION

All excavated material in excess of that needed for backfill or that material classified as unsuitable by the Engineer shall be disposed of by the Contractor. However, the Engineer reserves the right to direct the Contractor to haul all or a portion of the material not required for backfilling to an area designated by the Engineer which is not more than 1,000 feet outside the project and which is reasonably accessible. This work, when directed, shall be performed at no additional cost to the Owner.

2.13 LIMITATIONS ON OPERATIONS

The Contractor shall at all times conduct his work so that there is a minimum of inconvenience to the residents and businesses in the vicinity of this project. To this end, he shall complete his backfill and remove all debris and unsuitable backfill to a point as close to the actual pipe installation as is practical and keep the area where the pipe construction and backfill has been completed in a neat condition. Open excavations shall be protected by signs, lights, barricades, and/or fence at all times when work is not actually taking place at that excavation. The placement of excavated earth along the line of the trench shall be controlled by the public's use of the street or right-of-way and shall always be confined to approved limits.

Not more than 300 consecutive feet of street shall be closed at one time, and vehicular traffic through any street shall not be stopped for a period longer than two weeks without the written permission of the Engineer. Not more than one cross street shall be closed to vehicular traffic at the same time except by permission of the Engineer. Contractor shall maintain access for emergency vehicles at all times.

2.14 SOIL EROSION AND SEDIMENTATION CONTROL

The Contractor shall conduct his operations in such a manner that all soil is confined within the project limits and prevented from entering storm sewers, water courses, rivers, lakes, reservoirs, or wetlands.

The Contractor shall place a filter or barrier composed of straw, stone or other approved material around all catch basins or other inlets to the storm sewer or drainage courses to prevent sedimentation in these structures. After the construction operations are completed, the Contractor shall remove these filters and clean all the sediment and debris from the catch basins, ditches or other storm sewer structures.

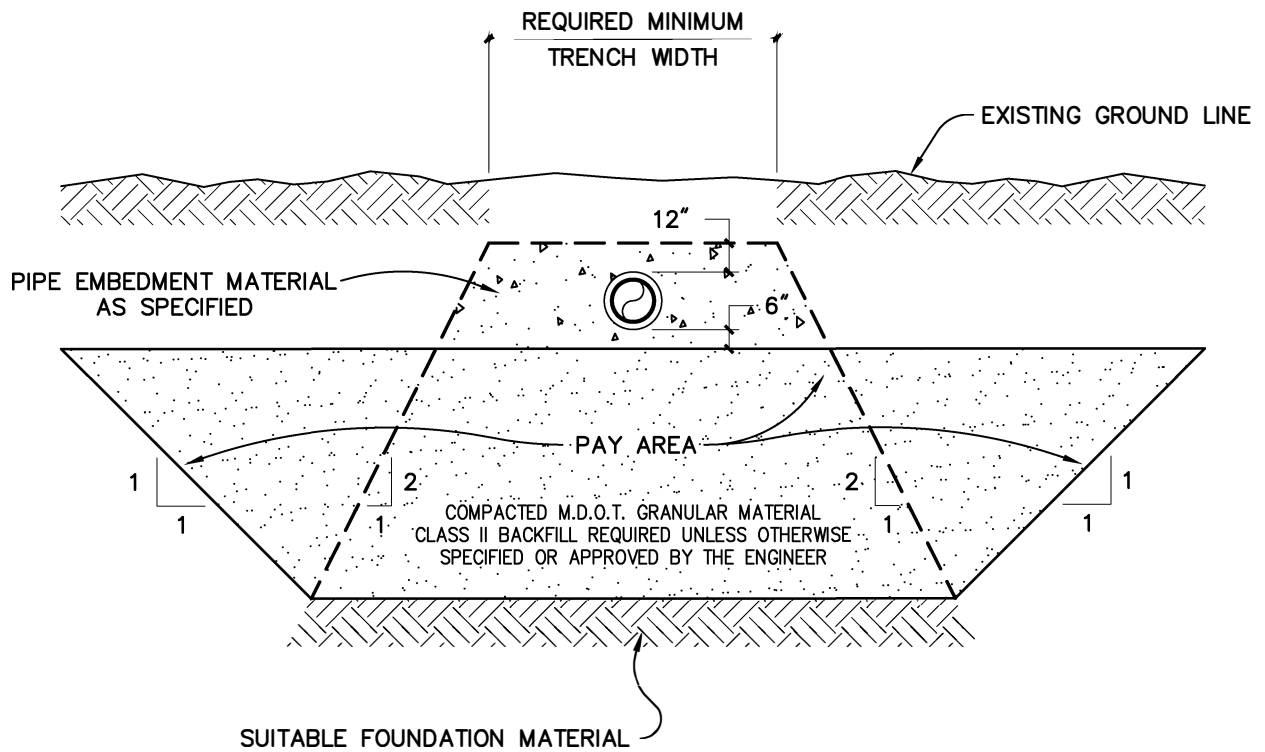
Soil erosion and sedimentation control measures if indicated on the Drawings are considered as minimum requirements and are not to be considered as complete and all-inclusive. Additional control measures as may be required due to circumstances or conditions at the time of construction or as directed by the Engineer, or the designated Soil Erosion Control agency, shall be placed as required to insure conformance with the Part 91 of PA 451 of 1994. Deviations from or additions to the erosion control measures shown on the Drawings shall be subject to the approval of the Engineer or enforcing agency.

The Contractor is responsible to have a certified storm water operator and complete all such reports as required by regulatory agencies as it relates to storm water and soil erosion and sedimentation control.

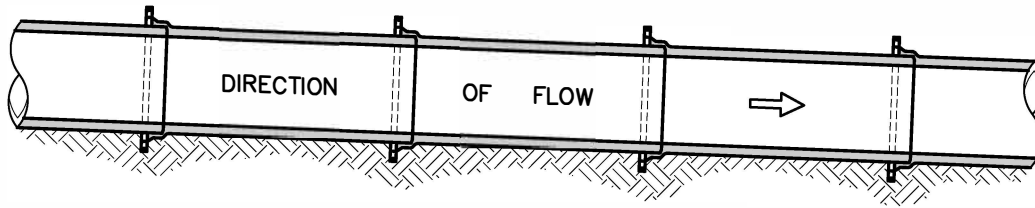
The cost of this work and other control measures which may be required or directed by the Engineer shall be included in the major work items to the cost of the project unless specific items have been provided in the proposal.

2.15 STREAM CROSSING

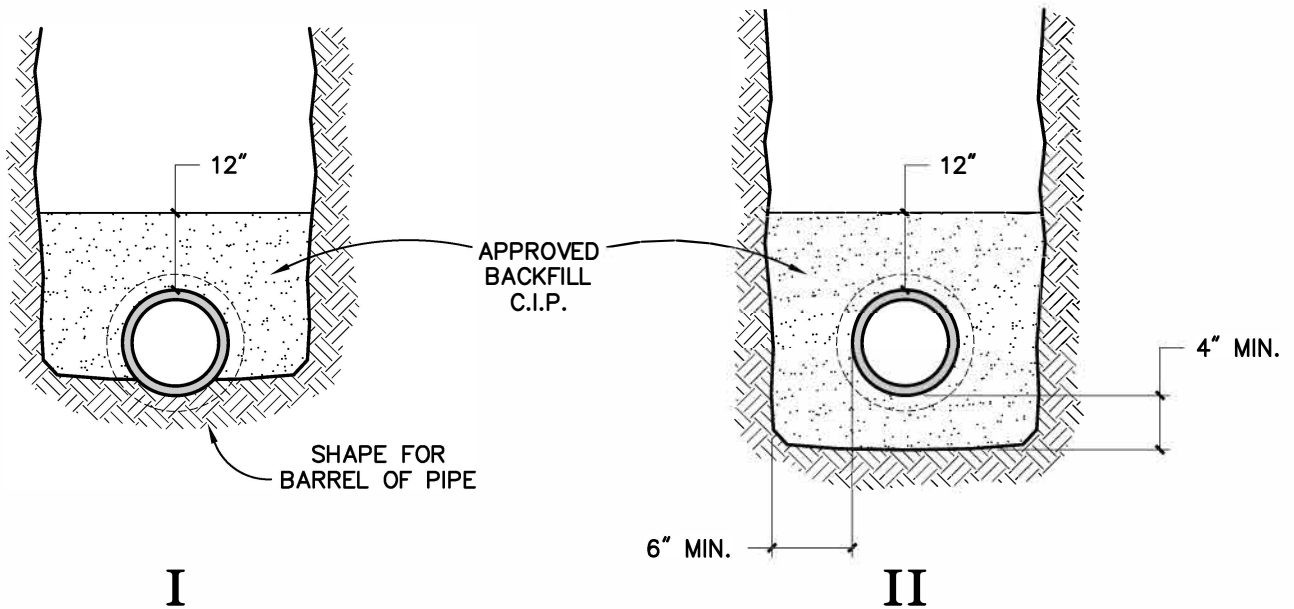
The rules and regulations of Act 451, shall govern all streams, wetland and river crossings.



UNSTABLE SOIL REMOVAL FOR UTILITY



EXCAVATION FOR BELLS



CLASS B PIPE EMBEDMENT

NOTES

1. ALL BACKFILL INDICATED SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH M.D.O.T. PROCEDURES.
2. METHOD I SHALL BE USED IN AREAS OF UNCONSOLIDATED SOILS. (e.g. SAND, GRAVEL)
3. METHOD II SHALL BE USED IN AREAS OF CONSOLIDATED SOILS (e.g. CLAY, HARDPAN, ROCK)

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SECTION 3

SPECIFICATIONS FOR SURFACE RESTORATION

3.01 DESCRIPTION OF WORK

All areas disturbed by construction operations shall be restored to the original condition thereof as determined by the Engineer using information from drawings, surveys, and photographs or video tapes when available.

The work shall be performed in accordance with the specifications and drawings, the MDOT 2020 Standard Specifications for Construction and the following specifications.

3.02 GRADING

All streets, walks, and other improved surfaces disturbed by construction operations shall be replaced to uniform lines and grades established by the Engineer. The finish grade line will be established within three (3) inches of the existing ground profile shown on the drawings unless a proposed grade is shown which indicates otherwise.

The Contractor shall perform all grading, compacting, shaping, and related work required to prepare the subgrade to the satisfaction of the Engineer. The cost for preparing the subgrade as specified herein shall be incidental to the cost of the project, and no specific payment will be made therefor.

3.03 REPLACEMENT OF AGGREGATE STREETS AND DRIVEWAYS

Aggregate streets shall be constructed in accordance with the typical section shown on the drawings and shall consist of a minimum of six (6) inches of aggregate surface course as specified below.

3.03.01 Materials

Aggregate surface course shall meet the requirements specified in Section 306 of the MDOT 2020 Standard Specifications for Construction. All material shall be taken from stockpiles that have recently been tested by the county road commission, MDOT, or an independent laboratory.

Aggregate material that is removed from roadways and driveways shall not be reused but shall be replaced with an equivalent depth of newly compacted aggregate conforming to MDOT 22A.

3.03.02 Construction Methods

Placement of aggregate surface course shall be in accordance with the applicable portions of Section 306 of the MDOT 2020 Standard Specifications for Construction.

3.03.03 Aggregate Driveways and Field Drives

Aggregate driveways and field drives shall be replaced with a minimum of six (6) inches of MDOT 22A aggregate compacted in place.

3.03.04 Culverts

Culverts that are removed may be reused, if they are in sound condition. If damaged, the culverts shall be replaced with ASTM C76 Class III concrete pipe or equivalent pipe. The cost of removing and replacing the culverts shall be considered part of the major items of work found in the Proposal unless otherwise specified.

3.03.05 Measurement & Payment

Except as specified in Section 3.04, all replacement of aggregate streets and driveways shall be measured in lineal feet along the centerline of the main line utility being constructed and shall include all final grading and shaping required. The width of gravel replacement will not be considered for payment unless specific items to that end have been provided in the Proposal.

3.04 REPLACEMENT OF SURFACE AGGREGATE IN SPECIFIED AREAS

The Contractor shall furnish and place additional aggregate conforming to MDOT Specifications in locations determined by the Engineer for the replacement of aggregate shoulders, drives, and streets where linear measurement (as specified in Section 3.03.05) is impractical, where only part of an existing aggregate surface requires replacement, or where field conditions require replacement of the aggregate to a greater or lesser thickness than six (6) inches as determined by the Engineer.

Aggregate shoulders disturbed by the Contractor's operations shall be restored or replaced to their original width and thickness with aggregate conforming to the requirements of Section 902 of the MDOT 2020 Standard Specifications for Construction for 22A or 23A aggregate as specified.

3.04.01 Measurement & Payment

Surface aggregate shall be measured in tons or cubic yards or as specified in the Proposal. The Contractor shall furnish a truck delivery ticket for each load when it is delivered to the project which clearly states the quantity in tons or cubic yards, date of delivery, and the specific location used on the project. The price per ton or

cubic yard as bid in the Proposal shall be payment in full for furnishing, placing, compacting, and grading the surface aggregate as directed by the Engineer.

Measurement of shoulder restoration shall be in lineal feet along the centerline of the main line utility being constructed directly below the shoulder or in square yards according to the Proposal Item. If there is no Proposal Item for shoulder restoration, it shall be considered incidental to the project, and no separate payment shall be made therefor.

3.05 REPLACEMENT OF HOT MIX ASPHALT (HMA) STREETS

Hot Mix Asphalt (HMA) streets shall be constructed in accordance with the typical section shown on the drawings and, unless otherwise specified, shall meet the requirements of 13A in Section 501 of the MDOT 2020 Standard Specifications for Construction placed at 330 lbs./sq.yd. minimum (165 lbs./sq. yd. leveling, 165 lbs./sq. yd. surface) over six (6) inches of compacted 22A aggregate.

3.05.01 Materials

Aggregate base for HMA streets shall meet the requirements of 22A in Section 902 of the MDOT 2020 Standard Specifications for Construction. HMA for base, leveling, and surface courses shall be as specified, and shall conform to the requirements of Section 501 of the MDOT 2020 Standard Specifications for Construction. Materials for bond coat shall be as specified in Section 501 of the MDOT 2020 Standard Specifications for Construction.

3.05.02 Construction Methods

Aggregate base for HMA streets shall be placed in accordance with Section 302 of the MDOT 2020 Standard Specifications for Construction.

HMA mixtures shall be placed in accordance with the applicable portions of Section 501 of the MDOT 2020 Standard Specifications for Construction. For replacement of valley gutters, pavers shall be equipped with an extension to the vibrating screed adjustable to fit the typical section shown on the drawings.

The Contractor shall not place the aggregate base course until the subgrade has been approved by the Engineer. The Contractor shall not place the first HMA course and each successive HMA course until the underlying aggregate or HMA course has been approved by the Engineer.

3.05.03 Saw Cutting

HMA street, driveway and spillway replacement shall include saw cutting the asphalt pavement at the edge of the trench for the full depth of the pavement. Payment for saw cutting shall be included in the pay items for street replacement and driveway replacement unless otherwise specified.

3.05.04 Measurement & Payment

HMA street replacement shall be measured in lineal feet along the centerline of the main line utility being constructed. The width of the street replaced will not be considered for payment, and payment will not be made for any length of street replaced beyond that which is directly above the pipe installed. HMA street replacement may also be measured in square yards or tons as specified in the Proposal.

Aggregate base for HMA shall be considered part of the HMA items, and no separate payment will be made therefor unless a specific Pay Item for aggregate base is listed in the Proposal.

The cost of HMA bond coat shall be considered part of the bituminous paving.

3.06 REPLACEMENT OF AGGREGATE SURFACE OR HOT MIX ASPHALT (HMA) PAVED AREAS (PATCHING)

When the drawings and specifications do not require that the Contractor replace an entire street, the surface that is disturbed shall be replaced as specified herein.

3.06.01 Materials

Surfacing aggregate and aggregate base for HMA pavement shall conform to the requirements for 22A aggregate in Section 902 of the MDOT 2020 Standard Specifications for Construction.

Unless otherwise specified on the drawings or in the specifications, HMA 13A, conforming to the requirements in Section 501 of the MDOT 2020 Standard Specifications for Construction, shall be used for HMA patches. When existing seal coat pavement is disturbed, a HMA patch shall be placed.

3.06.02 Construction Methods

When an aggregate surface is disturbed by the Contractor's operations, the edges of the existing aggregate surface shall be trimmed and shall be free of all foreign material before the new aggregate is placed. The subgrade shall be graded and compacted to the proper lines and grades to match the adjacent surface. The aggregate shall be placed in layers not to exceed six (6) inches and shall be compacted to 98% of its maximum unit weight in accordance with MDOT procedures.

When a HMA surface is disturbed by the Contractor's operations, that surface shall be replaced at a thickness equal to the thickness of the existing pavement adjacent to the trench but not less than one and one-half (1-1/2) inches thick. If existing pavement is greater than two (2) inches in thickness, the replacement pavement shall be placed in two or more layers. Aggregate base shall be replaced at a thickness equal to the adjacent aggregate base (minimum six inches) as specified

for aggregate patches above. After placement of the aggregate base but prior to its final shaping and compaction, the edges of the existing pavement shall be trimmed to straight lines a minimum of one (1) foot from the edge of the trench to permit a straight and uniform surface between the existing and new aggregate base. Trimming of the existing pavement shall be by sawcutting or other suitable means approved by the Engineer.

All bituminous valley gutter located in disturbed HMA surface areas shall be replaced by the Contractor. Replacement of valley gutter in disturbed HMA areas shall be considered part of the HMA replacement.

3.06.03 Measurement & Payment

Replacement of aggregate surface shall be measured in lineal feet along the centerline of the main utility line being constructed. HMA paved areas (patching) shall be measured in square feet or square yards of actual aggregate surface and HMA patching replaced. Payment shall be made according to the Proposal Item for the type of surface to be replaced and shall include all trimming, removal, shaping, compacting, aggregate base, and HMA or aggregate surface.

3.07 REPLACEMENT OF CONCRETE IMPROVEMENTS

The Contractor shall replace all concrete sidewalk, drives, curb and gutter, and pavement removed during the installation of the utility or broken by the Contractor.

3.07.01 Materials

Concrete shall meet the requirements for Grade 3500 Concrete as specified in Section 1004 of the MDOT 2020 Standard Specifications for Construction. Other materials shall meet the requirements of the applicable portions of the MDOT 2020 Standard Specifications for Construction.

3.07.02 Construction Methods

The thickness of the concrete shall be the same as the concrete adjacent to the trench but shall not be less than four (4) inches. The alignment and grade and the contour and finish of the surface shall be the same as the concrete adjacent to the trench unless otherwise directed by the Engineer.

Pavements, walks, and drives shall be sawcut at the edges of the trench or removed to existing joints. The depth of the saw cut shall not be less than the full depth of the concrete.

The forms and joints and the methods of placing, curing, and protection shall be consistent with standard practice and shall meet all the requirements of the MDOT 2020 Standard Specifications for Construction for the various items.

3.07.03 Concrete Curb & Gutter (Header Curb, 18 inch, 24 inch, and 30 inch)

Concrete curb and gutter shall match the existing curb and contain two No. 4 steel reinforcing bars. Concrete shall be Grade 3500. Payment shall be made in lineal feet of curb and gutter replaced. All joints shall be saw cut. Curb and gutter shall be placed in accordance with Section 802 of the MDOT 2020 Standard Specifications for Construction.

3.07.04 Sidewalk and Concrete Driveways

Sidewalk and concrete driveways shall be placed in accordance with Section 801 & 803 of the MDOT 2020 Standard Specifications for Construction. Concrete shall be air entrained. All 6-inch thick concrete sidewalks shall include 6x6-W2.9xW2.9 woven wire steel mesh.

3.07.05 Measurement & Payment

Concrete walks, pavement, and drives will be measured in square feet or square yards of actual concrete surface replaced. Concrete curb and gutter shall be considered part of the construction of the utility line unless a specific item is provided in the Proposal for its replacement. If so specified, the concrete curb and gutter or valley gutter replacement shall be paid for in lineal feet measured along the face of a header curb or along the flow line of gutter when constructed as part of the curb. Concrete that has been broken by the Contractor outside the limits of the trench will not be considered for payment unless otherwise specified.

3.08 REPLACEMENT OF LAWN IMPROVEMENTS

3.08.01 Underground Sprinkling Equipment

Underground sprinkling lines, valves & heads, and water system curb stops and boxes are specifically excluded from the pay items. The Contractor shall take the necessary precautions to preserve this equipment during construction. Any underground sprinkling equipment disturbed by the Contractor shall be replaced at the Contractor's expense.

All underground sprinkling equipment shall be replaced in a timely fashion so as to minimize damage to the lawn areas. The Contractor will be responsible for any lawn damage caused by delayed replacement of the sprinkling equipment.

3.08.02 Fences

Fences, which are removed for construction, shall be replaced with equal or better type and size. The cost of removing and replacing the fences shall be considered part of the major items of work found in the Proposal unless otherwise specified.

3.08.03 Ornamental Shrubbery and Bushes

Ornamental shrubbery and bushes that are removed during construction shall be replaced in kind and size in a vigorous growing condition. Replacement costs shall be considered part of the major items of work found in the Proposal unless otherwise specified. All shrubs and bushes replaced shall be insured by a one-(1) year warranty commencing from the date of installation.

3.09 TURF RESTORATION

All areas of established turf shall be replaced as nearly as possible to their original condition.

3.09.01 Topsoil

Topsoil shall be placed at a minimum depth of four (4) inches over all areas disturbed by the Contractor's operations. The subgrade shall be graded to conform to the adjacent contours and shall be approved by the Engineer before placing topsoil. The topsoil shall then be placed in accordance with Section 816 of the MDOT 2020 Standard Specifications for Construction.

The soil shall be dark, organic natural surface soil, exclusive of muck or peat, suitable for the establishment of grass or other vegetable growth.

3.09.02 Fertilizer

After the topsoil has been placed, it shall be fertilized with a starter fertilizer at the rate of two (2) pounds per 1,000 square feet, in proportions of 16% nitrogen, 32% phosphoric acid, and 3% potash, or as directed by the Engineer. Fertilizer shall be applied just before the placing of the seed to retain its full benefit before unfavorable weather can cause deterioration.

3.09.03 Seeding

All previously seeded lawn areas shall be reseeded with Class A seed. Other areas disturbed by the Contractor's operations shall be seeded with Roadside seed. Temporary seed shall be placed for erosion control or temporary soil stabilization of stockpile areas. Seed mixtures, application rates, and methods shall be in accordance with Section 816 of the MDOT 2020 Standard Specifications for Construction.

Seasonal limitations on seeding in Section 816 of the MDOT 2020 Standard Specifications for Construction are waived. The Contractor shall repeat the seeding procedure as often as necessary to produce a close stand of weed-free grass.

3.09.04 Mulching

All seeded areas shall be mulched immediately following the seeding. Mulching shall be applied to all newly seeded areas at a rate of two (2) tons per acre in accordance with the requirements of Section 816 of the MDOT 2020 Standard Specifications for Construction, or as directed by the Engineer. Separate loose straw mulch is prohibited on residential lawn areas.

3.09.05 Hydro Application

All fertilizing, seeding and mulching shall be applied by an approved Hydro seeding and mulching process unless separate applications as heretofore described are approved by the Engineer.

3.09.06 Erosion Control

All erosion control measures shall be installed and maintained in accordance with the Soil Erosion and Sedimentation Control plan and permit. Unless otherwise specified, mulch blanket and high velocity blanket shall be placed in accordance with Section 816 of the MDOT 2020 Standard Specifications for Construction.

3.09.07 Sod

Sod shall be placed only where directed by the Engineer or as noted on the drawings or specifications.

All sod shall be nursery grown, conforming to MDOT requirements for Class A. Sod shall be approved by the Engineer before placing and shall be placed in accordance with the requirements of Section 816 of the MDOT 2020 Standard Specifications for Construction. The base on which the sod is to be laid shall consist of a minimum of four (4) inches of topsoil placed, watered and fertilized in the same manner required for seeding.

3.09.08 Measurement & Payment

Turf restoration will be measured in lineal feet along the centerline of the main utility line being constructed. Payment will be made according to the appropriate item for seeding or sod. Topsoil, fertilizer, mulch and erosion control shall be incidental to these items unless specific proposal items are provided. Any area disturbed by the Contractor's operations outside of the limits of the trench shall be restored by the Contractor to its original condition but will not be considered for payment.

3.10 SCHEDULING OF RESTORATION WORK

Initial restoration (rough grading, temporary aggregate if necessary, removal of excess excavated material and debris) shall be done each day to the extent necessary to allow the movement of local traffic and permit access to all properties

for emergency vehicles. Maintenance of streets, drives, sidewalks, etc. shall be the responsibility of the Contractor (including dust control, grading, stabilization, etc.) until the restoration is complete and has been accepted by the Engineer.

Restoration of each street or section of utility line shall follow the construction in a timely fashion so as to minimize inconvenience to the adjacent property owners and the general public. The manner in which this restoration is done by the Contractor will be a determining factor in the approval by the Engineer of staking requests and partial payment requests.

3.11 LIMITS FOR MEASUREMENT & PAYMENT FOR SURFACE RESTORATION

All work necessary to return the area of construction operations to its original condition, other than the items listed in the Proposal, shall be considered incidental to the construction, and no specific payment will be made therefor.

For surface restoration items measured in lineal feet, payment will be based upon the type of surface that is directly above the utility. Only one surface restoration item shall be paid for each lineal foot of utility. Additional restoration on either side of the utility to the limits of construction will be done by the Contractor at no additional cost to the Owner. For example, when the utility is directly under the bituminous street, only the item of bituminous street restoration will be paid. Topsoil, seed, fertilizer and mulch required to restore the area adjacent to the street will not be paid for separately.

Payment will be made for the proposal items only. All of the work specified above and indicated on the drawings will be considered included in the unit prices.

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Appendix B

PERMITS

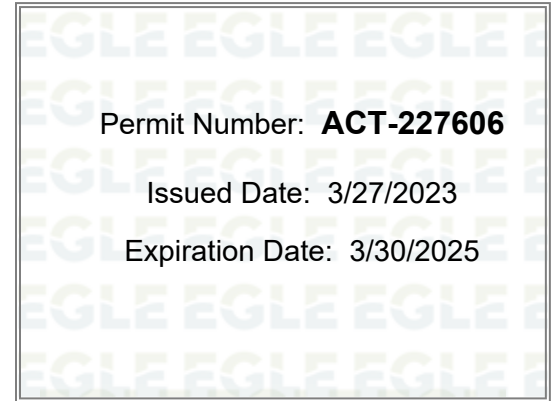
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PERMIT FOR WATER SUPPLY SYSTEMS

(Construction – Alteration – Addition or Improvement) as Described Herein
*Required under the Authority of 1976 PA 399, as amended (Act 399)**

Water System Project:

Water Supply Name: MUSKEGON
Public Water Supply ID: MI0004570
Project Name: Construction Permit Submission
Project Purpose: Alteration
Project Location: City of Muskegon, MI
Project County: Muskegon



This permit only authorizes the construction and/or alteration of the waterworks system as described below and detailed in the approved drawings and specifications in accordance with Part 13 of the Administrative Rules of Act 399.

ISSUED UNDER THE AUTHORITY OF THE DIRECTOR OF THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Reviewed by: Summer Groomes

Issued by: Andrew Peterson

This permit expires if construction or alteration has not commenced by the expiration date, 3/30/2025, in accordance with R 325.11306.

Requests for extension of this permit may be made in [MiEHDWIS](#) Construction Permit Activity ACT-227606 or by contacting your EGLE representative.

Facilities Description:

Refer to attached basis of design for full details. Summary below:

Installation of a Full-Profile Insertion (FPI) magnetic flow meter on the existing 30-inch ductile iron transmission main leaving the Plant site to the north. Meter is proposed to be installed to remedy a portion of unmetered water leaving the plant and being used by City of Muskegon customers prior to crossing the Muskegon Channel to the north.

Project includes installation of a meter chamber, and associated electrical, instrumentation, and programming work. Accuracy testing of the meter is also proposed to ensure confidence in the metered flowrate.

Conditions:

Construction Permit Submission Facilities

Mains

Length (ft)	Size (in)	Material	Construction Type	Comments
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Tanks

Volume (GL)	Tank Type	Construction Type	Comments
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Wells

Diameter (in)	Depth (ft)	Capacity (GPM)	Pump Type	Construction Type	Comments
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Pumps

Total Dynamic Head (TDH)	Capacity at TDH (GPM)	Pump Type	Number of Pumps	Construction Type	Comments
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Treatment Processes

Construction Type	Treatment	Comments
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Other Facilities

Type of Facility	Description
Flow Meter	Full-Profile Insertion (FPI) Magnetic Flow Meter

* This Act 399 Permit is issued under the authority of the Director of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and allows the construction and/or alteration of the water system as described herein in accordance with Part 13 of the Administrative Rules of Act 399.

The issuance of this permit does not authorize violation of any federal, state, or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other EGLE permits, or approvals from other units of government as may be required by law.

This permit expires if construction or alteration has not commenced by the expiration date indicated above in accordance with R 325.11306. Requests for extension of this permit can be made through MiEHDWIS or by contacting your EGLE representative.

Revisions of the approved plans and specifications must be done in accordance R325.11309.

Noncompliance with the conditions of this permit and the requirements of Act 399 constitutes a violation of the Act.

Intentionally providing false information in this application constitutes fraud which is punishable by fine and/or imprisonment.

Where applicable for water withdrawals, the issuance of this permit indicates compliance with the requirements of Part 327 of Act 451, Great Lakes Preservation Act.

MUSKEGON COUNTY
DEPARTMENT OF PUBLIC WORKS
Telephone 231-724-6411; Fax 231-724-6118

PERMIT

For Soil Erosion and Sedimentation Control
Public Act 451 of 1994, Part 91

Permit Number: 23-045

Date Issued: 4/13/2023

Expiration Date: 4/13/2024

Scheduled Date: 4/13/2023

Under the provisions of Part 91 of 1994 Public Act 451, as amended, authority is hereby granted to:

Muskegon WFP - Flowmeter

1900 Beach Street Municipality: City of Muskegon

61-24-205-731-0001-00 Inspect Level 4

City of Muskegon

933 Terrace Street

Muskegon MI 49442

On-Site Responsible Person: _____

On-Site Company and Phone TBD

This permit is for the installation of a flow meter with work done within 500 feet of Lake Michigan.

Specific Conditions:

1. Install silt fence as necessary and noted in permit application and drawings.

C. Prein and Newhof

APPROVED FOR
SOIL EROSION CONTROL ONLY
APR 15 2023
MUSKEGON COUNTY
DEPT. OF PUBLIC WORKS
Robert J. Ribbens

Permit Conditions:

1. The permit activity shall be completed in accordance with the approved plans and specifications and the attached general and specific conditions.
2. This permit does not waive the necessity for obtaining all other required federal, state, or local permits.
3. Permittee shall notify the permitting agency within one week after completing the permitted activity or one week prior to the permit expiration date, whichever comes first.

GENERAL CONDITIONS

In accordance with Rule 1709 promulgated under the authority of Part 91, Soil Erosion and Sedimentation Control of the Natural Resources and Environmental Protections Act, 1994 PA 451, as amended, and in addition to the information on the attached plan(s) and special condition, the following condition apply to the earth change authorized by this permit.

- Design, construct, and complete the earth change in a manner that limits the exposed area of disturbed land for the shortest period of time.
- Remove sediment caused by accelerated soil erosion from runoff water before it leaves the site of the earth change.
- Install temporary soil erosion and sedimentation control measures before or upon commencement of the earth change activity and maintain the measures on a daily basis. Remove temporary soil erosion and sedimentation control measures after permanent soil erosion measures are in place and the area is stabilized. ("Stabilized" means the establishment of vegetation or the proper placement, grading, or covering of soil to ensure its resistance to soil erosion, sliding or other movement.)
- Complete permanent soil erosion control measures for the earth change within five calendar days after final grading or upon completion of the final earth change. If it is not possible to permanently stabilize the earth change, then maintain temporary soil erosion and sedimentation control measures until permanent soil erosion control measures are in place and the area is stabilized.

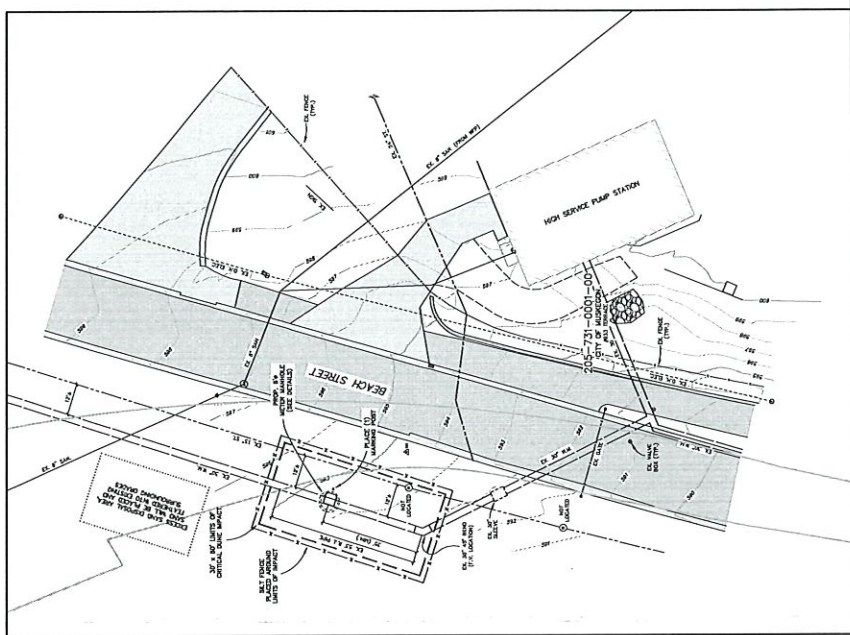
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SOIL EROSION CONTROL ONLY

APR 15 2023

MUSKEGON COUNTY
DEPT. OF PUBLIC WORKS
Robert J. Ribbens

DATE: 11/15/2021
 DRAWN BY: J. HARRIS
 CHECKED BY: J. HARRIS
 PROJECT NO.: 2221055
 SHEET NO.: 1 OF 1

TOTAL CRITICAL DUNE IMPACT
 ELEVATION IN CRITICAL DUNE: 1.00 FT.
 EXISTING DUNE ELEVATION: 1.00 FT.
 PROPOSED DUNE ELEVATION: 1.00 FT.
 EXISTING DUNE WIDTH: 1.00 FT.
 PROPOSED DUNE WIDTH: 1.00 FT.
 EXISTING DUNE SLOPE: 1:1
 PROPOSED DUNE SLOPE: 1:1



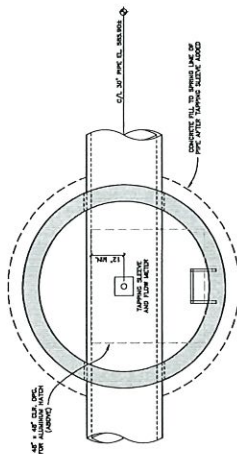
USACE / ECFE / JOINT PERMIT APPLICATION EXHIBIT

NOTE TO CONTRACTOR: ALL REQUIREMENTS SHOWN HEREIN ARE SUBJECT TO THE CITY OF MUSKEGON CONSTRUCTION DRAWINGS FOR ADDITIONAL CONSTRUCTION REQUIREMENTS UNRELATED TO ENVIRONMENTAL PERMITTING.

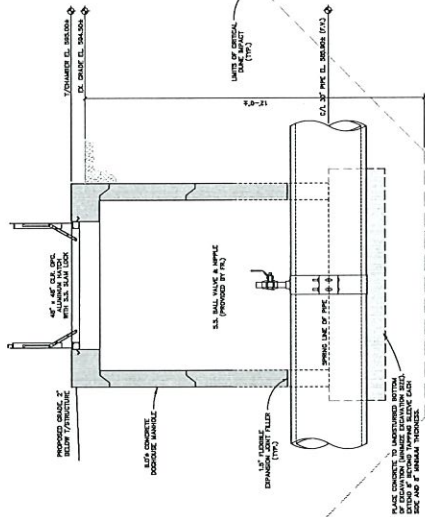
PROPOSED SITE PLAN
 SCALE: 1" = 20'

- SITE PLAN NOTES**
- CONTRACTOR SHALL VERIFY ALL ELEVATIONS OF EXISTING AND PROPOSED STRUCTURES AND UTILITIES WITH A CRITICAL DUNE AREA HAS BEEN IDENTIFIED AS SHOWN ON THE ATTACHED PERMITTING TO 108 P.A. 222.
 - CONTRACTOR SHALL VERIFY ALL ELEVATIONS OF EXISTING AND PROPOSED STRUCTURES AND UTILITIES WITH A CRITICAL DUNE AREA HAS BEEN IDENTIFIED AS SHOWN ON THE ATTACHED PERMITTING TO 108 P.A. 222.

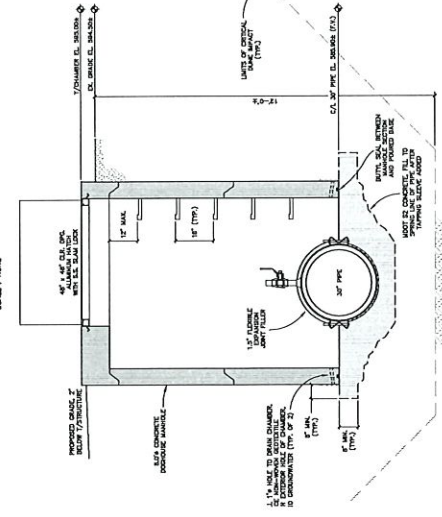
<p>APPLICANT: MUSKEGON WATER UTILITIES DEPARTMENT 200 S. WASHINGTON ST. MUSKEGON, MI 49801 PHONE: (269) 724-1104</p>	<p>PREPARED BY: Prein & Newhof Engineers-Architects-Landscape Architects 200 S. WASHINGTON ST. MUSKEGON, MI 49801 PHONE: (269) 724-1104</p>	<p>CITY OF MUSKEGON WATER UTILITIES DEPARTMENT 200 S. WASHINGTON ST. MUSKEGON, MI 49801 PHONE: (269) 724-1104</p>	<p>PROJECT NO.: 2221055 SHEET NO.: 1 OF 1</p>
<p>APPLICANT: MUSKEGON WATER UTILITIES DEPARTMENT PROJECT: FLOW METER CHAMBER LOCATION: BEACH STREET, MUSKEGON, MI 49801 SHEET NO.: 1 OF 1</p>			<p>DATE: 11/15/2021</p>



FLOW METER CHAMBER PLAN
 SCALE: 1" = 6"

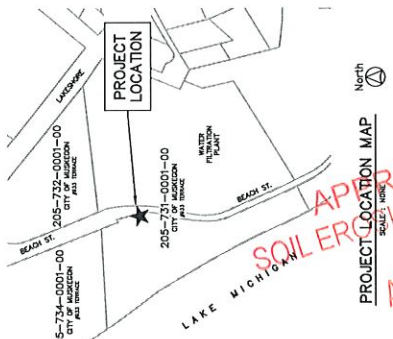


FLOW METER CHAMBER SECTION (PARALLEL TO PIPE)
 SCALE: 1" = 6"



FLOW METER CHAMBER SECTION (PERPENDICULAR TO PIPE)
 SCALE: 1" = 6"

- NOTES**
- FIELD VERIFY EXISTING PIPE AND GROUND ELEVATIONS PRIOR TO MANHOLE CONSTRUCTION. FIELD VERIFY EXISTING GRADE AND REQUIRED FLOW METER HOOD LENGTH PRIOR TO CONSTRUCTION.
 - STRUCTURE SHALL BE CONSTRUCTED TO SIX (6) INCHES ABOVE GRADE AND SURROUNDING SAND FINISHED AND DUSTING GRADE WITH TWO (2) INCH LIP AT STRUCTURE.
 - CONTRACTOR SHALL VERIFY ALL ELEVATIONS OF EXISTING AND PROPOSED STRUCTURES AND UTILITIES WITH A CRITICAL DUNE AREA HAS BEEN IDENTIFIED AS SHOWN ON THE ATTACHED PERMITTING TO 108 P.A. 222.
 - EXISTING 36-INCH PIPE MATERIAL IS DOUBLE RIB PIPE, PRESSURE CLASS 200.
 - CONTRACTOR SHALL VERIFY ALL ELEVATIONS OF EXISTING AND PROPOSED STRUCTURES AND UTILITIES WITH A CRITICAL DUNE AREA HAS BEEN IDENTIFIED AS SHOWN ON THE ATTACHED PERMITTING TO 108 P.A. 222.
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PROJECT LOCATION MAP
 SCALE: 1" = 20'

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