

**Contract Documents
for the
Chase Avenue Pump Station
Upgrades Project**

**for the
Kennebec Water District**



**Dirigo Engineering
2 Dirigo Drive
Fairfield, ME 04937
(207) 453-2401**

KWD Project #28210
Dirigo Engineering Project #29707
DWSRF Project #2026-21

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Prepared By
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Chase Avenue Pump Station Drawings from 1974 Project

ADVERTISEMENT FOR BIDS
Kennebec Water District
Waterville, Maine
Chase Avenue Pump Station Upgrades Project

General Notice

The Kennebec Water District (Owner) is requesting Bids for the construction of the **Chase Avenue Pump Station Upgrades Project**.

Bids for the construction of the Project will be received at the **District Office** located at **131 Drummond Ave., Waterville, Maine 04901** until **Tuesday, February 24, 2026, at 2:00 PM** local time. At that time the Bids received will be **publicly** opened and read.

The Project includes the following Work:

Renovate existing building, site improvements, replace pumps, valves, controls, install new generator, etc.

Owner anticipates that the Project's total bid price will be approximately **\$1,100,000**. The Project has an expected duration of **210** days or less for final completion. Contract Time will not commence to run until materials can be obtained.

Obtaining the Bidding Documents

The Issuing Office for the Bidding Documents is:

Dirigo Engineering
2 Dirigo Drive
Fairfield, Maine -4937
(207) 453-2401

Prospective Bidders may obtain or examine the Bidding Documents at the Issuing Office on Monday through Friday between the hours of **9:00 am and 4:00 pm** and may obtain copies of the Bidding Documents from the Issuing Office as described below. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the Issuing Office.

Bidding Documents may be purchased from the Issuing Office during the hours indicated above. Cost does not include shipping charges. Shipping costs will be \$10 per set of bidding documents mailed. Bidding Documents are available for purchase in the following formats:

Format	Cost
Bidding Documents (including Full-Size Drawings)	\$175
Bidding Documents (including Half-Size Drawings)	\$75
Compact Disc containing Bidding Documents in portable document format (PDF)	\$75
Electronic transfer of Bidding Documents from [via email, drop box, etc.]	\$25

Pre-bid Conference

There will be a mandatory pre-bid conference for this project on February 10, 2026 at 01:00 PM. The pre-bid conference will be at the **District Office** located at **131 Drummond Ave., Waterville, Maine 04901** with a site visit to the Chase Avenue Pump Station.

Instructions to Bidders.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

Build America, Buy America Act (BABAA)

Each bidder shall comply with the requirements of the Build America, Buy America Act

The following waivers apply to this Contract:

De Minimis,

Disadvantaged Business Enterprise Requirements

Each Bidder shall take special notice of the Guidance for use of Disadvantaged Business Enterprise in the DWSRF Supplemental General Conditions. Failure to complete these requirements may result in finding that the Bidder is nonresponsive and therefore, not eligible to be awarded this contract. Complete requirements are located in the Bid Documents.

Nondiscrimination in Employment and Labor Standards

Bidders on this work will be required to comply with the President's Executive Order No. 11246 and amendments and supplements to that Order. The requirement for Bidders and CONTRACTORS under this Order are located in the DWSRF Supplemental General Conditions.

Davis-Bacon Requirements

Davis-Bacon and Related Acts are requirements of this contract.

Federal Requirements

The Contractor must comply with the Department of Labor Regulations relating to Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented by 29 CFR part 3, Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by 29 CFR part 5, Occupational Safety and Health Standards (OSHA) (29 CFR part 1910).

The Contractor must comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S. C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Safe Drinking Water Act, and Executive Order 11738, and the Environmental Protection Agency regulations (40 CFR Part 15).

The CONTRACTOR must comply with all permits, restrictions and conditions, issued for the PROJECT by Federal Cross-cutting Authorities.

"The CONTRACTOR must comply with Section 13 of the Federal Water Pollution Control Act Amendments of 1972, Section 504 of the Rehabilitation Act of 1964, Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975, and the Uniform Relocation and Real Property Acquisition Policies Act."

Bid Bond

A certified check or bank draft payable to the OWNER or a satisfactory Bid Bond executed by the Bidder and a Surety Company in the amount equal to five percent (5%) of the Bid shall be submitted with each bid. No bid may be withdrawn for at least 90 days after receipt of bids unless released by the Owner.

Disclaimer/Agency Not a Party

This Contract is expected to be funded in whole or in part by the **Drinking Water State Revolving Fund (DWSRF)** This Contract contains requirements from all of these funding agencies. Neither the **Drinking Water Program** nor any of their departments, agencies, or employees is or will be a party to this contract. The word "agency" in the contract documents refers to these funding agencies. Award of any Contract will be contingent upon final financial agreements between the District and the funding agencies. The project scope may be adjusted to match available funding.

This Advertisement is issued by:

Owner: **Kennebec Water District**

By: **Matt Zetterman, P.E.**

Title: **Engineering Manager**

Date: **January 26, 2026**

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.

2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.

2.03 ~~Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.~~

Deleted

2.04 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.

2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner and Engineer are not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.

2.06 *Electronic Documents*

- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
 - 1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf). It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 ~~To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within [5] days of Owner's request, Bidder must submit the following information:~~
 - A. ~~Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.~~
 - B. ~~A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.~~
 - C. ~~Bidder's state or other contractor license number, if applicable.~~
 - D. ~~Subcontractor and Supplier qualification information.~~
 - E. ~~Other required information regarding qualifications.~~
- 3.02 ~~Prospective Bidders must submit required information regarding their qualifications by [insert deadline for prequalification submittals]. Owner will review the submitted information to determine which contractors are qualified to bid on the Work. Owner will issue an Addendum listing those contractors that Owner has determined to be qualified to construct the project. Bids will only be accepted from listed contractors. The information that each prospective Bidder must submit to seek prequalification includes the following:~~
 - A. ~~Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.~~
 - B. ~~A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.~~

~~C. Prospective Bidder's state or other contractor license number, if applicable.~~

~~D. Subcontractor and Supplier qualification information.~~

~~E. Other required information regarding qualifications.~~

Deleted

3.03 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:

- A. Written evidence establishing its qualifications such as financial data, previous experience, experience Modification rating (EMR), and present commitments.
- B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
- C. Bidder's state or other contractor license number, if applicable.
- D. Subcontractor and Supplier qualification information.
- E. Other required information regarding qualifications.
- F. References from at least 5 other clients from projects of similar nature completed over the last 5 years.

3.04 A Bidder's failure to submit required qualification information may disqualify Bidder from receiving an award of the Contract.

3.05 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

4.01 A mandatory pre-bid conference will be held for this Project on February 10, 2026 at 01:00 PM. The pre-bid conference will be at the **District Office** located at **131 Drummond Ave., Waterville, Maine 04901** with a site visit to the Chase Avenue Pump Station.

4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 Site and Other Areas

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 Existing Site Conditions

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner 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.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
4. ~~Geotechnical Baseline Report/Geotechnical Data Report: The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).~~
 - a. ~~As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.~~
 - b. ~~The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.~~
 - c. ~~Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.~~
 - d. ~~As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.~~

Deleted

B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 Other Site-related Documents

A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:

1. **None**

Owner will make copies of these other Site-related documents available to any Bidder on request.

B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.

C. The other Site-related documents are not part of the Contract Documents.

D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.

E. No other Site-related documents are available.

5.04 Site Visit and Testing by Bidders

A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.

B. A pre-bid conference will be held, and Site visits will be part of the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.

C. **Deleted**

D. Bidders visiting the Site are required to arrange their own transportation to the Site.

E. ~~Bidder may contact Owner or Engineer for a meeting on site.~~ Otherwise, the site is a public roadway and Bidder may visit the site at Bidder's convenience.

F. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

G. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety

concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

- H. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- I. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 Owner's Safety Program

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 Other Work at the Site

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 Express Representations and Certifications in Bid Form, Agreement

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - A. **Rick Pershken, P.E., Project Engineer, Dirigo Engineering rick@dirigoeng.com**

- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **5 percent** of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents. **Bid security must be at least 5% of the Bidder's maximum Bid price.**
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 ~~Bidder must set forth in the Bid the time by which Bidder must achieve Substantial Completion, subject to the restrictions established in Paragraph 13.07 of these Instructions. The Owner will take Bidder's time commitment regarding Substantial Completion into consideration during the evaluation of Bids, and it will be necessary for the apparent Successful Bidder to satisfy Owner that it will be able to achieve Substantial Completion within the time such Bidder has designated in the Bid. [If applicable include the following: Bidder must also set forth in the Bid its commitments regarding the achievement of Milestones and readiness for final payment.] The Successful Bidder's time commitments will be entered into the Agreement or incorporated in the Agreement by reference to the specific terms of the Bid.~~

Deleted

9.03 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

10.01 ~~The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.~~

Deleted

10.02 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. **Each such request shall include the Manufacturer’s Certification for Compliance with BABAA. Refer to the Manufacturer’s Certification form provided in these construction Contract Documents.** The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner. **Substitutes and “or-equal” materials and equipment may be proposed by Contractor in accordance with Paragraphs 7.05 and 7.06 of the General Conditions after the Effective Date of the Contract. Each such request shall include Manufacturer’s Certification letter to document compliance with BABAA Requirements. Refer to Manufacturer’s Certification Letter provided in these Contract Documents.**

10.03 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 ~~A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.~~

Deleted

11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:

A. **Electrician**

11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

11.05 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.07A.

ARTICLE 12—PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."

12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.

- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Lump Sum*

- A. Bidders must submit a Bid on a lump sum basis as set forth in the Bid Form.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.

14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.

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

ARTICLE 16—OPENING OF BIDS

16.01 Bids will be opened publicly.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 *Evaluation of Bids*

- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.
- C. ~~For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.~~
- D. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- E. ~~For the determination of the apparent low Bidder when cost plus fee bids are submitted, Bids will be compared on the basis of the Guaranteed Maximum Price set forth by Bidder on the Bid Form.~~

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- F. ~~Bid prices will be compared after adjusting for differences in time of Substantial Completion (total number of calendar days to substantially complete the Work) designated by Bidders. The adjusting amount will be determined at the rate set forth in the Agreement for liquidated damages for failing to achieve Substantial Completion, or such other amount that Owner has designated in the Bid Form.~~
 - 1. ~~The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form plus the product of the Bidder-specified time of Substantial Completion in calendar days times the rate for liquidated damages [or other Owner designated daily rate] in dollars per day.~~
 - 2. ~~This procedure is only used to determine the lowest bid for comparison and contractor selection purposes. The Contract Price for compensation and payment purposes remains the Bid price shown in the Bid Form.~~

Deleted

- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. ~~Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.~~ The Owner or Engineer will coordinate a Contract Signing and Pre-Construction Conference following the issuance of the Notice of Award. The Successful Bidder must provide Bonds and Insurance documents prior to the Contract Signing. Contracts shall be signed by the Owner and Successful Bidder at this meeting. Within 7 days Owner will provide Contractor the printed and electronic copies of the fully executed Contract Documents.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is exempt from **[Maine]** state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

ARTICLE 22—CONTRACTS TO BE ASSIGNED **N/A**

ARTICLE 23—AGENCY NOT A PARTY

- 23.01 This contract is expected to be funded in whole or in part by the **Drinking Water State Revolving Fund**. Neither the **Drinking Water Program** nor any of its departments, agencies, or employees is or will be a party to this contract. The word "agency" in the contract documents refers to all funding agencies involved.

ARTICLE 24—FEDERAL REQUIREMENTS

- 24.02 The contractor must comply with all Federal requirements included herein.

ARTICLE 25—BUILD AMERICA, BUY AMERICA ACT (BABAA)

- 25.03 BABAA requirements apply to this project.

The contractor shall comply with the use of American made products in accordance with BABAA requirements. The requirements and guidance, including certification forms, can be found in the SRF supplementary conditions.

ARTICLE 26—WAGE RATE REQUIREMENTS

- 26.01 If the contract price is in excess of \$100,000, provisions of the Contract Work Hours and Safety Standards Act at 29 CFR 5.5(b) apply.
- 26.02 All laborers and mechanics employed or working upon the construction site of the project shall be paid not less than the prevailing State minimum wage rate regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.
- 26.03 Davis-Bacon and Related Acts are a requirement of this contract. The contractor must comply with Davis-Bacon (DB) and Davis-Bacon Related Acts (DBRA). All laborers and mechanics employed by the contractor and subcontractors on this project shall not be paid less than the prevailing wage rates contained in the wage determination published in these bidding documents. All laborers and mechanics not listed in the wage determination but employed by the contractor and subcontractors on this project shall be paid at least as much as the lowest wage rate for other similar trade classifications already contained in the wage determination published in these bidding documents. A form 1444 submission will be required to obtain additional employee rate classifications, after contract award. No allowances or extra considerations on behalf of any contractor or subcontractor will be permitted subsequently by reason of error or oversight on account of Department of Labor wage determinations. The contractor and subcontractors shall pay all employees weekly. The contractor and subcontractors shall submit weekly certified payrolls to the owner or designated representative, including a payroll summary with signed certification form WH-347. Detailed information and forms can be found in the Supplementary Conditions.

ARTICLE 27—NONDISCRIMINATION IN EMPLOYMENT

- 27.01 Contracts for work under this proposal will obligate the CONTRACTORS and the SUBCONTRACTORS not to discriminate in employment practices.
- 27.02 Bidder must submit with their bid a signed statement as to whether they have previously performed work subject to the President's Executive Order No. 11246, or any preceding similar Executive Order.
- 27.03 Bidder must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the contract.
- 27.04 Successful bidders must, if requested, submit a list of all SUBCONTRACTORS who will perform work on the PROJECT, and written signed statements from authorized agents of labor pools with which they will or may deal for employees on the work together with supporting information to the effect that such labor practices and policies are in conformity with Executive Order No. 11246; that they will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under the contract or, a certification as to what efforts have been made to secure such statements when such agents or labor pools have failed or refused to furnish them prior to award of the contract.

ARTICLE 28—SRF DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

28.01 The Contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 40 CFR part 33, Disadvantaged Business Enterprises (DBE), in the award and administration of subcontracts. Failure by the Contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

The goals for this project are a minimum of 0.64% certified Minority Business Enterprise (MBE) and a minimum of 1.64% certified Women's Business Enterprise (WBE) participation. Lists of certified businesses may be found on the following websites: EPA Office of Small and Disadvantaged Business Utilization (OSDBU), State of Maine Department of Transportation (DOT), and United States Small Business Administration (SBA).

The Contractor must maintain all records documenting its compliance with the requirements of this part, including documenting of its good faith efforts (such as copies of solicitation letters and emails) and data relied upon in formulating its fair share objectives.

1. During the bidding period, the Contractor is required to make the following good faith efforts if they will be awarding subcontracts.
 - (a) Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. This will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
 - (b) Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
 - (c) Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. This will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
 - (d) Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
 - (e) Use the services and assistance of the SBA and the Minority Business Development Agency of the Department of Commerce.
 - (f) Employ the good faith efforts described above even if the prime contractor has achieved its fair share objectives under subpart D of this part.
2. The Contractor must comply with the following provisions when submitting their bid:
 - (a) The contractor must complete and submit EPA Form 6100-4, 'DBE Program Subcontractor Utilization Form' (**Included in SRF Supplementary Conditions**) as part of the prime contractor's bid or proposal package to the Owner. Note, only DBE subcontractors should be listed. If no DBE subcontractors are to be used, the contractor must still complete and submit the form.

(b) The contractor must have each of its proposed DBE subcontractors complete the DWP Form 6100-3, 'DBE Program Subcontractor Performance Form' (**Included in SRF Supplementary Conditions**). The completed forms must be submitted as part of the prime contractor's bid or proposal package to the Owner.

3. Prior to contract award, as the Successful Bidder, the Contractor must comply with the following provisions:

(a) The contractor must submit to the Owner documentation of its good faith efforts (such as copies of solicitation letters and emails) and data relied upon in formulating its fair share objectives. Solicitation documentation must include proof of receipt. The records must be submitted to the Owner even if the goals were met.

(b) The contractor must submit to the Owner a bidders list of all firms that bid or quote on subcontracts, including both MBE/WBEs and non-MBE/WBEs. The purpose of a bidders list is to provide contractors who conduct competitive bidding with as accurate a database as possible about the universe of MBE/WBE and non-MBE/WBE subcontractors. The list must include the following information:

- (1) Entity's name with point of contact;
- (2) Entity's mailing address, telephone number, and e-mail address;
- (3) The procurement on which the entity bid or quoted, and when; and
- (4) Entity's status as an MBE/WBE or non-MBE/WBE.

Additional information and forms may be found in the SRF Supplementary Conditions.

ARTICLE 29—SUSPENSION AND DEBARMENT

29.01 The eligibility of successful bidder will be verified through the federal government's Excluded Parties List System prior to Maine Department of Environmental Protection approval of the contract award. Furthermore, by entering into the contract, the contractor shall certify that no part of the contract shall be subcontracted to a Debarred or Suspended person or firm. Detailed information may be found in the DWSRF Supplementary Conditions.

ARTICLE 30—RESTRICTIONS ON LOBBYING

30.01 The successful bidder must submit certification regarding Lobbying (EPA form 6600-06) to the Owner prior to contract award. If applicable, the contractor shall also complete and submit the Disclosure of Lobbying Activities form (EPA Standard Form LLL) to the Owner prior to contract award. Detailed information and forms can be found in the DWSRF Supplementary Conditions.

ARTICLE 31—MANUFACTURER'S EXPERIENCE

31.01 Wherever it may be written that an equipment manufacturer must have a specified period of experience with his product or equipment, who does not meet the specified experience period, can be considered if the equipment supplier or manufacturer is willing to provide a bond or cash deposit for the duration of the specified time period which will guarantee replacement of that equipment in the event of failure.

ARTICLE 32—SAFETY AND HEALTH REGULATIONS

32.01 This PROJECT is subject to all the Safety and Health Regulations (CFR 29 Part 1926 and all subsequent amendments) as promulgated by the US. Dept. of Labor on June 24, 1974. CONTRACTORS are urged to become familiar with the requirements of these regulations.

BID FORM FOR CONSTRUCTION CONTRACT

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

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: **Kennebec Water District, 131 Drummond Avenue, Waterville, Maine 04901**
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors & Suppliers;
 - C. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - D. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - E. Required Bidder Qualification Statement with supporting data; and
 - F. Related to nondiscrimination in employment, A signed statement as to whether bidder has previously performed work subject to the President's Executive Order No. 11246, or any preceding similar Executive Order.
 - G. Disadvantaged Business Enterprise Program Forms 6100-4 and 6100-3.

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 *Lump Sum Bids*

- G. Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price(s):

1. Lump Sum Prices

1	Mobilization & Demobilization	\$
2	Chase Avenue Pump Station Upgrade Complete	\$
3	Electric Utility Cost Allowance	\$15,000.00
4	SCADA Panel and PLC Programming Allowance	\$50,000.00
	Total Lump Sum Bid Price	\$

Bidder acknowledges that each Lump Sum Prices include an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item. If Owner awards the contract for the Work, such award shall be based on the Total Base Bid above and be to the responsible Bidder submitting the lowest responsive Bid.

ADDITIVE ALTERNATE

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
A.1.	Stainless Steel Interior Piping In lieu of Ductile Iron Piping		Lump Sum	\$	

Bidder acknowledges that the Lump Sum Bid price above for Additive Alternate A.1. includes an amount considered by Bidder to be adequate to cover Contractor's costs for installing Schedule 10 304 Stainless Steel Piping (per specification 15195) in lieu of the flanged ductile iron piping shown on the plans. Note that a negative bid price for this item would indicate a cost savings to the KWD for the piping to be SS instead of DI.

ARTICLE 4—BASIS OF BID—COST PLUS FEE, DELETED

ARTICLE 5—PRICE PLUS TIME BID, DELETED

ARTICLE 6—TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 ~~Bidder agrees that the Work will be substantially complete on or before [Bidder inserts date], and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before [Bidder inserts date].~~

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

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6.04 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

7.01 *Bid Acceptance Period*

A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

7.02 *Instructions to Bidders*

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

7.03 *Conditions of Award*

A. Bidder accepts that award of this Contract is contingent upon funding.

7.04 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 8—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

8.01 *Bidder's Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder 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. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work, **including all BABA requirements**.
4. Bidder 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. Bidder 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. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the 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 Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder 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. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

8.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. 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.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. 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.
 - d. 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.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

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

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address:

Bidder's Contractor License No.: (if applicable) _____

BID BOND (PENAL SUM FORM)

Bidder Name: [Full formal name of Bidder] Address (<i>principal place of business</i>): [Address of Bidder's principal place of business]	Surety Name: [Full formal name of Surety] Address (<i>principal place of business</i>): [Address of Surety's principal place of business]
Owner Name: [Full formal name of Owner] Address (<i>principal place of business</i>): [Address of Owner's principal place of business]	Bid Project (<i>name and location</i>): [Owner project/contract name, and location of the project] Bid Due Date: [Enter date bid is due]
Bond Penal Sum: [Amount] Date of Bond: [Date]	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder <hr/> (Full formal name of Bidder)	Surety <hr/> (Full formal name of Surety) (corporate seal)
By: _____ _____ (Signature)	By: _____ _____ (Signature) (Attach Power of Attorney)
Name: _____ _____ (Printed or typed)	Name: _____ _____ (Printed or typed)
Title: _____	Title: _____
Attest: _____ _____ (Signature)	Attest: _____ _____ (Signature)
Name: _____ _____ (Printed or typed)	Name: _____ _____ (Printed or typed)
Title: _____	Title: _____
Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.	

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

NOTICE OF AWARD

Date of Issuance:

Owner: Kennebec Water District Owner's Project No.: 28210
Engineer: Dirigo Engineering Engineer's Project No.: 29707
Project: Chase Avenue Pump Station Upgrade Project
Contract Name: Chase Avenue Pump Station Upgrade Project
Bidder:
Bidder's Address:

You are notified that Owner has accepted your Bid dated **DATE** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

[Chase Avenue Pump Station Upgrade Project]

The Contract Price of the awarded Contract is **[Bid Price]**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

One unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically. Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **one** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **Attend a pre-construction conference.**

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

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **Kennebec Water District**

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

Copy: Engineer

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

This Agreement is by and between **Kennebec Water District** ("Owner") and **Bidder** ("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: **Upgrading the Chase Avenue Pump station including building renovations, site improvements, replacement of pumps, valves, piping and controls, adding a generator, etc.**

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **[Chase Avenue Pump Station Project]**

ARTICLE 3—ENGINEER

3.01 The Owner has retained **[Dirigo Engineering]** ("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 **[Dirigo Engineering]**.

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.

4.03 *Contract Times: Days*

A. The Work will be substantially complete within **180** 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 **210** 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 **\$[1,000]** 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 **\$[1,000]** 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]**.

Deleted

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 \$_____.

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

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 [ordinal number, such as 5th] 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. [number]95 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~~

Deleted

- b. [number]95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion **of the entire construction to be provided under the construction Contract Documents**, Owner shall pay an amount sufficient to increase total payments to Contractor to [100] percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less [150] 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 12 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 (copy of list attached).
 6. Drawings (not attached but incorporated by reference) consisting of 6 sheets plus a cover sheet with each sheet bearing the following general title: **Chase Avenue Pump Station Upgrade Project**.
 7. Drawings listed on the attached sheet index.
 8. Addenda (numbers __ to __, inclusive).
 9. Exhibits to this Agreement (enumerated as follows):
 - a. [none]

10. 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.

NOTICE TO PROCEED

Owner: Kennebec Water District Owner's Project No.: 28210
Engineer: Dirigo Engineering Engineer's Project No.: 29707
Contractor: _____ Contractor's Project No.: _____
Project: Chase Avenue Pump Station Upgrade Project
Contract Name: Chase Avenue Pump Station Upgrade Project
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____ pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is **[180]** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of _____; and the number of days to achieve readiness for final payment is **[210]** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of _____.

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner: Kennebec Water District
By (signature): _____
Name (printed): Roger Crouse, P.E.
Title: General Manager
Date Issued: _____
Copy: Engineer

PERFORMANCE BOND

Contractor Name: [Full formal name of Contractor] Address (<i>principal place of business</i>): [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address (<i>principal place of business</i>): [Address of Surety's principal place of business]
Owner Name: [Full formal name of Owner] Mailing address (<i>principal place of business</i>): [Address of Owner's principal place of business]	Contract Description (<i>name and location</i>): [Owner's project/contract name, and location of the project] Contract Price: [Amount from Contract] Effective Date of Contract: [Date from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	
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.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i> By: _____ <i>(Signature)</i>	<i>(Full formal name of Surety) (corporate seal)</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 for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

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

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

14. Definitions

- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
- 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
- 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
- 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

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

16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

PAYMENT BOND

Contractor Name: [Full formal name of Contractor] Address (<i>principal place of business</i>): [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address (<i>principal place of business</i>): [Address of Surety's principal place of business]
Owner Name: [Full formal name of Owner] Mailing address (<i>principal place of business</i>): [Address of Owner's principal place of business]	Contract Description (<i>name and location</i>): [Owner's project/contract name, and location of the project] Contract Price: [Amount, from Contract] Effective Date of Contract: [Date, from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input 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 <i>(Full formal name of Contractor)</i> By: _____ <i>(Signature)</i> Name: _____ <i>(Printed or typed)</i> Title: _____ Attest: _____ <i>(Signature)</i> Name: _____ <i>(Printed or typed)</i> Title: _____	Surety <i>(Full formal name of Surety) (corporate seal)</i> By: _____ <i>(Signature)(Attach Power of Attorney)</i> Name: _____ <i>(Printed or typed)</i> Title: _____ Attest: _____ <i>(Signature)</i> Name: _____ <i>(Printed or typed)</i> 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: **[Describe modification or enter "None"]**

CONDITIONS OF CONTRACT

Standard General Conditions	00700
Supplementary Conditions	00800

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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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, expediters, 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 OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

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—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

SC-1.01.A.8 – Add the following at the end of the Paragraph:

The Change Order form to be used on this Project is EJCDC C-941 (2018). Agency approval is required before Change Orders are effective.

SC-1.01.A.30 – Add the following at the end of the Paragraph:

For the purposes of Agency, this term is synonymous with the term "applicant" as defined in 7 CFR 1780.7 (a) (1), (2) and (3) and is an entity receiving financial assistance from the federal programs.

SC-1.01.A.50 – Add the following at the end of the Paragraph:

The Work Change Directive form to be used on this Project is EJCDC C-940 (2018). Agency approval is required before a Work Change Directive is issued.

SC-1.01.A.51 – Add the following new paragraph immediately after Paragraph 1.01.A.50:

51. Agency - The Project is financed in whole or in part by the Drinking Water State Revolving Fund (DWSRF), therefore, the Agency for these documents is the Drinking Water Program.

SC-1.01.A.51-Build America, Buy America Act (BABAA) – Requirements instituted by the Bipartisan Infrastructure Law of 2021 mandating domestic preference that all iron and steel, manufactured products, and construction materials are produced in the United States.

Construction Materials – Those articles, materials, or supply – other than an item of primary iron and steel; a manufactured product; cement and Cementous materials; aggregates such as stone, sand, or

gravel; or aggregate binding agents or additives – that are or consist primarily of: non-ferrous metals, plastic and polymer-based products, glass, lumber or drywall.

Manufactured Product – Items assembled out of components, or otherwise made of processed from raw materials into finished products. Manufactured products must be manufactured (assembled) in the United States, and the cost of the components that were mined, produced, or manufactured in the United States must be greater than 55 percent of the total cost of all components of the project.

Manufacturer's Certification – Documentation provided by a Manufacturer, certifying that the items provided by Manufacturer meet the domestic preference requirement of BABAA.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner's Insurance*: After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

2.02 *Copies of Documents*

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor **two** printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

2.06 *Electronic Transmittals*

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

- B. *Electronic Documents Protocol*: The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol ("EDP" or "Protocol") for exchange of electronic transmittals.
 - 1. *Basic Requirements*
 - a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.

- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.
 - 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is **10 MB**. Attachments larger than that may be exchanged using large file transfer functions or physical media.
 - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its

System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.

- c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.
- d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
- e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.

C. *Software Requirements for Electronic Document Exchange; Limitations*

- 1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.
 - a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.

2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.
3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in Exhibit A to this EDP, including software versions, if listed.

ARTICLE 3—CONTRACT DOCUMENTS; INTENT, REQUIREMENTS, REUSE

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 Commencement of Contract Times: Notice to Proceed

SC-4.01.A – Delete the last sentence of paragraph.

4.05 *Delays in Contractor's Progress*

SC-4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

5. *Weather-Related Delays*

- a. If “abnormal weather conditions” as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered abnormal weather conditions. Requests for time extensions due to abnormal weather conditions will be submitted to the Engineer within five days of the end of the abnormal weather condition event. It is the responsibility of the Contractor to provide the information in this Section.

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

5.03 *Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely: **None**

Report Title	Date of Report	Technical Data
		[Identify Technical Data]

Report Title	Date of Report	Technical Data

F. The following table lists the 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 specifically identifies the Technical Data upon which Contractor may rely: **None**

Drawings Title	Date of Drawings	Technical Data
		[Identify Technical Data]

G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at **the Office of Dirigo Engineering** during regular business hours, or may request copies from Engineer.

5.06 Hazardous Environmental Conditions

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely: **None**

Report Title	Date of Report	Technical Data
		[Identify Technical Data]

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely: **None**

Drawings Title	Date of Drawings	Technical Data
		[Identify Technical Data]

ARTICLE 6—BONDS AND INSURANCE

6.01 Performance, Payment, and Other Bonds

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

6.02 Insurance—General Provisions

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

6.03 *Contractor's Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: **None**
- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Jones Act (if applicable)	
Bodily injury by accident—each accident	
Bodily injury by disease—aggregate	
Employer's Liability	
Each accident	\$1,000,000
Each employee	\$1,000,000
Policy limit	\$2,000,000
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	\$

- F. *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 claims for:
 1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,

2. damages insured by reasonably available personal injury liability coverage, and
3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. 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.
2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
4. Underground, explosion, and collapse coverage.
5. Personal injury coverage.
6. 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). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
7. 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.

H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:

1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
2. Any exclusion for water intrusion or water damage.
3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
4. Any exclusion of coverage relating to earth subsidence or movement.
5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
6. Any limitation or exclusion based on the nature of Contractor's work.

7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance 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. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$1,000,000
Each Accident	\$1,000,000
Property Damage	
Each Accident	\$1,000,000
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$5,000,000
General Aggregate	\$5,000,000

L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of **\$3,000,000** after accounting for partial attribution of its limits to underlying policies, as allowed above.

M. *Contractor's Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	\$
General Aggregate	\$

N. *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 be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the *Contract* and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

Contractor's Professional Liability	Policy limits of not less than:
Each Claim	\$
Annual Aggregate	\$

O. *Railroad Protective Liability Insurance:* Prior to commencing any Work within 50 feet of railroad-owned and controlled property, Contractor shall (1) endorse its commercial general liability policy with ISO CG 24 17, removing the contractual liability exclusion for work within 50 feet of a railroad, (2) purchase and maintain railroad protective liability insurance meeting the following requirements, (3) furnish a copy of the endorsement to Owner, and (4) submit a copy of the railroad protective policy and other railroad-required documentation to the railroad, and notify Owner of such submittal.

Railroad Protective Liability Insurance	Policy limits of not less than:
Each Claim	\$
Aggregate	\$

P. *Unmanned Aerial Vehicle Liability Insurance:* If Contractor uses unmanned aerial vehicles (UAV—commonly referred to as drones) at the Site or in support of any aspect of the Work, Contractor shall obtain UAV liability insurance in the amounts stated; name Owner, Engineer, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to Owner confirming Contractor's compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	Policy limits of not less than:
Each Claim	\$
General Aggregate	\$

Q. *Other Required Insurance: None*

6.04 *Builder's Risk and Other Property Insurance*

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

Builders Risk insurance is not required.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.03 *Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be 7:00 am to 5:00 pm.
2. Owner's legal holidays are:

New Year's Day	January 1
Martin Luther King Jr. Day	3 rd Monday in January
Presidents Day	3 rd Monday in February
Patriots Day	3 rd Monday in April
Memorial Day	Last Monday in May
Juneteenth	19 th of June
Independence Day	July 4
Labor Day	1 st Monday in September
Indigenous Peoples' Day	2 nd Monday in October
Veterans Day	November 11
Thanksgiving	4 th Thursday in November
Day after Thanksgiving	Day After Thanksgiving
Christmas	December 25

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

D. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

7.04 *Services, Materials, and Equipment*

SC-7.04.D – Add the following new paragraph immediately after Paragraph 7.04.C:

D. All products must meet BABAA requirements.

EJCDC® C-800, Supplementary Conditions of the Construction Contract.

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7.05 *“Or Equals”*

SC-7.05.A – Amend the third sentence of paragraph by striking out the following words:

Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item is permitted,

SC-7.05.A.1.a.3 – Amend the last sentence of Paragraph a.3 by striking out “and;” and adding a period at the end of Paragraph a.3.

SC-7.05.A.1.a.4 – Delete paragraph in its entirety and insert “Deleted.”

7.06 *Substitutes*

SC-7.06.A.3.a.3 – Add “; and” to the end of paragraph.

SC-7.06.A.3.a.4 – Add the following new paragraph immediately after Paragraph 7.06.A.3.a.3:

4. Comply with BABAA and provide Manufacturer’s Certification letter. Refer to Manufacturer’s Certification Letter provided in these Contract Documents.

7.07 *Concerning Subcontractors and Suppliers*

SC-7.07.A – Amend by adding the following to the end of the paragraph:

The total amount of work subcontracted by the Contractor shall not exceed fifty percent of the Contract price without prior approval from the Owner, Engineer and Agency.

SC-7.07.B – Delete paragraph in its entirety and insert “Deleted”.

SC-7.07.E – Delete the second sentence of paragraph and insert the following in its place:

Owner may not require that Contractor use a specific replacement.

7.10 *Taxes*

SC-7.10 Add a new paragraph immediately after Paragraph 7.10.A:

- A. Owner is exempt from payment of sales and compensating use taxes of the State of Maine and of cities and counties thereof on all materials to be incorporated into the Work.
 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.

2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

7.12 Record Documents

SC-7.12.A Amend paragraph by adding the following after "written interpretations and clarifications,":

Manufacturers' Certifications,

7.16 Submittals

SC-7.16 Add a new paragraph immediately after Paragraph 7.16.A.3:

4. Contractor shall include Manufacturer's Certification for BABAA requirements with all applicable submittals. If a specific manufacturer is used in the bidding, a statement that Manufacturer will comply with BABAA must be included with the Bid submission. Contractor shall comply with BABAA requirements, including coordination with manufacturers, distributors, and suppliers to correct deficiencies in any BABAA documentation.

SC-7.16.C.9 – Add new paragraph immediately after Paragraph 7.16.C.8:

9. Engineer's review of a Shop Drawing or Sample shall include review of Manufacturers' Certifications of compliance with BABAA.

7.17 Contractor's General Warranty and Guarantee

SC-7.17.F – Add new paragraph immediately after Paragraph 7.17.E:

- F. Contractor shall certify upon Substantial Completion that all Work and Materials have complied with BABAA.

ARTICLE 8—OTHER WORK AT THE SITE

8.02 Coordination

SC-8.02 Add the following new Paragraph 8.02.C immediately after Paragraph 8.02.B:

- C. Owner intends to have the booster pump stations at each the NMLS and SMLS tanks upgraded. This work may or may not be ongoing at the time of Tank Painting. If it is ongoing at the time of tank painting, Coordination with the Owners booster pump station Contractor is required. Owner or Engineer shall inform both Contractors of schedules prior to the start of work and organize a meeting if necessary. It is expected that the SMLS booster station upgrade will occur between August 2023 and November 2023 and the NMLS booster station upgrade will occur in 2024.

ARTICLE 9—OWNER'S RESPONSIBILITIES

No suggested Supplementary Conditions in this Article.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

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

C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:

1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
3. *Liaison*
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
4. *Review of Work; Defective Work*
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
5. *Inspections and Tests*
 - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
 - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.

6. *Payment Requests:* Review Applications for Payment with Contractor.
7. *Completion*
 - a. Participate in Engineer's visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.

D. The RPR will not:

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, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
5. Advise on, issue directions regarding, or assume control over security or 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. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11—CHANGES TO THE CONTRACT

~~No suggested Supplementary Conditions in this Article.~~

SC-11.02.C – Add new paragraph immediately after Paragraph 11.02.B:

C. The Engineer or Owner shall contact the Agency for concurrence on each Change Order prior to issuance. All Contract Change Orders must be concurred on (signed) by Agency before they are effective.

SC-11.03.A.2 - Add new Paragraph 11.03.A.2 immediately after Paragraph 11.03.A, which shall be renamed Paragraph 11.03.A.1:

2. The Engineer or Owner shall contact the Agency for concurrence on each Work Change Directive prior to issuance. Once authorized by Owner, a copy of each Work Change Directive shall be provided by Engineer to the Agency.

SC-11.05.B – Add the following at the end of this paragraph:

For Owner-authorized changes in the Work, the Contractor will provide the Manufacturer's Certification(s) for materials subject to BABAA requirements except when sole-source is specified, in which case the Engineer will provide the Manufacturer's Certification(s).

SC-11.09.B.2.c – Add new paragraph immediately after Paragraph 11.09.B.2.b:

c. Change orders involving materials subject to BABAA requirements shall include supporting data (name of Manufacturer, city and state where the product was manufactured, description of product, signature of authorized Manufacturer's representative) in the Manufacturer's Certification Letter, as applicable.

ARTICLE 12—CLAIMS

No suggested Supplementary Conditions in this Article.

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

13.01 Cost of the Work

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of Rental Rate Blue Book for Construction Equipment.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than \$500.

SC-13.02.C – Delete paragraph in its entirety and insert "Deleted".

13.03 Unit Price Work

SC-13.03 ~~Delete Paragraph 13.03.E in its entirety and insert the following in its place:~~

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 extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more~~

~~than 25 percent 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

No suggested Supplementary Conditions in this Article.

SC-14.03.G – Add new paragraph immediately after Paragraph 14.03.F:

G. Installation of materials that are non-compliant with BABAA requirements shall be considered defective work. Contractor should ensure that he has supplied Engineer with an approved Manufacturer's Certification or waiver prior to items being delivered to the project site.

ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.01 *Progress Payments*

SC-15.01.B.4 – Add the following language at the end of paragraph:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage or invest the retainage for the benefit of the Contractor.

SC-15.01.B.5 – Add new paragraph immediately after Paragraph 15.01.B.4:

5. The Application for Payment form to be used on this Project is EJCDC® C-620. The Agency must approve all Applications for Payment before payment is made.

SC-15.01.B.6 – Add new paragraph immediately after Paragraph 15.01.B.5:

6. By submitting an Application for Payment based in whole or in part on furnishing equipment or materials, Contractor certifies that such equipment and materials are compliant with BABAA requirements. Manufacturer's Certification letter for materials satisfy this requirement. Refer to Manufacturer's Certification Letter provided in these Contract Documents.

SC-15.01.C.2.d – Add the following new paragraph immediately after Paragraph 15.01.C.2.c:

d. The materials presented for payment in an Application for Payment comply with BABAA requirements.

SC-15.01.D.1 – Delete paragraph in its entirety and insert the following in its place:

The Application for Payment with Engineer's recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due twenty (20) days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC-15.01 Add the following new Paragraph 15.01.F:

F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

SC-15.02.A – Amend paragraph by striking out the following text: "7 days after".

15.03 *Substantial Completion*

SC-15.03.A – Modify by adding the following after the last sentence:

Contractor shall also submit the General (Prime) Contractor's Certification of Compliance certifying that to the best of the Contractor's knowledge and belief all substitutes, equals, and all products proposed in the Shop Drawings, Change Orders, and Partial Payment Estimates, and those installed for the Project, are in compliance with BABAA.

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.02 *Arbitration*

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

17.02 *Arbitration*

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in

an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.

- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.
- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;
 - 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 - 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. 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, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

ARTICLE 18—MISCELLANEOUS

SC-18.11 – Add new paragraph immediately after Paragraph 18.10:

18.11 *Tribal Sovereignty*

A. No provision of this Agreement will be construed by any of the signatories as abridging or debilitating any sovereign powers of the [insert name of Tribe] Tribe; affecting the trust-beneficiary relationship between the Secretary of the Interior, Tribe, and Indian landowner(s); or interfering with the government-to-government relationship between the United States and the Tribe.

SC-19 – Add the following new Article 19 immediately after Article 18:

ARTICLE 19—FEDERAL REQUIREMENTS

19.01 *Agency Not a Party*

A. This Contract is expected to be funded in part with funds provided by Agency. Neither Agency, nor any of its departments, entities, or employees, is a party to this Contract.

B. Agency concurrence is required on both the Bid and the Contract before the Contract is effective.

19.03 *Conflict of Interest*

A. Contractor may not knowingly contract with a Supplier or Manufacturer if the individual or entity who prepared the Drawings and Specifications has a corporate or financial affiliation with the Supplier or Manufacturer. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest or other interest in or a tangible personal benefit from the Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

19.04 *Gratuities*

A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.

B. In the event this Contract is terminated as provided in paragraph 19.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by

Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

19.05 *Small, Minority and Women's Businesses*

A. If Contractor intends to let any subcontracts for a portion of the work, Contractor will take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Affirmative steps will include:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

19.06 *Anti-Kickback*

A. Contractor shall comply with the Copeland Anti-Kickback Act (40 USC 3145) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

19.07 *Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended*

A. Contractor to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

19.08 *Equal Employment Opportunity*

A. The Contract is considered a federally assisted construction contract. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

19.09 Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)

A. Contractors that apply or bid for an award exceeding \$100,000 must file the required certification (RD Instruction 1940-Q Exhibit A-1). The Contractor certifies to the Owner and every subcontractor certifies to the Contractor that it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining the Contract if it is covered by 31 U.S.C. 1352. The Contractor and every subcontractor must also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

19.10 Environmental Requirements

A. When constructing a Project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental conditions:

1. Wetlands – When disposing of excess, spoil, or other Construction Materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.
2. Floodplains – When disposing of excess, spoil, or other Construction Materials on public or private property, Contractor shall not fill in or otherwise convert 100-year floodplain areas (Standard Flood Hazard Area) delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, e.g., alluvial soils on NRCS Soil Survey Maps.
3. Historic Preservation - Applicants shall ensure that Contractors maintain a copy of the following inadvertent discovery plan onsite for review:
 - a. If during the course of any ground disturbance related to any Project, any post review discovery, including but not limited to, any artifacts, foundations, or other indications of past human occupation of the area are uncovered, shall be protected by complying with 36 CFR § 800.13(b)(3) and (c) and shall include the following:
 - i. All Work, including vehicular traffic, shall immediately stop within a 50 ft. radius around the area of discovery. The Contractor shall ensure barriers are established to protect the area of discovery and notify the Engineer to contact the appropriate Agency personnel. The Engineer shall engage a Secretary of the Interior (SOI) qualified professional archeologist to quickly assess the nature and scope of the discovery; implement interim measures to protect the discovery from looting and vandalism; and establish broader

barriers if further historic and/or precontact properties, can reasonably be expected to occur.

ii. The Agency personnel shall notify the appropriate Agency environmental staff member, the Federal Preservation Officer (FPO), and State Historic Preservation Office (SHPO) immediately. Indian tribe(s) or Native Hawaiian Organization (NHOs) that have an interest in the area of discovery shall be contacted immediately. The SHPO may require additional tribes or NHOs who may have an interest in the area of discovery also be contacted. The notification shall include an assessment of the discovery provided by the SOI qualified professional archeologist.

iii. When the discovery contains burial sites or human remains, the Contractor shall immediately notify the appropriate Agency personnel who will contact the Agency environmental staff member, FPO, and the SHPO. The relevant law enforcement authorities shall be immediately contacted by onsite personnel to reduce delay times, in accordance with tribal, state, or local laws including 36 CFR Part 800.13; 43 CFR Part 10, Subpart B; and the Advisory Council on Historic Preservation's Policy Statement Regarding treatment of Burial Sites, Human Remains, or Funerary Objects (February 23, 2007).

iv. When the discovery contains burial sites or human remains, all construction activities, including vehicular traffic shall stop within a 100 ft. radius of the discovery and barriers shall be established. The evaluation of human remains shall be conducted at the site of discovery by a SOI qualified professional. Remains that have been removed from their primary context and where that context may be in question may be retained in a secure location, pending further decisions on treatment and disposition. Agency may expand this radius based on the SOI professional's assessment of the discovery and establish broader barriers if further subsurface burial sites, or human remains can reasonably be expected to occur. Agency, in consultation with the SHPO and interested tribes or NHOs, shall develop a plan for the treatment of native human remains.

v. Work may continue in other areas of the undertaking where no historic properties, burial sites, or human remains are present. If the inadvertent discovery appears to be a consequence of illegal activity such as looting, the onsite personnel shall contact the appropriate legal authorities immediately if the landowner has not already done so.

vi. Work may not resume in the area of the discovery until a notice to proceed has been issued by Agency. Agency shall not issue the notice to proceed until it has determined that the appropriate local protocols and consulting parties have been consulted.

vii. Inadvertent discoveries on federal and tribal land shall follow the processes required by the federal or tribal entity.

4. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat.

Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

5. Mitigation Measures – The following environmental mitigation measures are required on this Project:

- No cutting Trees larger than 3" at breast height between June 1 and August 15.

19.11 *Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708)*

A. Where applicable, for contracts awarded by the Owner in excess of \$100,000 that involve the employment of mechanics or laborers, the Contractor will comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, the Contractor will compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic will be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

19.12 *Debarment and Suspension (Executive Orders 12549 and 12689)*

A. A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

19.13 *Procurement of recovered materials*

A. The Contractor will comply with 2 CFR Part 200.322, "Procurement of recovered materials."

19.14 *Build America, Buy America Act (BABAA)*

A. Domestic Preference: Iron and steel products, Manufactured Products, and Construction Materials used in this project comply with the Build America, Buy America Act (BABAA) requirements mandated by Title IX of the Infrastructure Investment and Jobs Act ("IIJA"), Pub. L. 177-58.

B. Attachments – BABAA Certifications:

1. General (Prime) Contractor's Certification of Compliance
2. Manufacturer's Certification of Compliance with BABAA

ATTACHMENT BABAA – General Contractor

Example of General (Prime) Contractor's Certification of compliance with provisions of the Build America, Buy America Act (BABAA), under Title IX of the Infrastructure Investment and Jobs Act, Pub. L. 177-58.

DATE:

RE:

(PROJECT NAME)

(APPLICANT)

(CONTRACT NUMBER)

I hereby certify that to the best of my knowledge and belief all products installed for this project by my company and by any and all subcontractors and manufacturers my company has contracted with for this project comply with Build America, Buy America Act (BABAA), under Title IX of the Infrastructure Investment and Jobs Act, Pub. L. 177-58.

This certification is to be submitted upon completion of the project to the project engineer.

Name of Construction Company (PRINT)

By Authorized Representative (SIGNATURE)

Title

ATTACHMENT BABAA – Manufacturer

Example of Manufacturer's Certification letter of compliance with provisions of the Build America, Buy America Act (BABAA), under Title IX of the Infrastructure Investment and Jobs Act, Pub. L. 177-58.

Date:

Company Name:

Company Address:

Subject: BABAA Step Certification for Project _____,
Owner: _____, and Contract Number: _____.

I, (company representative), certify that the (melting, bending, galvanizing, cutting, etc.) processes for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with Build America, Buy America Act (BABAA), under Title IX of the Infrastructure Investment and Jobs Act, Pub. L. 177-58.

Items, Products and/or Materials, and locations of delivery (City, State):

- 1.
- 2.

Such processes for AIS took place at the following location:

(City, State)

This certification is to be submitted upon request to interested parties (e.g. municipalities, consulting engineers, general contractors, etc.)

If any of the above compliance statements change while providing materials to this project, please immediately notify the person(s) who is requesting to use our product(s).

Authorized Company Representative
(SIGNATURE)

(Note: Authorized signature shall be Manufacturer's representative not the material distributor or supplier)

ARTICLE 20— OTHER SUPPLEMENTARY REQUIREMENTS

SC 20.01 Add the following with the title “Safety Regulations”:

The Contractor shall be knowledgeable of all OSHA regulations and observe same at all times.

SC 20.02 Add the following with the title “Coordination of Work”:

The Contractor shall be responsible for coordination of activities of Subcontractors, Utilities and Others performing Work on the Site.

The Contractor shall not interrupt the normal operation of the Owner without the knowledge and approval of the Owner. In general, 48 hours' notice will be required for interruption of customers' service. Coordination with the Owner will be a requirement of this contract. The Contractor shall provide names and telephone numbers of contact person to the Owner for use in the event of night or weekend emergencies.

SC 20.03 Add the following with the title “Statutory Requirements in General”:

The Contractor shall be knowledgeable of all State and Federal laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the work, or the materials used or employed in the work, or in any way affecting the conduct of the work, and of all such orders and decrees having any jurisdiction or authority over the same and of all provisions required by law to be a part of this contract, all of which provisions are hereby incorporated by reference and made a part thereof. If any discrepancy or inconsistency is discovered in the drawings or specifications or contract for this work in relation to any such law, ordinance, regulation, order, or decree, he shall report the same to the Engineer in writing. He shall at all times himself observe and comply with, and shall cause all of his agents and employees to observe and comply with all such existing and future laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and Engineer and all of its and their officers, agents, and servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree whether by himself or his employees or subcontractors.

SC 20.04 Add the following with the title “Construction Materials”:

The Contractor shall supply all materials required for this project.

SC 20.05 Add the following with the title “Special Care”:

The Contractor shall take special care with all hazardous materials and chemicals that may be used in conjunction with the project. There shall be no dumping of motor oil, salt, form oils, chemicals, solvents, etc. on the site. When possible all such material will be stored off site. Comply with best management practices and recommendations of manufactures and MSDS requirements.

SC 20.06

Add the following with the title “Pre-Construction Conference”:

The Contractor shall attend a pre-construction conference so that all parties are fully aware of the terms and conditions of this contract.

SC 20.07

Add the following with the title “Dig Safe Law”:

The Contractor is required by law to contact Dig Safe and local water/sewer utilities at least 3 business days prior to beginning any excavation work. The Dig Safe telephone number is 1-888-DIG-SAFE.

SC 20.08

Add the following with the title “Limits of Disturbance”:

The Contractor shall limit the area where pavement is removed for trenching and pipe work to 2,000 foot sections at a time. Meaning Contractor may remove pavement for up to 2,000 feet, install new main and services within this area, then must install new pavement (base layer or temporary) prior to moving to the next 2,000 foot work areas. The intent is to minimize dust, erosion, and poor road conditions within the project area.

EXHIBIT A—SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI's and responses to RFI's, and Contract forms.	Email w/ Attachment	PDF	(2)
a.3	Contactors Submittals (Shop Drawings, “or equal” requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner’s and Engineer’s responses to Contractor’s Submittals, Shop Drawings, correspondence, and Applications for Payment.	Email w/ Attachment	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	Email w/ Attachment or LFE	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	Email w/ Attachment or LFE	DWG	
a.6	Correspondence, reports and Specifications to be submitted to Owner for future word processing use and modification.	Email w/ Attachment or LFE	DOC	
a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Conditions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader			
DWG	Autodesk® AutoCAD .dwg format Version 2013 or earlier			
DOC	Microsoft® Word .docx format Version 2016 or earlier			
EXC	Microsoft® Excel .xls or .xml format Version 2016 or earlier			
DB	Microsoft® Access .mdb format Version [number]			

Exhibit A—Software Requirements for Electronic Document Exchange

EJCDC® C-800, Supplementary Conditions of the Construction Contract.

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**SECTION 00810 DWSRF
SUPPLEMENTAL GENERAL CONDITIONS**



DWSRF SUPPLEMENTAL GENERAL CONDITIONS FOR EQUIVALENCY PROJECTS

PURPOSE: The DWSRF Supplemental General Conditions are written to ensure that State and Federal funding and project requirements are included in DWSRF construction contract documents. Projects to utilize this General Condition set include all Equivalency projects. Contact your Project Manager to see if your project is an Equivalency Project.

ORIGINATOR/OWNER: DWP DWSRF Staff/Chief Engineer

PROCEDURE:

1. All contents of the DWSRF Supplemental General Conditions in this document must be included in DWSRF funded construction contract specification documents for projects and shall be put out for public bid.
2. It is helpful to incorporate the complete DWSRF Supplemental General Conditions documented here into a specification document, yet as long as all of the conditions are present in the specification document, the complete set of conditions described below do not need to be included as shown.

Specifically, when other sources are funding portions of a construction project funded also by DWSRF, as long as each item in the DWSRF supplemental general conditions is included in the specifications document, there is no need to duplicate conditions within the specifications document.

3. When questions arise regarding a component of these supplemental general conditions, the public water system or their engineer should contact their DWP DWSRF Project Manager to discuss the issue first. A DWSRF Manager will assist with decision making as needed.

ASSOCIATED DOCUMENTS:

- DWRSP Project Management Guidance Manual
- State of Maine Rules Relating to Drinking Water State Revolving Loan fund

SUPERSEDED DOCUMENTS: All previously undocumented versions of this document

RETENTION: This document is retained per DWP Record Retention Schedules

Title: DWSRF Supplemental General Conditions for Equivalency Projects
SOP ID: DWP0306
Revision: A

Prepared By: M. Parker
Date: 4/6/2023
Revised: 1/08/2025

REVISION LOG:

Section	Page	Rev.	Date	Description Of Change	Approved by:
		Original	8-15-12		Norm Lamie
MBE/WBE	5	A	3-1-2013	MBE/WBE goals change from 1.3% and 3.7% to 0.64% and 1.64% respectively.	Norm Lamie
DBE, Davis Bacon, AIS, Change in Work and Work Price.	3, 11, 5-7, 9,12,14	B	7-28-15	Change WBE/MBE to DBE and added new requirements and reference to EPA documents. Modified Davis Bacon description. Added American Iron & Steel requirements. Added list of related info and forms. Removed "Bid Protest" and "Claims or Disputes" or Disputes sections which are covered by EJCDC. Included that Change Orders shall require DHHS approval.	Norm Lamie
DBE Related Info & Forms	5-6 13	C	3-18-16	Changed "EPA" to "DWP" on the titles of the 6100-2,3,4 forms described in the section on DBEs.	Nathan Saunders
Appendix A		D	3-24-16	FROMS: Added Appendix Documents: Forms 6100-4,3,2, Progress Rpt of DBE Subcontrctor Utilization, Weekly Payroll Labor Stds Compliance Review, AIS Certificaton	Nathan Saunders
		E	1-24-17	Updated EJCDC document #s and names	Nathan Saunders
		F	11-28-17	Added Executive Order 12549 on Debarment and Suspension	Nathan Saunders
Appendix A and Appendix B		G	2-12-18	Change Appendix A to Appendix B to enable adding .pdf forms at the end of the document. Added Wage Rate Requirements as Appendix A.	Nathan Saunders
Appendix B		H	3-21-19	Added Deminimus Tracking Form to Appendix B	Nathan Saunders
General Conditions	15	J	1-5-2021	Added Federal requirement: "Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment"	Nathan Saunders
Appendix B		K	4-7-2021	Updated all forms to be generic SRF instead of DWSRF in order to make forms for DWP and DEP the same, specifically valuable for working MDOT projects with both DWP and DEP work involved.	Nathan Saunders
General Conditions	3, 11	L	3-23-2022	Added EO 14026	McKenzie Parker
General Conditions Appendix B Appendix C		Created separate condition set to align with BIL requirements on Equiv. projects. Sub-division of DWP0151	4-6-2023	Removed EO14026, Removed AIS Requirements, Added BABA Reqs Added BIL project Sign, Updated Definition of Equivalency	McKenzie Parker

Section	Page	Rev.	Date	Description of Change	Approved by:
Federal Requirements, Bid Ad Appendix C	4,8, App. C	A	1/8/2025	Added additional Super-Crosscutters, Readded AIS Language, Removed BIL Project Sign	McKenzie Parker
WHD Certified Payroll Form Appendix B	27, App. B	M	4/28/2025	Added Updated WHD Certified Payroll Form	

DWSRF SUPPLEMENTAL GENERAL CONDITIONS

The provisions of the Drinking Water State Revolving Loan Fund (DWSRF) Supplemental General Conditions as described below change, amend, or supplement the General Conditions and shall supersede any conflicting provisions of the CONTRACT. These provisions shall be used in conjunction with the most recent version of EJCDC documents C-700 (Standard General Conditions) and C-520 (Agreement between Owner and Contractor), both the Funding Agency version. All provisions of the General Conditions, which are not changed, amended, or supplemented, remain in full force.

Notice to Bidders

Any person interested in Bidding on this contract should thoroughly familiarize themselves with these DWSRF Supplemental General Conditions. Failure to comply with any of these conditions may result in the Bidder being determined non-responsive and therefore, not entitled to the award of this contract.

NOTE: In the ADVERTISEMENT TO BIDDERS, the following language should be used making all Bidders aware of the DHHS Special conditions.

Bid Bond

A certified check or bank draft payable to the OWNER or a satisfactory Bid Bond executed by the Bidder and a Surety Company in the equal to five percent (5%) of the Bid shall be submitted with each bid. No bid may be withdrawn for at least 60 days after receipt of bids unless released by the owner.

Disadvantaged Business Enterprise Requirements

Each Bidder shall take notice special notice of the Guidance for use of Disadvantaged Business Enterprises in the DWSRF Supplemental General Conditions. Failure to complete these requirements may result in finding that the Bidder is nonresponsive and therefore, not eligible to awarded this contract. Complete requirements are located in the Bid Documents.

Nondiscrimination in Employment and Labor Standards

Bidders on this work will be required to comply with the President's Executive Order No. 11246 and amendments and supplements to that Order. The requirements for Bidders and CONTRACTORS under this Order are located in the DWSRF Supplemental General Conditions.

Federal Requirements

The CONTRACTOR must comply with the Department of Labor Regulations relating to Copeland "Anti-Kickback Act (18 U.S.C. 874) as supplemented by 29 CFR part 3, Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by 29 CFR part 5, Occupational Safety and Health Standards (OSHA) (29 CFR part 1910)..

The CONTRACTOR must comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Safe Drinking Water Act, Executive Order 11738, and the Environmental Protection Agency regulations (40 CFR Part 15).

The CONTRACTOR must comply with Section 13 of the Federal Water Pollution Control Act Amendments of 1972, Section 504 of the Rehabilitation Act of 1964, Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975, and the Uniform Relocation and Real Property Acquisition Policies Act.

The CONTRACTOR must comply with all permits, restrictions and conditions, issued for the PROJECT by Federal Cross-cutting Authorities.

Disclaimer

Any contract awarded under this Advertisement to Bidders is expected to be funded in part by a Maine Drinking Water State Revolving Fund loan. Neither the State of Maine nor any of its departments, agencies, or employees is, or will be, party to the CONTRACT.

NOTE: The following language shall be added to the INFORMATION FOR BIDDERS section of the specifications:

Bonding and Insurance

Bidders must furnish a bid guarantee equivalent to five percent (5%) of the bid price. In addition the CONTRACTOR awarded a construction contract must furnish performance and payment bonds, each of which shall be in an amount not less than 100 percent of the contract price. CONTRACTORS shall obtain such construction insurance (e.g., fire and extended coverage, workmen's compensation, public liability and property damage, and "all risk" builders risk) as is customary and appropriate.

Manufacturer's Experience

Wherever it may be written that an equipment manufacturer must have a specified period of experience with his product or equipment, who does not meet the specified experience period, can be considered if the equipment supplier or manufacturer is willing to provide a bond or cash deposit for the duration of the specified time period which will guarantee replacement of that equipment in the event of failure.

Sales Tax

This PROJECT is exempt from State Sales and Use or Excise Taxes to the extent allowed by law.

Each system must determine whether or not the Sales Tax paragraph is applicable to its project.

Safety and Health Regulations

This PROJECT is subject to all the Safety and Health Regulations (CFR 29 Part 1926 and all subsequent amendments) as promulgated by the US. Department of Labor on June 24, 1974. CONTRACTORS are urged to become familiar with the requirements of these regulations.

Nondiscrimination in Employment

- a. Contracts for work under this proposal will obligate the CONTRACTORS and the SUBCONTRACTORS not to discriminate in employment practices.
- b. Bidders must submit with their initial bid a signed statement as to whether they have previously performed work subject to the President's Executive Order No. 11246, or any preceding similar Executive Order.
- c. Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the contract.
- d. Successful bidders must, if requested, submit a list of all SUBCONTRACTORS who will perform work on the PROJECT, and written signed statements from authorized agents of labor pools with which they will or may deal for employees on the work together with supporting information to the effect that such labor pools' practices and policies are in conformity with Executive Order No. 11246; that they will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under the contract or, a certification as to what efforts have been made to secure such statements when such agents or labor pools have failed or refused to furnish them prior to award of the contract.

- e. Successful bidders must be prepared to comply in all respects with the contract provisions regarding nondiscrimination.

SRF Disadvantaged Business Enterprises (DBE) Program

“The Contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 40 CFR part 33, Disadvantaged Business Enterprises (DBE), in the award and administration of subcontracts. Failure by the Contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

The goals for this project are a minimum of 0.64% certified Minority Business Enterprise (MBE) and a minimum of 1.64% certified Women’s Business Enterprise (WBE) participation. Lists of certified businesses may be found on the following internet websites: EPA Office of Small and Disadvantaged Business Utilization (OSDBU), State of Maine Department of Transportation (DOT), and the United States Small Business Administration (SBA).

The contractor must maintain all records documenting its compliance with the requirements of this part, including documentation of its good faith efforts (such as copies of solicitation letters and emails) and data relied upon in formulating its fair share objectives.

1. During the bidding period, the Contractor is required to make the following good faith efforts if they will be awarding subcontracts:
 - (a) Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. This will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
 - (b) Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
 - (c) Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. This will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
 - (d) Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
 - (e) Use the services and assistance of the SBA and the Minority Business Development Agency of the Department of Commerce.
 - (f) Employ the good faith efforts described above even if the prime contractor has achieved its fair share objectives under subpart D of this part.
2. The Contractor must comply with the following provisions when submitting their bid:
 - (a) The contractor must complete and submit DWP Form 6100-4, ‘DBE Program Subcontractor Utilization Form’ (**See Appendix B**) as part of the prime contractor’s bid or proposal package to the Owner. Note, only DBE subcontractors should be listed. If no DBE subcontractors are to be used, the contractor must still complete and submit the form.
The contractor must have each of its proposed DBE subcontractors complete the DWP Form 6100-3, ‘DBE Program Subcontractor Performance Form’ (**See Appendix B**). The completed forms must be submitted as part of the prime contractor’s bid or proposal package to the Owner.
3. Prior to contract award, as the Successful Bidder, the Contractor must comply with the following provisions:
 - (a) The contractor must submit to the Owner documentation of its good faith efforts (such as copies of solicitation letters and emails) and data relied upon in formulating its fair share objectives. Solicitation documentation must include proof of receipt. The records must be submitted to the Owner even if the goals were met.

(b) The contractor must submit to the Owner a bidders list of all firms that bid or quote on subcontracts, including both MBE/WBEs and non-MBE/WBEs. The purpose of a bidders list is to provide contractors who conduct competitive bidding with as accurate a database as possible about the universe of MBE/WBE and non-MBE/WBE subcontractors. The list must include the following information:

- (1) Entity's name with point of contact;
- (2) Entity's mailing address, telephone number, and e-mail address;
- (3) The procurement on which the entity bid or quoted, and when; and
- (4) Entity's status as an MBE/WBE or non-MBE/WBE.

4. Following contract award, the Contractor must comply with the following additional provisions:

(a) The contractor must provide DWP Form 6100-2, 'DBE Program Subcontractor Participation Form' (**See Appendix B**) to all DBE subcontractors listed on Form 6100-4. DWP Form 6100-2 gives a DBE subcontractor the opportunity to describe the work the DBE subcontractor received from the prime contractor, how much the DBE subcontractor was paid and any other concerns the DBE subcontractor might have during the course of the project, for example, reasons why the DBE subcontractor believes it was terminated by the prime contractor. If DBE subcontractors choose to complete this form, the completed form should be sent directly to the "Contract Administrator" identified in the Preconstruction Meeting.

Complete the DWSRF DWP Progress Report of DBE Subcontractor Utilization Form (**See Appendix B**) for all contractor pay applications whether or not they include invoiced amounts from DBE subcontractors.

The progress report shall be attached to the corresponding pay application for processing through the Owner.

c Pay subcontractors for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the Owner.

d Notify the Owner in writing prior to any termination of a DBE subcontractor for convenience by the prime contractor.

e If a DBE subcontractor fails to complete work under the subcontract for any reason, the prime contractor must employ the good faith efforts described above if soliciting a replacement subcontractor. Documentation of good faith efforts shall be submitted to the Owner upon request."

Build America, Buy America (BABA) Act Requirements

The Contractor acknowledges to and for the benefit of the Owner and the the Funding Authority that it understands the goods and services under this Agreement are being funded with federal monies and have statutory requirements commonly known as "Build America, Buy America;" that requires all of the iron and steel, manufactured products, and construction materials used in the project to be produced in the United States ("Build America, Buy America Requirements") including iron and steel, manufactured products, and construction materials provided by the Contactor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Owner and Funding Authority (a) the Contractor has reviewed and understands the Build America, Buy America Requirements, (b) all of the iron and steel, manufactured products, and construction materials used in the project will be and/or have been produced in the United States in a manner that complies with the Build America, Buy America Requirements, unless a waiver of the requirements is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the Build America, Buy America Requirements, as may be requested by the Owner or the Funding Authority. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Owner or Funding Authority to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Owner or Funding Authority resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Funding Authority or any damages owed to the Funding Authority by the Owner). If the Contractor has no direct contractual privity with the Funding Authority, as a lender or awardee to the Owner for the funding of its project, the Owner and the Contractor agree that the Funding Authority is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Funding Authority.

The Owner shall maintain files on the project site for Build America, Buy America (BABA) manufacturer certifications. The Contractor and subcontractors shall provide step manufacturer certifications to the Owner for each BABA item delivered to the site. The files shall be made available to State and Federal officials for inspection upon request.

The Contractor and its subcontractors shall submit to the Owner, an BABA Compliance Certification (**See Appendix B**) prior to the project Preconstruction Meeting. The Owner, shall in turn, submit this certification from the Contractor, with their BABA Compliance Certification (**See Appendix B**), to the State at the project Preconstruction Meeting.

The nationwide waiver to the BABA law permits the use of products when they occur in de minimis components of such projects funded by the Act that may otherwise be prohibited under the Act. Funds used for such de minimis components cumulatively may comprise no more than a total of 5 percent of the total cost of the project. It is the State's interpretation that all DWSRF projects will contain components that might not comply with the law and therefore it is likely that the Owner will use the de minimis waiver. The Contractor is required to provide the necessary documentation. Owners should, in consultation with their contractors, determine the items to be covered by this waiver, must retain relevant documentation (i.e., invoices) as to those items in their project files, and must summarize in reports the types and/or categories of items to which this waiver is applied, the total cost of incidental components covered by the waiver for each type or category, and the calculations by which they determined the total cost of the project. The Owner shall maintain files on the project site for this documentation. The files shall be made available to State and Federal officials for inspection upon request.

Additional information regarding the BABA requirements can be found on this website:
<https://www.epa.gov/cwsrf/build-america-buy-america-baba>

American Iron and Steel Act (AIS)

“The Contractor acknowledges, to and for the benefit of the Owner and the State (Maine Drinking Water Program), that it understands the goods and services under this Agreement are being funded with monies made available by the Drinking Water State Revolving Fund (DWSRF) that have statutory requirements commonly known as “American Iron and Steel;” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the Contractor pursuant to this Agreement. See Public Law 113-76, Section 436 (available in the AIS Guidelines at www.medwp.com). The Contractor hereby represents and warrants, to and for the benefit of the Owner and the State, that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Owner or the State. While the Contractor has no direct contractual privity with the State, as a lender to the Owner for the funding of its project, the Owner and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

The Owner shall maintain files on the project site for American Iron and Steel (AIS) manufacturer certifications. The Contractor and subcontractors shall provide step manufacturer certifications to the Owner for each AIS item delivered to the site. The files shall be made available to State and Federal officials for inspection upon request. See sample Step Manufacturer Certification form (from Use of AIS Certification available at www.medwp.com) for information that should be included.

The Contractor and its subcontractors shall submit to the Owner, an AIS Compliance Certification (**See Appendix**) prior to the project Preconstruction Meeting. The Owner, shall in turn, submit this certification from the Contractor, with their AIS Compliance Certification (**See Appendix**), to the State at the project Preconstruction Meeting.

The nationwide waiver to the American Iron and Steel law permits the use of products when they occur in de minimis incidental components of such projects funded by the Act that may otherwise be prohibited under section 436(a). Funds used for such de minimis incidental components cumulatively may comprise no more than a total of 5 percent of the total cost of the materials used in and incorporated into a project; the cost of an individual item may not exceed 1 percent of the total cost of the materials used in and incorporated into a project. It is the State's interpretation that all DWSRF projects will contain incidental components that might not comply with the law and therefore it is likely that the Owner will use the de minimis waiver. The Contractor is required to provide the necessary documentation. Owners should, in consultation with their contractors, determine the items to be covered by this waiver, must retain relevant documentation (i.e., invoices) as to those items in their project files, and must summarize in reports the types and/or categories of items to which this waiver is applied, the total cost of incidental components covered by the waiver for each type or category, and the calculations by which they determined the total cost of materials used in and incorporated into the project. The Owner shall maintain files on the project site for this documentation. The files shall be made available to State and Federal officials for inspection upon request.

The Contractor shall refer to the "Use of American Iron and Steel (AIS) Guidance" (**available at www.medwp.com**). Additional information regarding the AIS requirements can be found on this website http://water.epa.gov/grants_funding/aisrequirement.cfm

Notice to Labor Union or Other Organization of Workers

Nondiscrimination in Employment

To: _____
(Name of Union or organization of workers)

The undersigned currently holds contract(s) with _____
(Name of Applicant)
involving funds or credit of the U.S. Government of (a) subcontract(s) with a prime CONTRACTOR holding such contract(s).

You are advised that under the provisions of the above contact(s) or subcontract(s) and in accordance with Executive Order 11246, dated September 24, 1965, the undersigned is obliged not to discriminate against any employee or applicant for employment because of race, color, creed, or national origin. This obligation not to discriminate in employment includes, but is not limited to the following:

HIRING, PLACEMENT, UPGRADING, TRANSFER, OR DEMOTION

RECRUITMENT, ADVERTISING, OR SOLICITATION FOR

EMPLOYMENT TRAINING DURING EMPLOYMENT, RATES OF

PAY OR OTHER FORMS OF COMPENSATION, SELECTION FOR TRAINING

INCLUDING APPRENTICESHIP, LAYOFF, OR TERMINATION.

This notice is furnished to you pursuant to the provisions of the above contract(s) or subcontract(s) and Executive Order 11246.

COPIES OF THIS NOTICE WILL BE POSTED BY THE UNDERSIGNED IN CONSPICUOUS PLACES AVAILABLE TO EMPLOYEES OR APPLICANT FOR EMPLOYMENT.

/s/ _____
(Contractor or Subcontractor)

(Date)

Contractor's and Subcontractor's Insurance

The CONTRACTOR shall not commence work under this contract until he has obtained all the insurance required hereunder and the OWNER has approved such insurance, nor shall the CONTRACTOR allow any SUBCONTRACTOR to commence work on his subcontract until all similar insurance required of the SUBCONTRACTOR has been so obtained and approved. Approval of the insurance by the OWNER shall not relieve or decrease the liability of the CONTRACTOR hereunder.

Operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, requires insurance to be written with a limit of liability of not less than \$1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefore, sustained by any one person in any one accident; and a limit of liability of not less than \$1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$500,000 for all property damage sustained by any one person in any one accident-, and a limit of liability of not less than \$500,000 aggregate for any such damage sustained by two or more persons in any one accident.

The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTOR as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the State of Maine, Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any work is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide adequate and suitable insurance for the protection of his employees not otherwise protected.

Posting Documents

The following documents must be posted and maintained by the CONTRACTOR at such place or places on the PROJECT site where employees can easily see them. The posters may be obtained, free of charge, from "Business Answers" 1-800-872-3838.

- "Notice to Labor Union or Other Organizations of Workers" (Exhibit 2)
- "Equal Employment Opportunity is the Law" poster
- "Job Safety and Health Protection" poster
- "Fair Labor Standards Act" poster
- "Employee Polygraph Protection Act" poster
- "Family and Medical Leave Act" poster (applicable to employers of 50 or more employees)
- "Notice Relative to the Regulation of Employment" (State Poster)
- "Minimum Wage" (State Poster)
- "Whistleblowers' Protection Act" (State Poster)
- "Sexual Harassment Law" (State Poster)
- "Workers Compensation" (State Poster)
- "Maine Employment Security Law" (applicable to employers who must pay unemployment tax)

“Notice to All Employees” (<http://www.dol.gov/whd/regs/compliance/posters/fedprojc.pdf>)

“Davis-Bacon” wage rates

Available from the Maine Dept. of Labor at <http://www.maine.gov/labor/posters/>.

Project Sign

The CONTRACTOR shall provide and erect PROJECT sign as detailed and specified in Appendix C (See “Project Signs for all Agencies” at www.medwp.com for sign specifications when multiple funding agencies are being utilized). The location of the sign shall be as directed by the ENGINEER. No other CONTRACTOR, SUBCONTRACTOR or material signs will be permitted on the sign. The CONTRACTOR shall maintain and keep the PROJECT sign in good condition until the work is completed when the sign will be removed. All other signs to be erected on the site shall be approved by the ENGINEER. Provide adequate supports for sign as site conditions may require and keep sign a proper distance above prevailing grade to permit public viewing. DHHS may provide an alternative method to placing a project sign for certain types of projects.

Inspection

Representatives of the OWNER and of the Department of Health and Human Services (DHHS) shall have access to the work wherever it is in preparation or progress and the CONTRACTOR shall provide proper facilities for such access and inspection.

Payment of Employees

Minimum Wages

All mechanics and laborers employed or working upon the construction site work of the PROJECT, will be paid the full amounts due at time of payment computed at wage rates not less than State or Federal Minimum Wage, whichever is higher, regardless of any contractual relationship which may be alleged to exist between the CONTRACTOR and such laborers and mechanics.

Overtime Payments

An employer is obligated to make proper wage payments under the Fair Labor Standards Act, and the Contract Work Hours Standards Act, for hours worked in excess of 40 hours in a work week. An employee must receive compensation at a rate not less than one and one-half times the regular rate of pay (basic hourly rate) for all hours worked in excess of 40 hours per week.

Davis-Bacon Wages

Davis-Bacon Wage Rates apply to projects with DWSRF funding. For Davis-Bacon wage determination purposes, work on most projects will be considered “heavy construction”. Some projects may also include work under the “building construction” category. The wage decision that is current as of ten (10) days prior to the bid opening will be applied to DWSRF funded project. The wage decision applicable to this project can be found within these project documents. It is the responsibility of the bidder to verify the applicable wage decision. For job classifications not listed in the applicable wage decision a project-specific wage determination request must be filed with the federal Department of Labor. The Drinking Water Program will provide the wage determination request application form. The Drinking Water Program must review, sign, and submit the wage determination request application. Wage determination request submittals are expected to be responded to within 30 days;

however, some responses have taken longer than this. For each job classification needed for this project not listed in the applicable wage decision the successful bidder is encouraged to identify these job classifications and notify all parties early on in the project such as during the preconstruction meeting. The contractor bears all responsibility for reimbursing workers at Davis-Bacon wage rates. This includes for job classifications not listed in the wage decision that require wage determination requests. All pay requisitions submitted that include contract expenses must include a Weekly Payroll Labor Standards Compliance Review sheet (**See Appendix**) for each week that the pay requisition covers.

For more information, see www.dol.gov/whd/govcontracts/dbra.htm

Wage Record of Contractor

The CONTRACTOR and each SUBCONTRACTOR shall keep an accurate record showing the names, social security number, and occupation of each and all laborers, workmen, and mechanics employed by them in connection with this PROJECT showing the hours worked, the title of the job, the hourly rate and the actual wages paid to each of them. A copy of such record shall be kept at the job site and shall be open at all reasonable hours to the inspection of the Bureau of Labor Standards, the OWNER, and the Department of Health and Human Services.

Retention of Payroll Records

Payroll records, including original field notes and back up material will be maintained during the course of the work by the CONTRACTOR, including payroll of each SUBCONTRACTOR for a period of three years after the completion of the PROJECT.

Violations of Labor Standards

In the event of a violation of the Overtime Payments clause the CONTRACTOR and any SUBCONTRACTOR responsible therefore shall be liable for the unpaid wages and shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic employed in violation of the clause in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages.

In the event of any violation by the CONTRACTOR or SUBCONTRACTOR of the labor standards provisions of their contract, the OWNER may, after notice to the CONTRACTOR, suspend further payments until such violations have ceased.

Payment to Contractor

At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect the OWNER'S interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing approval of payment, and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing the reasons for refusing to approve payment.

In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) days of presentation of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate less the retainage. The retainage shall be an amount equal to ten percent (10%) of said estimate until fifty percent (50%) of the work has been completed. At fifty percent (50%) completion, further partial payments shall be made in full to the CONTRACTOR and no additional amounts retained unless the ENGINEER certifies that the job is not proceeding satisfactorily, but amounts previously retained shall not be paid to the CONTRACTOR. At fifty percent (50%) completion or any time thereafter when the progress of the WORK is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than ten percent (10%) of the value of the work completed. Upon substantial completion of the work the OWNER may retain an amount sufficient to cover the estimated cost of the work still to be completed.

The CONTRACTOR will indemnify and save the OWNER harmless from all claims growing out of the lawful demand of SUBCONTRACTORS, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, tools, and all supplies incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. This may be required on a monthly basis. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, the CONTRACTOR'S Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

Changes in the Work

The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles the CONTRACTOR to a change in CONTRACT PRICE or TIME, or both, in which event the CONTRACTOR shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days.

The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER. All Change Orders shall be approved by DHHS.

Changes in Contract Price

The CONTRACT PRICE may be changed only by a CHANGE ORDER. All Change Orders shall be approved by DHHS. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of procedure listed below:

- a. Unit prices previously approved.
- b. An agreed lump sum.
- c. Time and materials

For all change order work performed under c, a fee for overhead and profit will be allowed over and above the "actual cost" of the work. For work performed by a SUBCONTRACTOR, this fee shall not exceed fifteen percent (15%) for the SUBCONTRACTOR and five percent (5%) for the general CONTRACTOR. The general CONTRACTOR'S five percent (5%) is calculated on the SUBCONTRACTOR'S actual cost before the fee is added. The total fee on "actual work" shall not exceed twenty percent (20%). For work performed by the general CONTRACTOR, this fee shall not exceed fifteen percent (15%).

The "actual cost" of work includes the reasonable cost to the CONTRACTOR of the following:

- a. materials used as part of the work;
- b. common and skilled labor and foreman only;
- c. equipment rental for the period employed directly on the work at rates not exceeding the monthly rate contained in the current "Rental Rate Blue Book for Construction Equipment (published by the Equipment Guidebook Company);
- d. additional insurance if required, to cover public liability for injury to persons and property;
- e. Workmen's Compensation Insurance, Federal Social Security and any other costs associated with payrolls and required by law.

The "actual cost" of work does not include the following:

- a. purchase or rental of small tools and buildings;
- b. CONTRACTOR'S supervision of SUBCONTRACTOR (these costs are part of fee outlined above);
- c. use of capital or premium on the bond unless the extra work includes an extension of time approved and authorized by the OWNER.
- d. overhead and profit.

Access to records

The OWNER, DHHS, Maine Municipal Bond Bank and the Comptroller General of the United States, or any of their authorized representatives, shall have the right of access to any pertinent books, documents, papers, or other records of CONTRACTORS which are pertinent to this PROJECT in order to make audits, examinations, excerpts, and transcripts.

Expiration of right of access. The rights of access shall last as long as the records are retained. The minimum retention period is three years.

Executive Order 12549--Debarment and suspension

Source: The provisions of Executive Order 12549 of Feb. 18, 1986, appear at 51 FR 6370, 3 CFR, 1986 Comp., p. 189, unless otherwise noted.

By the authority vested in me as President by the Constitution and laws of the United States of America, and in order to curb fraud, waste, and abuse in Federal programs, increase agency accountability, and ensure consistency among agency regulations concerning debarment and suspension of participants in Federal programs, it is hereby ordered that:

Section 1. (a) To the extent permitted by law and subject to the limitations in Section 1(c), Executive departments and agencies shall participate in a system for debarment and suspension from programs and activities involving Federal financial and nonfinancial assistance and benefits. Debarment or suspension of a participant in a program by one agency shall have government-wide effect.

(b) Activities covered by this Order include but are not limited to: grants, cooperative agreements, contracts of assistance, loans, and loan guarantees.

(c) This Order does not cover procurement programs and activities, direct Federal statutory entitlements or mandatory awards, direct awards to foreign governments or public international organizations, benefits to an individual as a personal entitlement, or Federal employment.

Sec. 2. To the extent permitted by law, Executive departments and agencies shall:

(a) Follow government-wide criteria and government-wide minimum due process procedures when they act to debar or suspend participants in affected programs.

(b) Send to the agency designated pursuant to Section 5 identifying information concerning debarred and suspended participants in affected programs, participants who have agreed to exclusion from participation, and participants declared ineligible under applicable law, including Executive Orders. This information shall be included in the list to be maintained pursuant to Section 5.

(c) Not allow a party to participate in any affected program if any Executive department or agency has debarred, suspended, or otherwise excluded (to the extent specified in the exclusion agreement) that party from participation in an affected program. An agency may grant an exception permitting a debarred, suspended, or excluded party to participate in a particular transaction upon a written determination by the agency head or authorized designee stating the reason(s) for deviating from this Presidential policy. However, I intend that exceptions to this policy should be granted only infrequently.

Sec. 3. Executive departments and agencies shall issue regulations governing their implementation of this Order that shall be consistent with the guidelines issued under Section 6. Proposed regulations shall be submitted to the Office of Management and Budget for review within four months of the date of the guidelines issued under Section 6. The Director of the Office of Management and Budget may return for reconsideration proposed regulations that the Director believes are inconsistent with the guidelines. Final regulations shall be published within twelve months of the date of the guidelines.

Sec. 4. There is hereby constituted the Interagency Committee on Debarment and Suspension, which shall monitor implementation of this Order. The Committee shall consist of representatives of agencies designated by the Director of the Office of Management and Budget.

Sec. 5. The Director of the Office of Management and Budget shall designate a Federal agency to perform the following functions: maintain a current list of all individuals and organizations excluded from program participation under this Order, periodically distribute the list to Federal agencies, and study the feasibility of automating the list; coordinate with the lead agency responsible for government-wide debarment and suspension of contractors; chair the Interagency Committee established by Section 4; and report periodically to the Director on implementation of this Order, with the first report due within two years of the date of the Order.

Sec. 6. The Director of the Office of Management and Budget is authorized to issue guidelines to Executive departments and agencies that govern which programs and activities are covered by this Order, prescribe government-wide criteria and government-wide minimum due process procedures, and set forth other related details for the effective administration of the guidelines.

Sec. 7. The Director of the Office of Management and Budget shall report to the President within three years of the date of this Order on Federal agency compliance with the Order, including the number of exceptions made under Section 2(c), and shall make recommendations as are appropriate further to curb fraud, waste, and abuse.

Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment

This term and condition implements 2 CFR 200.216 and is effective for obligations and expenditures of EPA financial assistance funding on or after 8/13/2020. As required by 2 CFR 200.216, EPA recipients and subrecipients, including borrowers under EPA funded revolving loan fund programs, are prohibited from obligating or expending loan or grant funds to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities). Recipients, subrecipients, and borrowers also may not use EPA funds to purchase: a. For the purpose of public safety, security of government facilities, physical security surveillance of critical Page 4 of 29 infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities). b. Telecommunications or video surveillance services provided by such entities or using such equipment. c. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country. Consistent with 2 CFR 200.471, costs incurred for telecommunications and video surveillance services or equipment such as phones, internet, video surveillance, and cloud servers are allowable except for the following circumstances: a. Obligating or expending EPA funds for covered telecommunications and video surveillance services or equipment or services as described in 2 CFR 200.216 to: (1) Procure or obtain, extend or renew a contract to procure or obtain; (2) Enter into a contract (or extend or renew a contract) to procure; or (3) Obtain the equipment, services, or systems. Certain prohibited equipment, systems, or services, including equipment, systems, or services produced or provided by entities identified in section 889, are recorded in the System for Award Management exclusion list.

Appendix A

Wage Rate Requirements

The recipient agrees to include in all agreements to provide assistance for any construction project carried out in whole or in part with such assistance made available by a drinking water revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), a term and condition requiring compliance with the requirements of section 1450(e) of the Safe Drinking Water Act (42 U.S.C.300j-9(e)) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions All contracts and subcontracts for any construction project carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of \$2,000 the contract clauses as attached hereto entitled "Wage Rate Requirements Under The Clean Water Act, Section 513 and the Safe Drinking Water Act, Section 1450(e)." This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

Preamble

With respect to the Safe Drinking Water State Revolving Funds, EPA provides capitalization grants to each State which in turn provides sub grants or loans to eligible entities within the State. Typically, the sub recipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring sub recipients' compliance with the wage rate requirements set forth herein, those sub recipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the sub recipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring sub recipients' compliance with the wage rate requirements set forth herein, those sub recipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

Requirements Under The Consolidated Appropriations Act , 2017 (P.L. 115-31) For Sub recipients That Are Not Governmental Entities :

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under the FY2017 Consolidated Appropriations Act with respect to sub recipients that are not governmental entities. If a sub recipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. The recipient or sub recipient may also obtain additional guidance from DOL's web site at <http://www.dol.gov/whd/>

Under these terms and conditions , the sub recipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in

any solicitation, contract task orders , work assignments, or similar instruments to existing contractors.

1. Applicability of the Davis - Bacon (DB) prevailing wage requirements .

Under the FY 2017 Consolidated Appropriations Act, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a sub recipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the sub recipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations .

(a) Sub recipients must obtain proposed wage determinations for specific localities at www.sam.gov.

(b) Sub recipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the sub recipient shall monitor www.sam.gov on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The sub recipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the sub recipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the sub recipient.

(ii) If the sub recipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the sub recipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The sub recipient shall monitor www.sam.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the sub recipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the sub recipient shall insert the appropriate DOL wage determination from www.sam.gov into the ordering instrument.

(d) Sub recipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(e) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a sub recipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the sub recipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the sub recipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The sub recipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions .

(a) The Recipient shall insure that the sub recipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2017 Consolidated and Continuing Appropriations Act, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Sub recipients may obtain wage determinations from the U.S. Department of Labor's web site, www.sam.gov .

(ii)(A) The sub recipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the sub recipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the sub recipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the and the sub recipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request, and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs

reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The sub recipient(s) shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the sub recipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the sub recipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this

purpose from the Wage and Hour Division Web site at <http://www.dol.gov/whd/forms/wh347instr.htm> or its successor site.

The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the sub recipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sub recipient(s).

(B) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the

work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractors registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable

predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Sub recipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of \$100,000.

(a) Contract Work Hours and Safety Standards Act. The sub recipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$25 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The sub recipient shall upon the request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (a)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(c) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Sub recipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Sub recipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a) The sub recipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the

appropriate wage rates. As provided in 29 CFR 5.6(a)(3), all interviews must be conducted in confidence. The sub recipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The sub recipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Sub recipients must conduct more frequent interviews if the initial interviews or other information indicated that there is a risk that the contractor or subcontractor is not complying with DB. Sub recipients shall immediately conduct interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence."

(c). The sub recipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The sub recipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the sub recipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Sub recipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . In addition, during the examinations the sub recipient shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

(d). The sub recipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Sub recipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour

District Office listed at <http://www.dol.gov/whd/america2.htm>

Appendix B

FORMS



Disadvantaged Business Enterprise Program (DBE) Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE¹ subcontractors² and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name	
Bid /Proposal No.	Assistance Agreement ID No. (if known)		Point of Contact
Address			
Telephone No.	Email Address		
Issuing/Funding Entity:			

I have identified potential DBE certified subcontractors	<input type="checkbox"/> YES	<input type="checkbox"/> NO	
If yes, please complete the table below. If no, please explain:			
Subcontractor Name/ Company Name	Company Address/Phone/Email	Est. Dollar Amt.	Currently DBE Certified?

Continue on back if needed

¹A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

²Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award or financial assistance.



Disadvantaged Business Enterprise Program (DBE) Subcontractor Utilization Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Section 33.202 (c).

Prime Contractor Signature	Print Name
Title	Date



Disadvantaged Business Enterprise Program (DBE) Subcontractor Performance Form

This form is intended to capture the DBE¹ subcontractor's² description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractors bid or proposal package.

Subcontractor Name		Project Name	
Bid /Proposal No.		Assistance Agreement ID No. (if known)	Point of Contact
Address			
Telephone No.		Email Address	
Prime Contractor Name		Issuing/Funding Entity:	

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: <input type="checkbox"/> DOT <input type="checkbox"/> SBA <input type="checkbox"/> Other: _____		Meets/exceeds EPA certification standards? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Unknown

¹A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

²Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.



Disadvantaged Business Enterprise Program (DBE) Subcontractor Performance Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.202 (c).

Prime Contractor Signature	Print Name
Title	Date

Subcontractor Signature	Print Name
Title	Date



Disadvantaged Business Enterprise Program (DBE) Subcontractor Participation Form

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE¹ subcontractor² the opportunity to describe work received and /or report any concerns regarding the EPA-funded project (e.g. in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the DEP DBE Coordinator at any time during the project period of performance.

Subcontractor Name	Project Name	
Bid /Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity:	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Amount Received by Prime Contractor

¹A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

²Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.



Disadvantaged Business Enterprise Program (DBE) Subcontractor Participation Form

Please use the space below to report any concerns regarding the above EPA-funded project:

Subcontractor Signature	Print Name
Title	Date



PROGRESS REPORT OF DBE SUBCONTRACTOR UTILIZATION FORM

TO ENSURE PROMPT PAYMENT THE FOLLOWING INFORMATION MUST BE SUBMITTED WITH ALL REIMBURSEMENT REQUESTS WHETHER THEY INCLUDE INVOICED AMOUNTS FROM A QUALIFYING WBE OR MBE PARTICIPANT OR NOT:

Municipality/District: _____ SRF #: _____

Name of Project: _____ Contractor: _____

Contractor's Payment Request No. _____ Period covered by the request _____

The accompanying Reimbursement Request includes the following WBE/MBE participation:

Name & Address of WBE/MBE firm to be paid	WBE	MBE	Source of Certification, i.e., DOT, EPA or SBA	Amount to be paid this request	Type of Work

This attachment must be signed by an authorized representative of the contractor.

Signature: _____ Date: _____

Name: _____ Title: _____

Address: _____

Phone: _____ E-Mail: _____



Owner's Davis-Bacon Compliance Report

Project Name _____ **SRF Project #** _____

Project Owner: _____

Certified Payrolls Reviewed By: _____
(Printed name of Owner's Representative)

Employee interviews have been conducted in accordance with the contract requirements. Yes No

Prime Contractor: _____

Prime Contractor's Pay Application No: _____ (Note: Only one allowed per Compliance Report)

Application Period: From _____ **to** _____

Check one box and sign below:

- For the application period indicated, there were no certified payrolls reported because there were no workers on the site that were subject to the Davis-Bacon and Related Acts.
- For the application period indicated, the certified payrolls are in compliance with the Davis-Bacon and Related Acts.
- For the application period indicated, the certified payrolls are not in compliance with the Davis-Bacon and Related Acts. A Compliance Report for the corrective action will be submitted ASAP.

Summary of noncompliant findings and follow up actions needed:

Owner's Representative Signature
Page 1 of _____

Date



Owner's Davis-Bacon Compliance Report

List all weekly certified payrolls for the application period:



BUILD AMERICA, BUY AMERICA (BABA) ACT

In Title IX of the IIJA, Congress passed the Build America, Buy America (BABA) Act, which establishes strong and permanent domestic sourcing requirements across all Federal financial assistance programs for infrastructure.

By May 14, 2022, agencies must ensure that all applicable programs comply with section 70914 of the Act, including by the incorporation of a Buy America preference in the terms and conditions of each award with an infrastructure project. The Act requires the following Buy America preference:

- (1) All iron and steel used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
- (2) All manufactured products used in the project are produced in the United States. This means the manufactured product was manufactured in the United States, and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation.
- (3) All construction materials are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

Waivers

When necessary, recipients may apply for, and the agency may grant, a waiver from these requirements. The agency should notify the recipient for information on the process for requesting a waiver from these requirements. When the Federal agency has made a determination that one of the following exceptions applies, the awarding official may waive the application of the domestic content procurement preference in any case in which the agency determines that:

- (1) applying the domestic content procurement preference would be inconsistent with the public interest;
- (2) the types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality; or
- (3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.

The nationwide waiver to the BABA law permits the use of products when they occur in de minimis components of such projects funded by the Act that may otherwise be prohibited under the Act. Funds used for such de minimis components cumulatively may comprise no more than a total of 5 percent of the total cost of the project. The Contractor is required to provide the necessary documentation. Owners should, in consultation with their contractors, determine the items to be covered by this waiver, must retain relevant documentation (i.e., invoices) as to those items in their project files, and must summarize in reports the types and/or categories of items to which this waiver is applied, the total cost of incidental components covered by the waiver for each type or category, and the calculations by which they determined the total cost of the project. The Owner shall maintain files on the project site for this documentation. The files shall be made available to State and Federal officials for inspection upon request.



**CERTIFICATION BY THE OWNER
OF COMPLIANCE WITH THE
USE OF BUILD AMERICA, BUY AMERICA ACT
enacted on May 14, 2022**

(To be attached to each Utility Construction SRF requisition submitted for payment)

We, the Owner named, _____, having obtained funding from the State of Maine, State Revolving Fund (SRF), for the Utility Construction Project named _____, hereby submit to the SRF program, certification from each contractor working on the Utility Construction Project that the use of Domestic Content Procurement in the construction of the project complies with the law, or that a waiver has been obtained from the U.S. Environmental Protection Agency. Thereby, it is to the best of the Owner's knowledge that the Project is in compliance with the Build America, Buy America Act..

Signature of Official

Printed name

Date

Attachment: Certification by Contractor



**CERTIFICATION BY CONTRACTOR
OF COMPLIANCE WITH THE
USE OF BUILD AMERICA, BUY AMERICA ACT
enacted on May 14, 2022**

(To be attached to each Utility Construction payment application)

We, the Prime Contractor and Subcontractors, as named below, hereby certify that the use of domestically procured iron, steel, manufactured products, and construction materials in the construction of the Project named _____, being requested in the Utility Construction payment application (or invoice) # _____ and dated _____, complies with the Build America, Buy America Act, or that a waiver been obtained from the U.S. Environmental Protection Agency.

Prime Contractor Name: _____

Signature of Official

Printed name

Date

Subcontractor Name

Signature of Official

Date

State Revolving Fund (SRF)

The EPA has issued a public interest waiver for De Minimis components. An Owner wishing to use this waiver should consult with their contractor(s) to maintain an itemized list to track the components covered under De Minimis. The Owner may create their own format for the list or use this sample form.

Owner:

Loan #:

Project Name: _____

Products that qualify for a *de minimis* waiver cumulatively may comprise no more than a total of five percent of the total project cost. The five percent threshold can be used for any products, independent on the purpose of the project. This waiver is not additive with the existing American Iron and Steel national *de minimis* waiver. The EPA will review this waiver every five years after the date on which the waiver is issued (Current waiver issued Oct. 21, 2022).

Total Cost of Project:

5% Limit:

Use additional sheets as necessary

Total Cost of Components deemed to be De Minimis:

Completed by:

Company:

Title:

Signature:

Date:

SUBMISSION OF FINAL DBRA CERTIFIED PAYROLL FORM

PRIME CONTRACTOR

SUBCONTRACTOR

While use of Form WH-347 itself is optional, covered contractors and subcontractors performing work on Federal or federally assisted construction contracts are required by the DBRA regulations and the contract clauses to submit payroll information on a weekly basis. The Copeland Act (40 U.S.C. § 3145) requires contractors and subcontractors performing work on Federal or federally financed construction contracts to, on a weekly basis, "furnish a statement on the wages paid each employee during the prior week." U.S. Department of Labor (DOL) Regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors and subcontractors to submit weekly certified payrolls to the appropriate Federal agency if the agency is a party to the contract (or, if the agency is not such a party, to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the Federal agency). Each certified payroll must be accompanied by a signed "Statement of Compliance" (e.g., page 2 of the WH-347 or another document with identical wording) indicating that the certified payrolls are accurate and complete, and that each laborer or mechanic has been paid not less than the required Davis-Bacon prevailing wage rate(s) (including any fringe benefits) for the work performed. DOL and contracting agencies receiving this information review the information to determine whether workers have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that it will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room S3502, 200 Constitution Avenue, N.W., Washington, D.C. 20210. (over)

PROJECT NAME		PROJECT NO. or CONTRACT NO.		PAYROLL NO.		PRIME CONTRACTOR'S/SUBCONTRACTOR'S BUSINESS NAME							
PROJECT LOCATION				WEEK ENDING DATE		CERTIFYING OFFICIAL'S NAME AND TITLE							
I paid or supervised the payment of the laborers or mechanics working on the above project during the stated time period. I certify the following:													
<input type="checkbox"/>	The payroll information submitted with this statement is correct and complete for the above project during the above period, and the wage and fringe benefit rates paid to the workers, including credit taken for the reasonably anticipated costs of a bona fide fringe benefit plan, fund or program, are not less than the applicable wage and fringe benefits rates for the classification(s) of work actually performed, as specified in the wage determination(s) incorporated into the contract.												
<input type="checkbox"/>	All regular payrolls and all other basic records that the contractor is required to maintain for this payroll period are complete and accurate and will be made available upon request from the agency or the Department of Labor.												
<input type="checkbox"/>	The classifications reported for each laborer or mechanic are the classification(s) of work that each worker actually performed.												
<input type="checkbox"/>	Any workers paid as apprentices during the above period are duly registered in a bona fide apprenticeship program registered with the Office of Apprenticeship, Employment and Training Administration, United States Department of Labor ("OA"), or a State Apprenticeship Agency ("SAA") recognized by Department of Labor. I have verified the registered apprenticeship program information provided below as accurate and applicable to any apprentices identified on page 1 of this form.												
APPRENTICESHIP PROGRAM NAME				REGISTERED		NAME OF LABOR CLASSIFICATION							
				<input type="checkbox"/> OA	<input type="checkbox"/> SAA								
				<input type="checkbox"/> OA	<input type="checkbox"/> SAA								
				<input type="checkbox"/> OA	<input type="checkbox"/> SAA								
<input type="checkbox"/>	Fringe benefits have been paid in cash and/or to bona fide fringe benefit plans, funds, or programs. Where the contractor is claiming an hourly credit for their contributions to or reasonably anticipated costs of a bona fide fringe benefit plan, fund, or program, provide plan information and the hourly credit claimed for each worker listed on the previous page of this form.												
HOURLY CREDIT FOR FRINGE BENEFITS													
<i>If an amount is listed in (6B) on the first page of this certified payroll form, enter the hourly credit claimed under each plan name, type and number for each worker and check whether the plan is funded or unfunded.</i>													
NAME OF WORKER	FB NAME		FB NAME		FB NAME		FB NAME		FB NAME		FB NAME		TOTAL HOURLY CREDIT
	FB TYPE		FB TYPE		FB TYPE		FB TYPE		FB TYPE		FB TYPE		
	PLAN NO.		PLAN NO.		PLAN NO.		PLAN NO.		PLAN NO.		PLAN NO.		
	<input type="checkbox"/> Funded	<input type="checkbox"/> Unfunded	<input type="checkbox"/> Funded	<input type="checkbox"/> Unfunded	<input type="checkbox"/> Funded	<input type="checkbox"/> Unfunded	<input type="checkbox"/> Funded	<input type="checkbox"/> Unfunded	<input type="checkbox"/> Funded	<input type="checkbox"/> Unfunded	<input type="checkbox"/> Funded	<input type="checkbox"/> Unfunded	
	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	
	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	
	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	
	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	
	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	
	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	
Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$		
Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$	Hourly Credit	\$		
<input type="checkbox"/>	All workers on the project have been paid the full weekly wages earned, and no rebates or deductions have been or will be made either directly or indirectly, other than permissible deductions as defined in 29 CFR part 3.												
ADDITIONAL REMARKS													
SIGNATURE OF CERTIFYING OFFICIAL				DATE		TELEPHONE NUMBER			EMAIL ADDRESS				
						() - - -							
THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION (SEE SECTION 1001 OF TITLE 18 AND SECTION 3729 OF TITLE 31 OF THE UNITED STATES CODE), AS WELL AS DEBARMENT FROM FUTURE FEDERAL AND FEDERALLY-ASSISTED CONTRACTS. INFORMATION REPORTED IN CERTIFIED PAYROLLS MAY BE SUBJECT TO DISCLOSURE IN RESPONSE TO A FREEDOM OF INFORMATION ACT REQUEST.													

Appendix C
PROJECT SIGN

See sign detail in Section 02210.

"General Decision Number: ME20260009 01/02/2026

Superseded General Decision Number: ME20250009

State: Maine

Construction Type: Building

County: Kennebec County in Maine.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Modification Number Publication Date
0 01/02/2026

BRMA0003-013 05/01/2025

	Rates	Fringes
BRICKLAYER.....	\$ 43.91	28.47

IRON0007-034 09/16/2025

	Rates	Fringes
IRONWORKER (ORNAMENTAL AND REINFORCING).....	\$ 33.65	26.27

LAB00327-003 12/01/2023

	Rates	Fringes
LABORER: Common or General (Industrial Work Only).....	\$ 21.90	19.72

SUME2014-018 01/31/2017

	Rates	Fringes
CARPENTER, Includes Drywall Hanging, and Metal Stud Installation.....	\$ 19.42	11.52
CEMENT MASON/CONCRETE FINISHER....	\$ 16.13	3.82
DRYWALL FINISHER/TAPER.....	\$ 16.84	2.87
ELECTRICIAN.....	\$ 25.13	9.57
ELEVATOR MECHANIC.....	\$ 48.22	24.95
IRONWORKER, STRUCTURAL.....	\$ 18.84	1.81
LABORER: Common or General.....	\$ 15.49	7.07
LABORER: Mason Tender - Brick....	\$ 18.33	2.01
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 20.42	3.12
OPERATOR: Crane.....	\$ 23.98	7.46

PAINTER (Brush and Roller).....\$ 15.86	2.66
PLUMBER, Includes HVAC Pipe Installation.....\$ 20.08	3.70
SHEET METAL WORKER, Includes HVAC Duct Installation.....\$ 16.97	1.92
TRUCK DRIVER: Dump Truck.....\$ 14.79	2.53

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical

order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than "'SU'", "'UAVG'", '?SA?', or '?SC?' denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The "'SU'" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The "'SA'" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the

interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

=====

END OF GENERAL DECISION

"



United States
ENVIRONMENTAL PROTECTION AGENCY
Washington, DC 20460

OMB Control No. 2030-0020
Approval expires 06/30/2024

This collection of information is approved by OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. (OMB Control No. 2030-0020). Responses to this collection of information are required to obtain an assistance agreement (40 CFR Part 30, 40 CFR Part 31, and 40 CFR Part 33 for awards made prior to December 26, 2014, and 2 CFR 200, 2 CFR 1500, and 40 CFR Part 33 for awards made after December 26, 2014). An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The public reporting and recordkeeping burden for this collection of information is estimated to be 0.25 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the Regulatory Support Division Director, U.S. Environmental Protection Agency (2821T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

EPA Project Control Number

CERTIFICATION REGARDING LOBBYING

CERTIFICATION FOR CONTRACTS, GRANTS, LOANS AND COOPERATIVE AGREEMENTS

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including sub-contracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31 U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Typed Name & Title of Authorized Representative

Signature and Date of Authorized Representative

**DIVISION 1
GENERAL REQUIREMENTS**

Summary of Work	01010
Abbreviations and Symbols	01030
Substitutions or “Or-Equal” Items	01106
Measurement and Payment	01150
Bid Item Descriptions	01151
Payment Application	01160
Submittals	01300
Quality Control	01400

SECTION 01010
SUMMARY OF WORK

01010.01 LOCATION OF WORK

All work under this contract is located in **Waterville, Maine.**

01010.02 SUPPLY OF MATERIALS

The Contractor shall supply all materials required for the completion of this project.

01010.03 WORK UNDER THIS CONTRACT

Work under this contract is generally described as follows:

Building renovations, site improvements, replacing pumps, piping, valves, and controls and adding a generator. Work includes all temporary piping and pumping measures needed.

01010.04 LOCATION

The work is located at the existing pump station at 8 Chase Avenue in Waterville, Maine.

SECTION 01030
ABBREVIATIONS AND SYMBOLS

01030.01 GENERAL

The following abbreviations may be used in these contract documents:

AASHTO	American Association of State Highway and Transportation Officials	FRP	Fiber Reinforced Plastic
AC	Asbestos-Cement (transite)	GFI	Ground Fault Interrupter
ACI	American Concrete Institute	gpd	Gallons Per Day
AISC	American Institute of Steel Construction	gpm	Gallons Per Minute
ANSI	American National Standards Institute	HDPE	High Density Polyethylene
ARRA	American Recovery & Reinvestment Act-2009	ISA	Instrument Society of America
ASA	American Standards Association	MDOT	Maine Department of Transportation
ASCE	American Society of Civil Engineers	MGD	Million Gallons Per Day
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers	MJ	Mechanical Joint
ASME	American Society of Mechanical Engineers	MUTCD	Manual of Uniform Traffic Control Devices
ASTM	American Society for Testing and Materials	NEC	National Electrical Code
AWWA	American Water Works Association	NEMA	National Electrical Manufacturers Association
cfm	Cubic Foot Per Minute	NPT	National Pipe Thread
cfs	Cubic Foot Per Second	NRS	Non-Rising Stem
CI	Cast Iron	O.C.	On Center
CJ	Control Joint	OSHA	Occupational Safety & Health Administration
CMP	Corrugated Metal Pipe	OS&Y	Outside Screw and Yoke
CMU	Concrete Masonry Unit	PCA	Portland Cement Association
CPE	Corrugated Polyethylene	PE	Polyethylene
CPVC	Chlorinated Polyvinyl Chloride	ppm	Parts Per Million
DIPRA	Ductile Iron Pipe Research Association	psi	Pounds Per Square Inch
DIPS	Ductile Iron Pipe Size	psig	Pounds Per Square Inch Gage
CRSI	Concrete Reinforcing Steel Institute	PVC	Polyvinyl Chloride
CSI	Construction Specifications Institute	RECD	Rural Economic and Community Development (now called USDA-Rural Development)
CTS	Copper Tube Size	RCP	Reinforced Concrete Pipe
DEP	Maine Department of Environmental Protection	SF	Square Feet
DHHS	Maine Department of Health and Human Services	SS	Stainless Steel
DI	Ductile Iron	UD	Underdrain
EPA	U.S. Environmental Protection Agency	U.L.	Underwriters Laboratory
F.M.	Factory Mutual	VC	Vitrified Clay
FmHA	Farmers Home Administration (now called USDA-Rural Development)		
fps	Feet Per Second		

Where reference is made to a publication by one of the above mentioned or other association, it is understood that the latest revisions thereof shall apply unless otherwise designated. In case of conflict, the contract documents will take precedence over the above references.

SECTION 01106
SUBSTITUTIONS OR "OR-EQUAL" ITEMS

01106.01 GENERAL

This specification supplements the substitutions section of the general conditions.

01106.02 MATERIALS AND EQUIPMENT

Whenever materials or equipment are specified or described in the contract documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other suppliers may be accepted by ENGINEER if sufficient information is submitted by CONTRACTOR to allow ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named.

The procedure for review by ENGINEER will include the following as supplemented in the general conditions. Requests for review of substitute items of material and equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use 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 work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by ENGINEER in evaluating the proposed substitute. ENGINEER may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute.

01106.03 MEANS, METHODS, TECHNIQUES AND PROCEDURES

If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the contract documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to ENGINEER, if CONTRACTOR submits sufficient information to allow ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the

contract documents. The procedure for review by ENGINEER will be similar to that provided in paragraph 01106.02 as applied by ENGINEER and as may be supplemented in the general conditions.

01106.04 ENGINEER'S REVIEW OF SUBSTITUTIONS

ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. ENGINEER will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute. ENGINEER will record time required by ENGINEER and ENGINEER's consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the contract documents occasioned thereby. Whether or not ENGINEER accepts a proposed substitute, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's consultants for evaluating each proposed substitute.

**SECTION 01150
MEASUREMENT AND PAYMENT**

01150.01 GENERAL

This section shall supplement the Payments to Contractor section of the General Conditions. If a conflict exists between the two sections, the General Conditions shall take precedence over this section.

01150.02 SCOPE OF PAYMENT

The Contractor shall accept compensation, as herein provided, in full payment for furnishing all materials, labor, tools, equipment, testing, cleanup and incidentals necessary to the completed work and for performing all work contemplated and embraced by the contract; also for all loss or damage arising from the nature of the work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work and until its final acceptance by the Engineer, and for all risks of every description connected with the prosecution of the work, except as provided herein, also for all expenses incurred in consequence of the suspension of the work as herein authorized.

Contractual costs for work not specifically mentioned under a payment item and which are incidental to the overall conduct of the work shall be included in individual items at the Contractor's option. No additional charges shall be made to the Owner for items not specifically mentioned under individual payment items. Examples of these types of costs are, but not limited to, the following: bonds, insurance, mobilization, demobilization, permits, licenses, temporary offices, restoration of disturbed areas, traffic control, temporary facilities, temporary connections, cleanup, erosion control, temporary drainage, temporary utilities, temporary water and sewer utilities, surveying, layout, handling of water, erosion during construction, signs and other items similar to the above. This includes incidental work items noted on the drawings but not specifically mentioned under a pay item.

All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and as interpreted by the Engineer.

01150.03 PARTIAL PAYMENTS

As the work progresses, partial payments shall be made to the Contractor as described in the General Conditions. All partial invoices and payments shall be subject to correction in the final quantity invoice and payment. Applications shall be made on the forms in 01160 or on other forms approved by the Engineer.

The partial payments will be based upon invoices approved by the Engineer for the value of the work performed, and materials complete in place in accordance with the contract. The total amount so ascertained will be reduced as described in the General Conditions. The reduced amount will be certified for payment, and the balance will be retained by the Owner until after completion of the entire contract.

The payment of any partial estimate or of any retained percentage shall not affect the obligation of the Contractor to repair or renew any defective parts of the construction or to be responsible for all damage due to such defects.

01150.04 PREPARATION OF PARTIAL PAYMENT ESTIMATES

At the end of each partial payment period, the Contractor's authorized representative shall meet with the Engineer's representative and determine and agree upon quantities of unit price work accomplished and/or completed during the partial payment period.

For payment once each month the Contractor will prepare a monthly requisition form which shall be signed by both the Engineer and the Contractor's representative indicating complete agreement and approval of quantities listed. These completed forms will provide the basis of the Engineer's monthly quantity estimate upon which payment will be made.

01150.08 FINAL PAYMENT

The Engineer shall make, as soon as practicable after the completion of the project, final measurements, and prepare a final quantity invoice of the amount of work performed under the contract and the value of such work. The final quantity invoice shall be accompanied by a change order that will adjust the contract units so that the final contract amount is equal to the amount of work performed. The Owner shall then pay the entire sum found to be due, after deducting all previous payments and all amounts to be retained or deducted under the provisions of the contract. The retained amounts may be held by the Owner for a period of thirty (30) days after the completion of the final quantity invoice, or until such time as the Contractor submits satisfactory evidence that all bills for labor and materials used under this contract have been paid and all required documents submitted to the Engineer.

Completed Final Lien Waivers shall be submitted from all subcontractors and suppliers prior to reduction of project retainage to less than 5%. Final lien waiver form is included in this section.

01150.09 DESCRIPTION OF PAY ITEMS

Section 01151 describes the measurement of and payment for the work to be done under the respective items listed in the BID SCHEDULE.

Final Lien Waiver

Project Owner :

Address :

Project Name :

Subcontractor/Supplier :

Address :

Contractor :

Address :

The undersigned hereby certifies to the following:

- 1.) Subcontractor/Supplier has been employed by the Contractor listed above to supply work, materials or equipment for the above described project.
- 2.) Subcontractor/Supplier has received final payment from Contractor for all work, materials or equipment for the above described project.
- 3.) Subcontractor/Supplier has no liens against Contractor or Owner.

The undersigned hereby waives any and all liens or rights thereto arising out of said work, materials or equipment.

Date :

Signature :

Printed Name/Title :

Subcontractor/Supplier :

STATE OF MAINE

, SS.

, 20____

Personally appeared the above-named _____, and
acknowledged the foregoing instrument to be his/her free act and deed.

Before me,

Notary Public/Attorney-At-Law

Print Name: _____

Commission Expires: _____

**SECTION 01151
BID ITEM DESCRIPTIONS**

01151.01 GENERAL

This section supplements Section 01150 and contains a description of the respective items listed in the BID SCHEDULE. If a conflict exists between this section and any Technical Specification (Divisions 2-16) the Technical Specifications shall take precedence over this section. Each unit or lump sum price stated in the BID SCHEDULE shall constitute full compensation, as herein specified, for each item of the work completed.

Definition – For the purpose of this specification section “**site work**” is defined as: layout, coordination with all utilities, traffic control, dust control, erosion control, site preparation, pavement cutting, excavation, shoring, dewatering, bedding material, backfilling, compaction, surface grading, gravel surface restoration where applicable, loam and seed surface restoration where applicable, cleanup, site restoration including reinstallation and resetting of any structures or vegetation disturbed during construction, and compliance with all applicable environmental permit conditions and related regulations.

01151.02 BID ITEM DESCRIPTIONS

Item 1 – Mobilization & Demobilization

This item includes all labor, materials and equipment required to mobilize all equipment, materials and resources to the project site upon project start-up. This includes bonds, insurance, all signage, safety equipment, machinery, etc. This also includes all labor, materials and equipment required to demobilize at the completion of the project. This includes removal of equipment, safety devices, signage, etc. This item also includes all dust control needed during the project.

Payment for this item shall be at the lump sum price agreed upon in the bid schedule. Partial Payments shall be as follows:

Mobilization	60%
Demobilization	40% at final completion of project

Item 2 – Chase Avenue Pump Station Upgrades Complete

This item includes all labor, materials and equipment required to upgrade the Chase Avenue Pump Station Complete as shown on the Plans and described the Contract Documents. This includes building renovations, site improvements, pumps, piping, controls, electrical, temporary pumping and controls systems, temporary power systems as needed, new generator, startup, testing, commissioning, etc.

Payment shall be at the lump sum price in the bid schedule. Partial payment shall be based on the percentage of work satisfactorily completed. Final payment is contingent upon receipt of all lien waivers, record drawings, equipment operations and maintenance manuals, and any and all documentation required by the Owner or Agency.

Item 3 – Electric Utility Costs Allowance

This item is an allowance for paying any and all costs and fees by the local electric utility for modifying or extending primary/secondary power to the site including poles, guys, conductors, transformer and service. All invoices shall be paid by the Contractor (with no markup) and reimbursed through this allowance. The allowance will be adjusted to match the actual cost by a final balancing change order. Coordinating and scheduling the work with the electric utility is incidental to the pump station bid item.

Electric utility meters that are billed to the owner will be paid by the owner. If any temporary service meters are billed to the Contractor they can be reimbursed at cost under this pay item.

Item 4 – SCADA Panel and PLC Programming Allowance

This item is an allowance for paying for the SCADA Panel any and all programming costs for the local PLC and for modifying offsite SCADA systems for control and monitoring of this pump station. The Contractor shall buy the SCADA Panel from the Districts approved SCADA contractor. The Contractor shall install the SCADA panel as shown on the plans. Programming shall be done by the District's SCADA contractor. All invoices (for purchasing the panel and programming) shall be paid by the Contractor (with no markup) and reimbursed through this allowance. The allowance will be adjusted to match the actual cost by a final balancing change order. Coordinating and scheduling the work with the District's SCADA contractor is incidental to the pump station bid item. Installing the SCADA panel and interfacing with all field devices shown and specified is incidental to the pump station bid item.

Additive Alternate Item A.1 – Stainless Steel Interior Piping In lieu of Ductile Iron Piping

This item includes all labor, materials and equipment required to install Schedule 10 304 Stainless Steel Piping (per specification 15195) in lieu of the flanged ductile iron piping shown on the plans. Note that a negative bid price for this item would indicate a cost savings to the KWD for the piping to be SS instead of DI. This item includes design submittal drawings showing the proposed SS piping arrange and all required fittings, accessories, etc, needed for a complete system.

If the Owner elects to utilize this additive alternate this bid price will be paid in addition to Bid Item 2. This item is for interior piping only on the interior side of the two 8" ductile iron 90-degree bends where the pipe enters and exists the pump station.

PAYMENT APPLICATION NO.**Project -**Page of Date Owner:

 Contractor:

 SUMMARY OF APPROVED CHANGE ORDERS

No. Date Amount

1
2
3**Total**

I certify the amounts stated on this Application for work completed and materials stored are true and in accordance with the Contract, and that the current payment shown herein is now due. I further certify that I have paid all amounts stated on previously certified applications for which payment has been received from the OWNER.

By: _____ Date : _____
Contractor

In accordance with the Contract Documents (based on on-site observations and the data comprising this application) the ENGINEER states that he has reviewed this application and that to the best of his knowledge, information and belief the work is in accordance with the Contract Documents and the CONTRACTOR is entitled to the Current Payment Due.

By: _____ Date : _____
Dirigo Engineering

The review and acceptance of partial pay estimates by Owner or AGENCIES does not attest to the correctness of the quantities shown or that the work has been performed in accordance with the contract documents.

By: _____ Date : _____
OwnerBy: _____ Date : _____
Funding AgencyBy: _____ Date : _____
Funding Agency**STATEMENT OF THE CONTRACT ACCOUNT**

Pay Period _____ to _____

Contract Signing Date _____
Contract Completion Date _____

Original Contract Sum _____

Total of Change Orders _____

Adjusted Contract Sum _____

Previous Applications _____
Work Completed _____
Retainage _____
Total of Payments _____**Current Application** _____
Work Completed _____
Retainage _____
Current Payment Due → _____Total of All Applications _____
Work Completed _____
Retainage _____
Total of Payments To Date _____**SUMMARY OF PROJECT PAYMENTS**

No. Date Amount

1

Total _____

PAYMENT APPLICATION NO.

Page ____ of ____

Project -

Date _____

- 1 -

PAYMENT APPLICATION NO.

MATERIALS ON SITE SUMMARY

Page ____ of ____

Project -

Date _____

— — — — —

CHANGE ORDER NO.**Project -** _____

Page ____ of ____

Date _____

Owner: _____

_____Contractor: _____

_____**The CONTRACTOR is hereby directed to make the following changes to the above named contract:****Total Change this Change Order****\$** -

CONTRACT STATUS	CHANGE ORDER ACCEPTANCE
Contract Signing Date	By: _____ Date : _____
Current Completion Date	Owner: _____
Days added this Change Order	By: _____ Date : _____
The new date of completion is	Contractor: _____
Original Contract Sum	By: _____ Date : _____
Total of Prior Change Orders	Engineer : Dirigo Engineering
Current Contract Sum Prior	By: _____ Date : _____
Change this Change Order	Funding Agency
New Contract Sum	By: _____ Date : _____

SECTION 01300 SUBMITTALS

01300.01 GENERAL

Submit to the Engineer shop drawings, project data and samples for all products, materials and equipment proposed for the completed project. A 14-day review period will be required for all submittals. Review of submittals is for general compliance with the contract documents. No responsibility is assumed by the Engineer for the correctness of dimensions or details.

Review of submittals by the Engineer shall not relieve the Contractor from responsibility for any variation from the requirements of the contract documents unless the Contractor has in writing called the Engineer's attention to each such variation at the time of submission and the Engineer has given written approval of each such variation by a specific written notation thereof. The Engineer's review of submittals shall not relieve the Contractor from responsibility for errors or omissions in the shop drawings.

Electronic copies of submittals are acceptable if they are in pdf format and legible. If submitting paper submittals, four (4) copies are required. Illegible copies will be rejected.

01300.02 SHOP DRAWINGS, PROJECT DATA, SAMPLES

All submittals shall bear a note and signature indicating that they were reviewed by the Contractor and found to be in conformance with the contract documents.

Any material or equipment submitted for review which is arranged differently or is a different physical size from that shown or specified shall be accompanied by shop drawings indicating the different arrangements of size and the method of making the various connections to the equipment. The final result will be compatible with the system or structure as designed.

Submittals for minor materials and equipment may be waived with the written approval of the Engineer.

01300.03 REQUIRED SUBMITTALS

A. Construction Schedule:

Submit a time schedule, showing complete sequence of construction by activity, prior to commencement of work. Update the schedule monthly showing changes occurring since previous submission.

Distribute copies of reviewed schedules to subcontractors and other concerned parties. Instruct recipients to report any inability to comply and provide detailed explanation with suggested remedies.

B. Blasting and Hazardous Materials Containment & Disposal Plan

SECTION 01400
QUALITY CONTROL

01400.01 GENERAL

The Contractor shall at all times be responsible for maintaining all disturbed areas of the job site. This is to include periods of work suspended due to cold weather. When the Owner recognizes defective conditions he shall notify the Engineer who will in turn notify the Contractor. The Contractor will be given a reasonable amount of time, depending on the degree of the problem, to correct the condition. Examples of defective conditions shall include, but not necessarily be limited to, trench settlement, erosion, pot holes, washouts, etc.

01400.02 CONSTRUCTION MATERIALS

It is the Contractor's sole responsibility to provide and use only new materials, new products and new equipment that meet the requirements of the plans and specifications and will result in a completed project that is durable and of high quality in all respects. The Engineer may request samples of any material that the Contractor proposes to use. Such samples shall be of sufficient size and quantity to allow appropriate testing of the sample. The Owner shall bear all cost of obtaining and providing such sample. The Owner shall bear all cost of testing the sample. However, if testing shows that a sample does not meet the requirements of the plans and specifications, the Contractor shall reimburse the Owner for all costs incurred by the Owner as a result of testing the sample.

The Contractor shall provide equipment and parts from a single manufacturer to the greatest extent possible. This is to facilitate ease of service, maintenance and parts replacement. Engineer reserves the right to reject proposed equipment from various manufacturers if suitable materials are available from fewer manufacturers, and to require that source of materials be unified to the maximum extent possible.

01400.03 CONSTRUCTION REVIEW

The Owner or Engineer or his representative will provide whatever Construction Review that he feels is necessary. Such Construction Review in no way reduces the Contractor's responsibility for supervision or quality control. The Contractor shall cooperate fully in the Owner's or Engineer's Construction Review efforts. The Contractor shall keep the Engineer informed of work in progress as well as the schedule of work to be done. The Contractor shall allow complete access to the project by the Owner, Engineer, and any representatives of any regulatory or funding agencies. The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

01400.04 TESTING

The Contractor shall perform all testing specified in the contract documents unless the test is specifically noted to be done by the Owner or Engineer. The Contractor shall notify the Engineer at least 48 hours in advance of any proposed testing and obtain approval for the proposed testing time. Testing times must be coordinated with the Engineer. In general, Fridays and weekends are not acceptable times for testing.

DIVISION 2
SITE WORK

General

Potable Water Contact	02001
Existing Utilities	02020
Traffic Control	02030
Dust Control	02050

Sitework

Earth Work	02101
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Structures

Project Sign	02210
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Miscellaneous

Trench Insulation	02551
Geotextiles	02560

Surfacing

Bituminous Pavement	02605
Loam and Seed	02670

Water Systems

Ductile Iron Pipe	02701
Temporary By-Pass Pumping	02709
Couplings	02717
Water Main Testing	02720
Water Main Disinfection	02721

SECTION 02001
POTABLE WATER CONTACT

02001.01 GENERAL

All components and materials that will be in contact with the finish water when the project is complete shall be certified to be in compliance with ANSI/NSF Standard 61. This includes but is not limited to piping, valves, fittings, pumps, tanks, meters, and other appurtenances, etc.

Documentation of NSF 61 compliance shall be submitted with material submittals per Section 01300.

SECTION 02020 EXISTING UTILITIES

02020.01 DEFINITIONS

“utilities” - is defined in Section 02020 as physical property such as pipes, cables or structures used for water, sewer, storm drain, electrical, telephone, communications, cable TV, etc. This also includes signs, sign posts, light posts, fences, etc. This does not include individual house sewer services or water services.

“Association” - is defined in Section 02020 as public or private organizations which own, maintain or service “utilities.”

02020.02 GENERAL

The Contractor is required by law to contact Dig Safe and local water/sewer “Associations” at least 3 business days prior to beginning any excavation work. The Dig Safe telephone number is 1-888-DIG-SAFE.

The Engineer has made a careful attempt to locate all existing “utilities” that are in the area of the project. These are shown on the Contract Drawings. Interferences that are shown on the Contract Drawings shall be corrected at the Contractor's expense. The locations of the existing utilities shown on the plans were compiled from field survey and various other sources. Locations are approximate and not guaranteed to be accurate nor is it guaranteed that all utilities are shown.

02020.03 WATER MAINS, SEWER MAINS AND UNDERGROUND CABLES

Prior to starting work on any portion of the project the Contractor shall give sufficient notice to all applicable “Associations” so that they may mark the location of their “utilities.” The Contractor shall also inspect the area to verify the location of “utilities” shown on the plans and to check for any oversights or discrepancies. If “utilities” are located which are not shown on the plans, the Contractor shall notify the Engineer so that adjustments can be made if necessary to eliminate any conflict with the new work.

The Contractor shall follow responsible excavation practices at all times. When approaching a buried “utility,” manual excavation shall be used to locate them. It is the Contractor's responsibility to provide undisturbed maintenance for all structures that may be affected by the excavation. This includes structures both above and below grade. In instances where excavations are made in close proximity to utility poles or other structures, it shall be the contractor's responsibility to notify the “Associations” and to provide support for the poles while the excavation is being done. Any costs associated with this shall be borne by the Contractor.

If “utilities” are interrupted, the Contractor shall immediately notify the “Association.” The “Association” shall inspect the damage and make suitable repairs or instruct the Contractor to make suitable repairs. If a “utility” is shown on the drawings, located by an “Association” or could have been located by the Contractor by a simple inspection of the site, then the cost of any needed repairs, including materials and labor shall be borne by the

Contractor. If a "utility" not shown on the plans, not located by an "Association" or not able to be located by the Contractor by a simple site inspection is accidentally damaged, the cost of repairs shall be borne by the Owner.

In all cases, satisfactory backfilling and maintenance of the trench is the Contractor's responsibility. The Engineer and the "Association" shall inspect all repairs by the Contractor to broken or damaged "utilities." Approval of the repairs must be obtained by the Contractor prior to covering the work. The Contractor shall remain responsible for the integrity of broken "utilities" even after the work has been backfilled. The Owner has complete authority to stop work if the Contractor is doing excessive damage to "utilities," appropriate repairs are not being made, or other precautions are not being taken to minimize damage to existing "utilities."

The Contractor shall not make any claims against the Owner for delays in the progress of his work that are less than one day in duration and are caused by an interference not shown on the Contract Drawings. A delay shall exist when the work cannot progress because of an interference and no other work on the project is available for the men and machinery at that time. If the delay lasts more than one day, the Contractor may be compensated, based on hourly payroll and equipment rental rate, by the Owner for the actual costs for each day after the initial day. Compensation will not be based on the amount of work that might have been accomplished.

02020.04 OVERHEAD UTILITIES, UTILITY POLES, SIGNS AND SIGN POSTS

The Contractor shall follow responsible excavation practices at all times. When approaching an overhead "utility", caution shall be used to avoid damage. It is the Contractor's responsibility to provide undisturbed maintenance for all structures that may be affected by the excavation. This includes structures both above and below grade. In instances where excavations are made in close proximity to utility poles or other structures, it shall be the Contractor's responsibility to notify the "Associations" and to provide support for the poles while the excavation is being done. Any costs associated with this shall be borne by the Contractor.

Do not remove structures without receiving approval of party having jurisdiction. Reinstall structures to satisfaction of party having jurisdiction.

02020.05 INDIVIDUAL SERVICES

No effort has been made by the Engineer to show existing individual "utility" services. The Contractor shall assume that each structure along the route of the work has at least one set of "utility" services. The Contractor shall make no claims against the Owner for services not shown on the Contract Drawings.

The Contractor shall be responsible for locating all existing sewer and water services prior to excavating. All equipment needed to locate services, including detectors and locators, shall be provided by the Contractor. The Contractor shall take every reasonable precaution to protect and preserve the integrity of these services.

The Contractor shall ask the "Association" to provide assistance in locating the individual services. However, the Contractor shall still have complete responsibility for their location.

Assistance provided by the Owner, Engineer or "Association" shall not relieve the Contractor of his responsibility for their location. Exploratory excavations done to attempt to locate individual services shall be done at the Contractor's expense. This includes locating existing service lines that are to be connected to new service lines.

If services are interrupted, the Contractor shall immediately notify the "Association" and make suitable repairs to the service.

The Engineer and "Association" shall inspect all repairs to broken or damaged services, and approval of the repairs must be obtained by the Contractor from the Engineer prior to covering the work. The Contractor shall remain responsible for the integrity of broken services even after the work has been backfilled. The Owner has complete authority to stop work if the Contractor is doing excessive damage to the services and appropriate repairs are not being made or other precautions taken to minimize damage to existing services.

02020.06 REPAIRS TO EXISTING UTILITIES

The methods and equipment to complete repairs must be approved by the Association and Engineer. In general, the following methods of connecting and repairing pipes shall apply:

Gravity Sewer and Storm Drain Mains:

Straight and transition couplings for mains shall be non-shear sewer couplings Style LSS1, LSS2 or LSS3 as manufactured by Romac Industries, Inc., or approved equal. Romac Industries Style 501 ductile iron coupling with interchangeable gasket, or Romac Macro 2 Bolt couplings are acceptable. Cast couplings and fittings made specifically for the pipe materials may also be used.

Water Mains and Sewer Force Mains:

Cast couplings, MJ solid sleeves; fittings made specifically for the pipe materials used.

Water Services:

Brass compression couplings; cast couplings; fittings made specifically for the pipe materials used. Connections to PE tubing shall utilize SS inserts and brass compression couplings.

Culverts:

Approved connecting bands; flexible rubber compression couplings; fittings made specifically for the pipe materials used.

SECTION 02030 TRAFFIC CONTROL

02030.01 GENERAL

Supply all labor, materials and equipment necessary to control traffic for the safety of workmen, pedestrians, vehicular traffic and the general public.

02030.02 REQUIREMENTS AND COMPLIANCE

Coordinate with local and state authorities and establish traffic control procedures to comply with all authorities having jurisdiction. Provide a traffic control plan to local authorities, the MDOT and the Owner. All traffic control procedures and signing shall comply with MDOT requirements and the Manual of Uniform Traffic Control Devices (MUTCD).

The Contractor shall keep local police and fire officials informed at all times regarding the work location and the effect it will have on traffic patterns. Traffic control procedures shall not interfere with the normal daily traffic flow in the area. Coordinate work sites to facilitate traffic flow and avoid traffic backup and delays.

02030.03 CONTROL METHODS

Provide project signing at the project limits as shown on the attached detail and as required by MDOT. Provide signing and barricades on either end of the actual construction location. Speed limit signs shall be posted with a 25 MPH speed limit. All barricades, signs and signing layouts shall meet MDOT and MUTCD specifications.

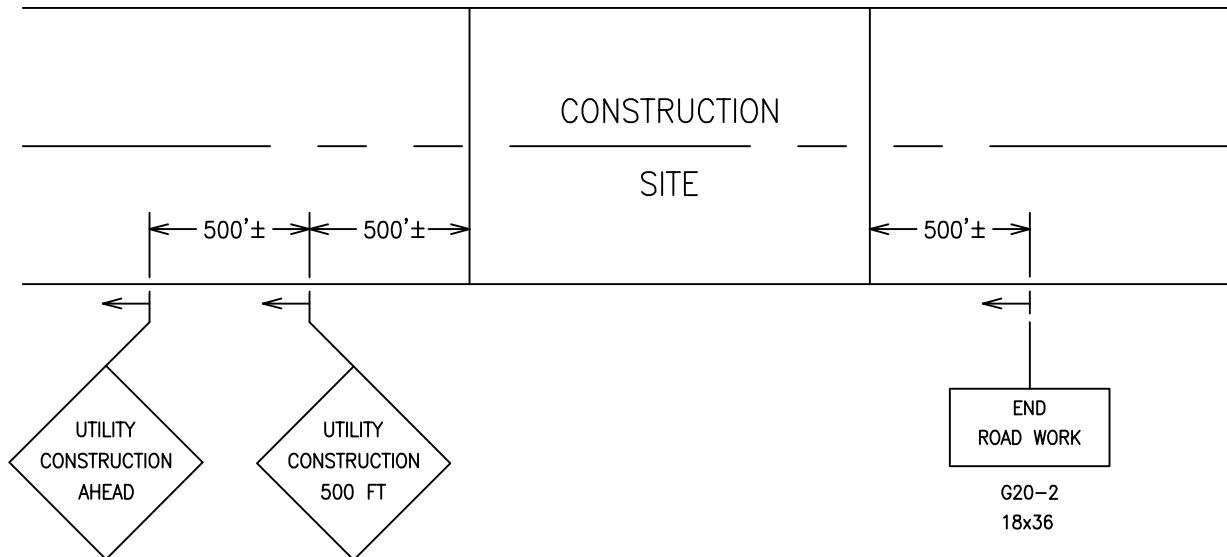
At least one traffic control person shall be located at each of the construction locations or work areas. A minimum of two traffic control personnel shall be provided at each construction location or work area where only one lane of traffic will be maintained. The traffic control personnel shall be in radio communication with each other at all times and shall wear fluorescent vests and direct traffic with standard reflective stop/slow flagger signs.

Work will be allowed only during daylight hours. MDOT and MUTCD approved flashing lights and barricades shall be used for proper safety at night.

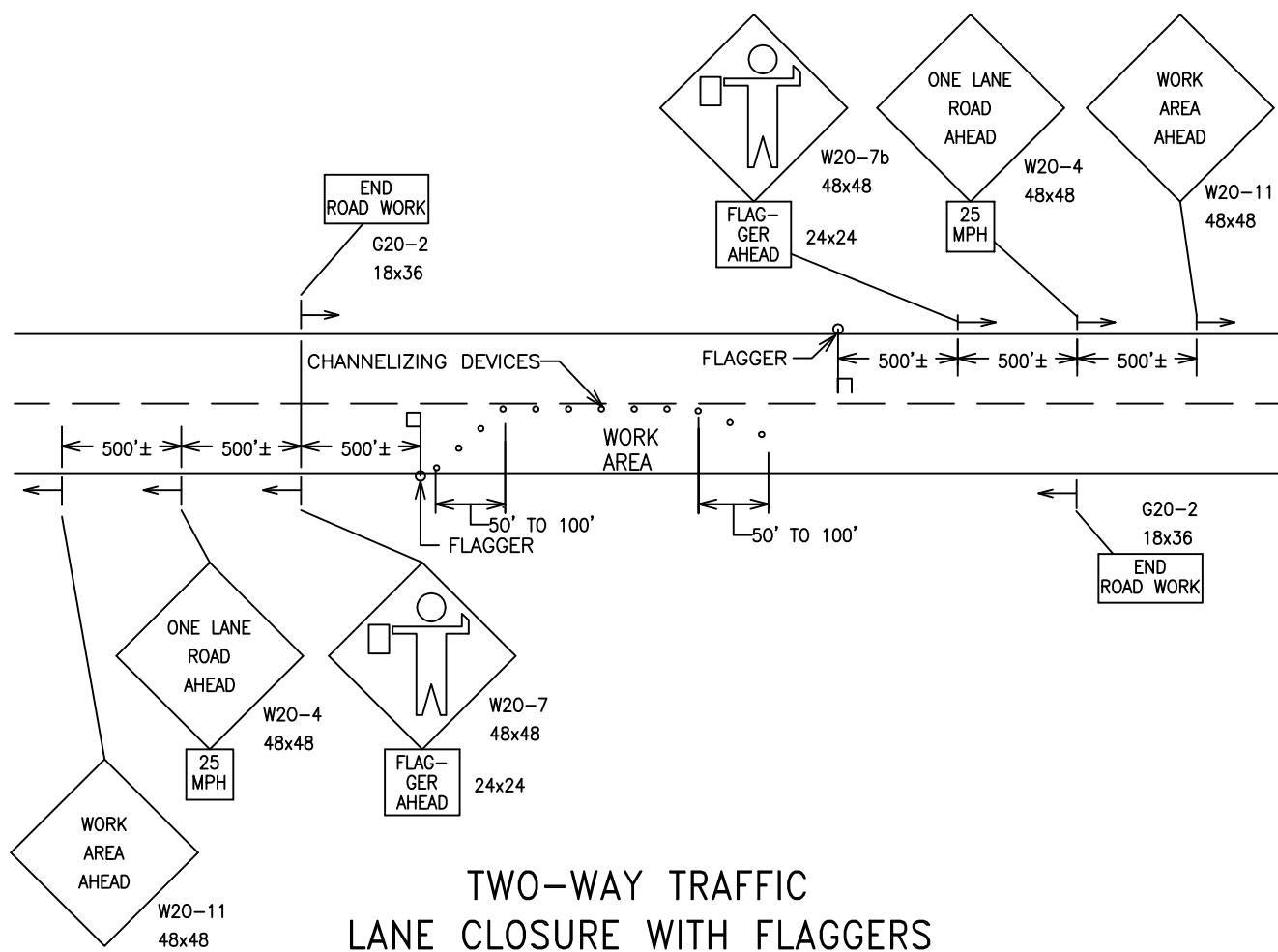
02030.04 STREET CLOSINGS AND DETOURS

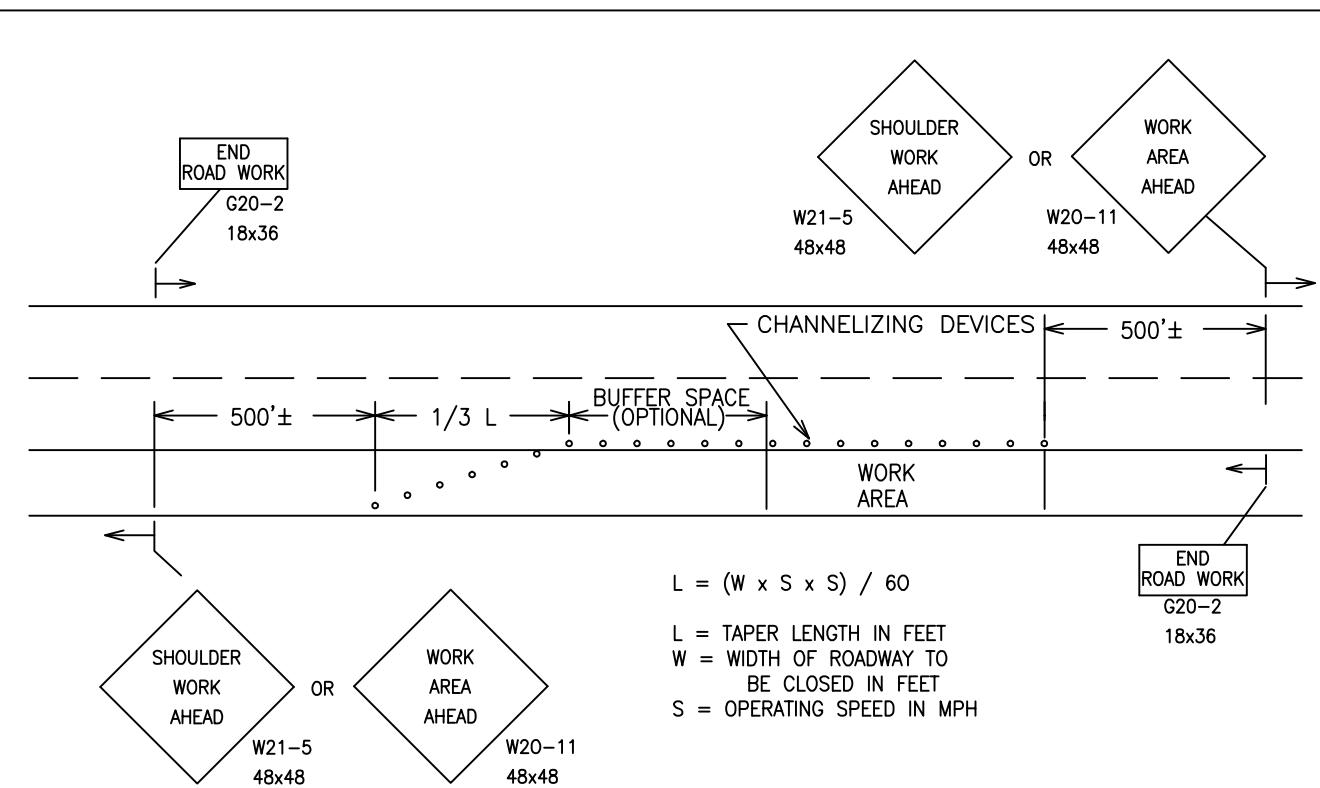
No streets shall be closed or detours utilized without specific written permission of the local authorities having jurisdiction. If street closings are allowed, then "street closed" signs shall be placed at all intersections adjacent to the work area to prevent traffic from entering. The contractor shall be responsible for maintaining access to all businesses and residences at all times. One lane shall be maintained for local traffic on all closed streets at all times. At the end of each workday complete street access shall be restored on all streets.

NOTE: SIGNS ARE REQUIRED FOR
ALL PROJECT APPROACHES
INCLUDING SIDE ROADS.



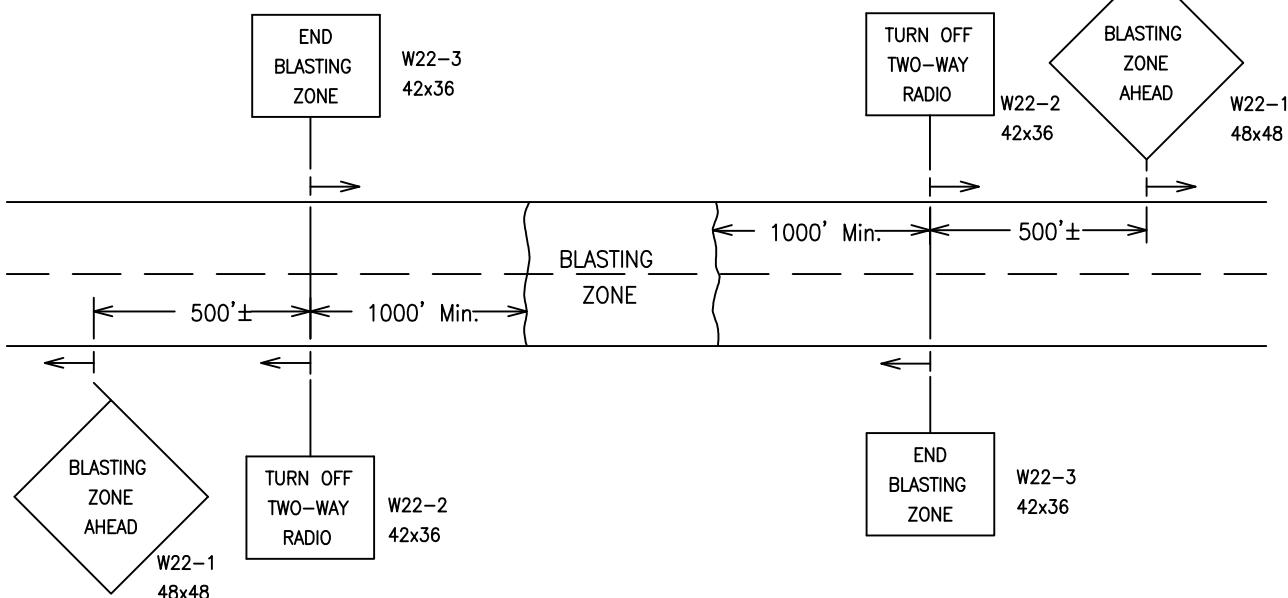
TYPICAL PROJECT SIGNING





ROADSIDE/SHOULDER WORK AREA

NOTE:
SIMILAR SIGN SEQUENCE SHALL BE
ERECTED ON ALL SIDE ROADS WITHIN
1000 FT OF THE BLASTING ZONE.



BLASTING ZONE

SECTION 02050 DUST CONTROL

02050.01 GENERAL

Furnish all labor, materials and equipment necessary to control dust caused by work related to this project. Dust control (water, calcium chloride and sweeping) shall be considered incidental to the appropriate pipe bid item. Dust control shall proceed concurrently with pipe installation.

When notified by the Engineer that dust is causing problems, the Contractor shall immediately implement approved dust control procedures.

02050.02 MATERIALS

Water for sprinkling shall be clean, free of salt, oil or other injurious matter.

Calcium chloride shall conform to requirements of AASHTO M144 (ASTM D 98).

02050.03 CONSTRUCTION METHODS

All paved areas in the vicinity of trenches shall be swept at the end of each working day. Excavated material shall not be placed directly on gravel or paved surfaces.

Apply water by approved methods and with equipment including a tank with gauge equipped pressure pump and spray bar, dispersing water through nozzles at 20 psi or more.

Apply calcium chloride at a rate sufficient to maintain a damp surface, but low enough to assure non-contamination of water courses. Calcium chloride shall not be applied to paved surfaces.

SECTION 02101 EARTH WORK

02101.01 GENERAL

Supply all labor, materials and equipment necessary to perform all earth work for the project.

The following subsections are included in this specification:

- 02101.02 Construction Methods
- 02101.03 Site Preparation
- 02101.04 Excavation
- 02101.05 Borrow and Bedding Material
- 02101.06 Backfilling
- 02101.07 Cleanup
- 02101.08 Erosion Control

02101.02 CONSTRUCTION METHODS

The Contractor shall use responsible and safe construction and excavation practices. The Contractor shall verify the condition of the site and neighboring properties and structures prior to beginning work. The Contractor shall use construction methods and equipment of the appropriate size so as to not produce damage, excessive noise, or vibrations on neighboring properties.

Monitoring of vibrations from site work, excavation, and compaction procedures shall be done by the Contractor. It is recommended that the Contractor complete a pre-work survey of the site and neighboring properties to document their condition and determine what construction methods are appropriate.

02101.03 SITE PREPARATION

A.) General

Supply all labor, materials and equipment necessary to prepare the site for excavation and/or construction. Site Preparation includes layout, clearing, grubbing, and stripping. Before removing any structure or vegetation, the Contractor shall obtain approval of the party having jurisdiction. Prior to beginning any excavations in paved areas the pavement shall be cut at the limits of the excavation.

B.) Clearing

Cut and remove all trees, brush, and undergrowth in areas designated for clearing. Protect all vegetation outside the limits of the areas designated and any trees or vegetation so designated within the area. The Engineer shall be contacted prior to removal of any trees within the site boundaries. Any branches which must be removed from standing trees shall be removed in accordance with established arborists' practices. All scars and cuts in standing timber shall be painted with tree paint. Dispose of all removed vegetation in a satisfactory manner.

C.) Grubbing

Remove all material, both natural and man-made, in the areas designated on the plan for excavation and/or construction. This includes roots, stumps, rocks, boulders, pavement, curbing and other structures.

Material which is amenable to reuse shall be stored. Unsuitable or excess material shall be removed and properly disposed of by the Contractor.

D.) Stripping

In areas to be stripped, the Contractor shall strip the surface and top soil to a sufficient depth to expose a uniform subgrade of soil.

Top soil which is amenable to reuse shall be stored. Unsuitable or excess top soil shall be removed and properly disposed of by the Contractor.

02101.04 EXCAVATION

A.) General

Furnish all labor, equipment and materials necessary to provide all excavation for trenches, construction, utility installation, foundations and subsurface structures. All excavation shall be classified as either earth excavation or ledge excavation.

Earth excavation shall consist of removal of all grades of soil and rock sufficiently friable to be worked with an excavator. This shall include any other material less than three cubic yards in volume.

Ledge excavation shall consist of blasting, removal, and replacement of all material not classified as earth and greater than three cubic yards in volume.

B.) Excavation Practices

The Contractor is responsible for establishing and practicing safe construction and excavation practices at all times. The Contractor shall keep himself informed of all safety regulations and comply with them at all times. The Contractor shall provide all sheeting, shoring, bracing, and cofferdamming necessary to insure the stability of the sides of the excavation.

Information on underground structures and utilities shown on the plans is not guaranteed for accuracy nor completeness, therefore, when excavation approaches such utilities, manual excavation shall be used to locate them. The Contractor shall be held liable for responsible excavating practices throughout the project. This responsibility shall include the undisturbed maintenance of all structures and utilities, above or below grade, which may be affected by the excavation.

C.) Excavation Methods

Excavate all trenches to the depth required for the installation of the utility and appropriate bedding. All structure excavation shall provide sufficient working area to construct the structure. Excavated material shall not be placed on pavement. The Contractor shall at all times keep the excavation free of water and saturated soil. Water removed from the excavation shall be disposed of in accordance with all applicable environmental regulations and so as not to interfere with adjacent areas. The bottom of the excavations shall be kept dewatered and firm at all times. No excavations shall be continued into fill material which has been on-site less than 12 months without review and approval of a Geotechnical Engineer.

The Contractor shall not have any right of property on any excavated material. The Contractor shall remove and properly dispose of excess excavated material. When requested by the Owner (prior to final disposal), this material shall be delivered to an Owner specified site within a three (3) mile radius of the loading point. Otherwise it shall be the Contractor's responsibility to find and utilize a proper disposal site. Removal, transportation and disposal of excess excavated material or unwanted abandoned utilities shall be done at the Contractor's expense.

All trenches shall be closed at the end of each construction day and the surface restored, unless specifically authorized by the Engineer.

D.) Over Excavation

Any excavation beyond the prescribed limits for construction or utility installation shall be filled with crushed or screened stone to the necessary grade at the Contractor's expense. This shall include the removal of overblasted ledge.

E.) Unsuitable Material

The Engineer shall have the right to reject material as unsuitable for backfill. Any such material shall be transported from the site and disposed of properly. Cost of the transportation and disposal of unsuitable earth excavation shall be at the supplemental unit price for Disposal (per Section 02150). Cost of material, installation and compaction of replacement material shall be at the unit price for the borrow specified by the Engineer (per Section 02150). No additional amounts will be paid for excavation of unsuitable material that is in the normal excavation area.

All ledge excavation shall be classified as unsuitable material. Cost of the removal, disposal and replacement of unsuitable ledge excavation shall be incidental to the price for Ledge Excavation.

Excavated old utility materials (pipe, fittings, valves, culverts, wire, conduit, manhole or basin pieces and covers) shall not be utilized in backfill. Such materials shall be removed from the site by the Contractor and disposed of properly (unless specified otherwise on the plans). Cost of removal, disposal and replacement material for these items shall be incidental to the cost of the project.

When so directed by the Engineer, the Contractor shall excavate unsuitable material below the bottom of the trench and backfill to grade with the specified borrow. Cost of excavation, disposal and borrow shall be at the supplemental unit prices (per Section 02150).

F.) Blasting and Ledge Excavation

The Contractor shall remove all overburden from any ledge encountered and shall not remove any ledge until the Engineer has measured its volume. At the Engineer's option, the Contractor may be allowed to predrill trench ledge for measurement and blasting. Ledge that has been previously fractured and broken shall not be classified as ledge excavation.

All blasting shall comply with all federal, state, and local regulations. The blasting contractor shall have a pre-blast survey completed of all structures within 300 feet of the work area prior to beginning work. Prior to blasting a site plan showing all properties surveyed shall be delivered to the Engineer. Vibration monitoring shall be done by the blasting contractor during all blasting. Warning signs shall be posted whenever blasting occurs. No blasting shall be permitted without blasting mats or sufficient soil overburden.

All ledge shall be classified as unsuitable material for backfill. All ledge shall be replaced with borrow (per Section 02101.05) and the cost of this replacement material shall be considered incidental to the ledge removal cost.

G.) Rights-of-Way

The Contractor shall maintain clear passage along all rights-of-way affected by the construction. No permanent rights-of-way shall be closed without prior written approval of the proper civil authorities.

H.) Protection of the Public

Improved streets, roads, driveways and sidewalks shall be kept open over or around all trenches and excavations and the use of these rendered safe for public use, as required by OSHA. All open excavations, if allowed, equipment and materials encroaching on rights-of-way shall be clearly marked by barricades and flashing yellow lanterns from dusk to dawn.

02101.05 BORROW AND BEDDING MATERIAL

A.) General

Furnish all materials, equipment and labor necessary to place and compact all required borrow and bedding. Optimum moisture content shall be as determined by the modified proctor test.

All borrow and bedding shall be free of frozen material, peat, rubbish, and other debris and other material described as unsuitable in Division 2.

B.) Common Borrow (MDOT 703.18)

Common borrow shall consist of earth, suitable for embankment construction. It shall be free from frozen material, perishable rubbish, peat, and other unsuitable material including material currently or previously contaminated by chemical, radiological, or biological agents unless the material is from a DOT project and authorized by DEP for use.

The moisture content shall be sufficient to provide the required compaction and stable embankment. In no case shall the moisture content exceed 4 percent above optimum, which shall be determined in accordance with AASHTO T 180, Method C or D.

C.) Sand Borrow

Sand borrow shall be sand of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation shall meet the grading requirements of the following table.

Sieve Designation	% by Weight Passing
3/8 inch	85-100
No. 200	0-5

D.) Gravel Borrow (MDOT 703.20)

Gravel borrow shall consist of well graded granular material and shall be free from vegetable matter, lumps or balls of clay and other deleterious substances. The maximum stone size is 6". The gradation of the part that passes a 3-inch sieve shall meet the requirements of the following table:

Sieve Designation	% by Weight Passing Square Mesh Sieve
1/4"	0-70
No. 200	0-10.0

E.) Base Gravel (MDOT 703.10 Type B)

Base gravel shall be screened or crushed gravel consisting of hard durable particles which are free from vegetable matter, lumps or balls of clay and other deleterious substances. If this item is to be used underneath pavement, it must have a Micro-Deval value of 20.0 or less as determined by AASHTO T 327. If the Micro-Deval value exceeds 20.0, the material may be used if it does not exceed 25 percent loss on AASHTO T 96, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine. The gradation shall meet the requirements of the following table:

Sieve Designation	% by Weight Passing Square Mesh Sieve
1"	95-100
3/4"	90-100
No. 4	10-45
No. 10	10-35
No. 200	0-6.0

F.) Surface Gravel for Gravel Roads

Surface gravel for gravel roads shall be screened or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The maximum stone size is 3/4". The gradation shall meet the requirements of the following table:

Sieve Designation	% by Weight Passing Square Mesh Sieve
3/4"	100
No. 4	50-78
No. 8	37-67
No. 40	13-35
No. 200	4-15
Plasticity Index (PI)	4-12

G.) Surface Gravel for Paved Areas (MDOT 703.10 Type A)

Surface gravel for paved areas shall be screened or crushed gravel consisting of hard durable particles which are free from vegetable matter, lumps or balls of clay and other deleterious substances. It must have a Micro-Deval value of 20.0 or less as determined by AASHTO T 327. If the Micro-Deval value exceeds 20.0, the material may be used if it does not exceed 25 percent loss on AASHTO T 96, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine. The gradation shall meet the requirements of the following table:

Sieve Designation	% by Weight Passing Square Mesh Sieve
1"	95-100
3/4"	90-100
No. 4	40-65
No. 10	10-45
No. 200	0-7.0

H.) Screened Stone

Screened stone shall consist of clean, hard, durable stone particles. It shall be screened and contain uniformly graded stone particles ranging in size from 10 to 20 mm unless otherwise specified. Screened stone shall be free of fine gravel, sand, dirt, vegetation, disintegrated or laminated soils, and other unsuitable material.

I.) Crushed Stone

Crushed stone shall consist of clean, hard, durable stone fragments. It shall be crushed and contain uniformly graded stone fragments ranging in size from 20 to 30 mm unless otherwise specified. Crushed stone shall be free of fine gravel, sand, dirt, vegetation, disintegrated or laminated soils, and other unsuitable material.

J.) Flowable Fill

Flowable fill (controlled low strength material) shall be a cementitious backfill mixture with low strength, flowable characteristics. The late age strength of the flowable fill shall be in the range of 50 to 150 psi to allow it to be excavatable at a future time, if necessary. The flowable fill shall have early setting and strength additives to allow for traffic and construction loads. The flowable fill shall be delivered in ready mixed concrete trucks and placed by chute in a flowable condition into the prepared void or trench.

K.) Concrete Fill

Concrete fill shall have a minimum 28 day compressive strength of 2000 psi.

L.) Placement and Compaction

Crushed or screened stone shall be placed in lifts which will compact to a 6" maximum layer. Gravel and borrow shall be placed in 12" maximum lifts. All placement and compaction of borrow and bedding shall comply with Subsection 02101.06 Backfilling.

02101.06 BACKFILLING

A.) General

Furnish all labor, equipment, and material necessary to completely fill all excavations. Backfilling shall be defined as replacement and compaction of soil in excavation for the purposes of protecting underground construction, maintaining grades, or providing stable foundation material for above ground construction.

B.) Material

Generally the excavated soil shall be suitable as backfill and shall be replaced in the excavation. Exceptions include frozen fill, fill containing large stones, stumps or other rubble, and any material deemed unsuitable by the Engineer. Unless noted otherwise on the plans, all backfill within 3 feet of all foundation/frost walls shall be clean gravel (6" max stone size; 1" minus max. stone within 12" of walls & slabs).

Replacement material for ledge shall be considered incidental to the ledge removal cost.

C.) Backfilling Methods

Backfilling shall proceed as soon as possible after underground construction has been completed. Backfill shall be extended to the grade indicated on the plans, compacted and graded.

Fill material shall be placed in layers not to exceed 12" and compacted to a density equal to at least 95% of the optimum density determined by the modified proctor test. Compacting may be done by vibrating compactor or roller.

The Contractor shall take care not to damage or disturb any structure, including his own, during backfilling and compaction. The Contractor shall be held liable for any such damage.

Excavations in paved areas shall be paved according to specifications as soon as possible. Other areas shall be loamed and seeded or otherwise restored to a condition equal to or better than that of adjacent areas as soon as possible.

The Contractor shall not withdraw any sheeting without the approval of the Engineer. All voids created by such removal shall be filled and compacted. Any backfilling which does not conform to these specifications, or which settles differentially, shall be excavated to a depth sufficient to correct the problem and refilled as required. Any pavement or structure which is damaged due to settlement of backfill shall be repaired by the Contractor at his expense.

02101.07 CLEANUP / SITE RESTORATION

Maintain all work areas and all haul routes in a neat and orderly condition. Cleanup/site restoration is incidental to the appropriate items of the contract.

Remove all debris and surplus material resulting from the work, and maintain all property, both public and private, in a condition acceptable to the party having jurisdiction.

Cleanup/site restoration includes; removal of all debris and surplus material; replacement and repair of all removed or damaged structures, properties and vegetation to their pre-construction condition; restoration of areas to final grade and contour.

Cleanup of trench areas shall be done concurrently with pipe installation (on a daily basis). When notified by the Owner and/or Engineer that cleanup is not acceptable, pipe installation shall cease and all efforts shall center on cleanup. No compensation shall be paid the Contractor because of the stopping of the pipe installation for cleanup.

02101.08 EROSION CONTROL

A.) General

Furnish all labor, equipment and materials necessary to prevent erosion and sedimentation from occurring on or adjacent to the construction site and areas disturbed by construction. Erosion and sedimentation control measures shall be in conformance with Maine DOT and Maine DEP Best Management Practices.

Develop and submit copies of project work plan and proposed Erosion and Sediment Control Plans.

Provide erosion control measures as required for the construction activity whether or not they are shown on the design plans or Contractors work plans. Any measures shown on the plans shall be considered minimal only. Provide measures to comply with the applicable Best Management Practices.

The Contractor shall be responsible for providing erosion and sediment control during construction and for establishing permanent measures (surface restoration). Erosion control shall be considered incidental to appropriate items of the Contract.

Erosion and sediment control shall be done concurrently with construction (on a continual basis). When notified by the Owner and/or Engineer that erosion and sediment control is not acceptable, construction shall cease and all efforts shall center on erosion and sediment control. No compensation shall be paid the Contractor because of the stopping of construction for erosion and sediment control.

B.) Regulations and Permit Conditions

Comply with all applicable regulations and permit conditions. If additional permits are needed for proposed work or work methods, obtain them and comply with all requirements.

C.) Minimum Material Specifications

Erosion control blankets, when required, shall be as specified in Section 02675. Hay bales shall have minimum dimensions of 18" x 18" x 3'-6" and shall weigh at least 40 lbs. Erosion control fence shall be Envirofence by Mirafi, Inc., Charlotte, NC, or approved equal. The fencing shall have the following properties: grab strength of 120 lbs., grab elongation of 30% (max), water flow rate of 40 gal/min/S.F., and ultraviolet stability of 90%. The fabric width shall be 3 ft. and post length shall be 4.5 ft. The post spacing shall be 7.7 ft. The fence fabric shall be securely stapled to the stakes. Stone for stone check dams shall be as specified by Maine Department of Transportation for trench drain construction. Catch basin inserts shall be Hi-Flow Siltsack by ACF Environmental, or approved equal.

All materials on the project shall be new per Section 01400. The Engineer may accept erosion control fence that has been used on previous projects if it meets this specification and the fence is in good and serviceable condition.

D.) Erosion Control Methods

Install erosion control methods as shown on the design plans and on the Contractors Erosion Control Plan. Install methods according to Best Management Practices and manufacturers latest recommendations.

E.) Trench Water

Prevent erosion and sedimentation when discharging trench water. Utilize control structures and Best Management Practices when discharging trench water. Utilize sedimentation control basins, sediment containment devices, filtration socks, filtration bags, or other appropriate control methods. Do not directly discharge to surface water or drainage systems.

F.) Work on Submerged Lands

Whenever submerged land is disturbed, or work is done within water bodies, appropriate turbidity curtains (with top flotation and bottom ballast) shall be utilized. Select and install curtain appropriated for conditions, current, velocities, etc. Install and maintain per manufacturer's latest recommendations.

G.) Maintenance and Removal

Maintain erosion control measures until final surface restoration has been established. Provide additional measures as project progresses if existing measures are inadequate. Carefully remove materials that are not intended to be permanent (such as erosion control fence) when they are no longer needed.

SECTION 02210
PROJECT SIGN

02210.01 GENERAL

Furnish and install a project sign as described herein. The location of the sign shall be as directed by the Engineer. Project sign shall be installed prior to the start of any work.

02210.02 MATERIAL

The sign shall conform with the following sample drawing. No other contractor, subcontractor or material signs will be permitted on the sign. Sign shall be constructed of 3/4" (4' x 8') exterior grade, AB plywood.

Sign posts shall be 4 x 4 (x 12'h) wood and shall extend 48" into the ground. Top of sign shall be 8' above grade. Sign shall be braced with a 2 x 4 frame as shown on the attached sample drawing. Provide lateral bracing, if necessary.

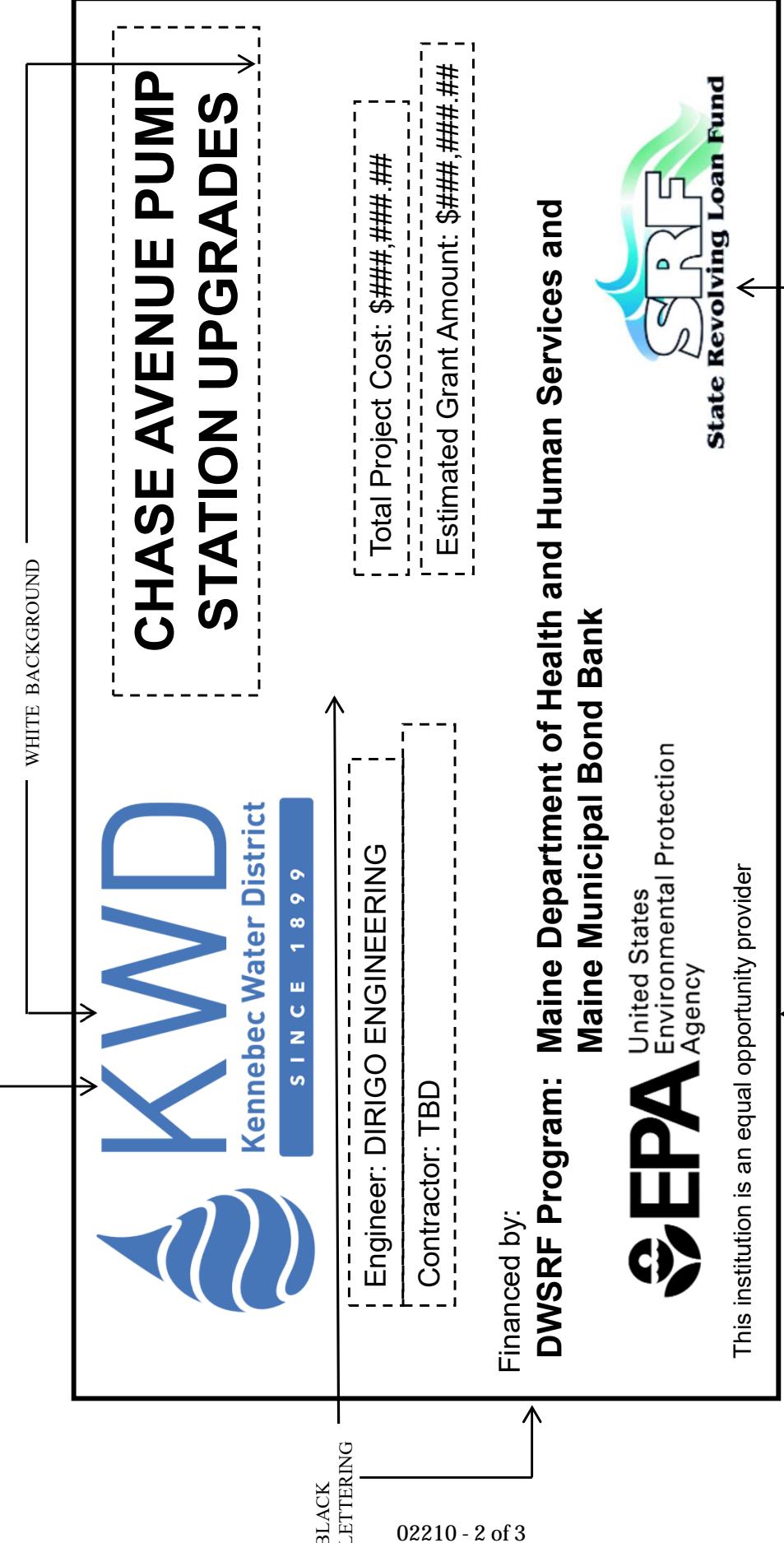
02210.03 MAINTENANCE AND REMOVAL

The Contractor shall maintain and keep the project sign in good condition until the work is completed. All other signs to be erected on the site shall be approved by the Engineer.

Following completion of the project the Contractor shall remove the sign and restore the site.

Temporary Construction Sign for DWSRF Projects

See KWD Brand Communication Guidelines for colors and fonts



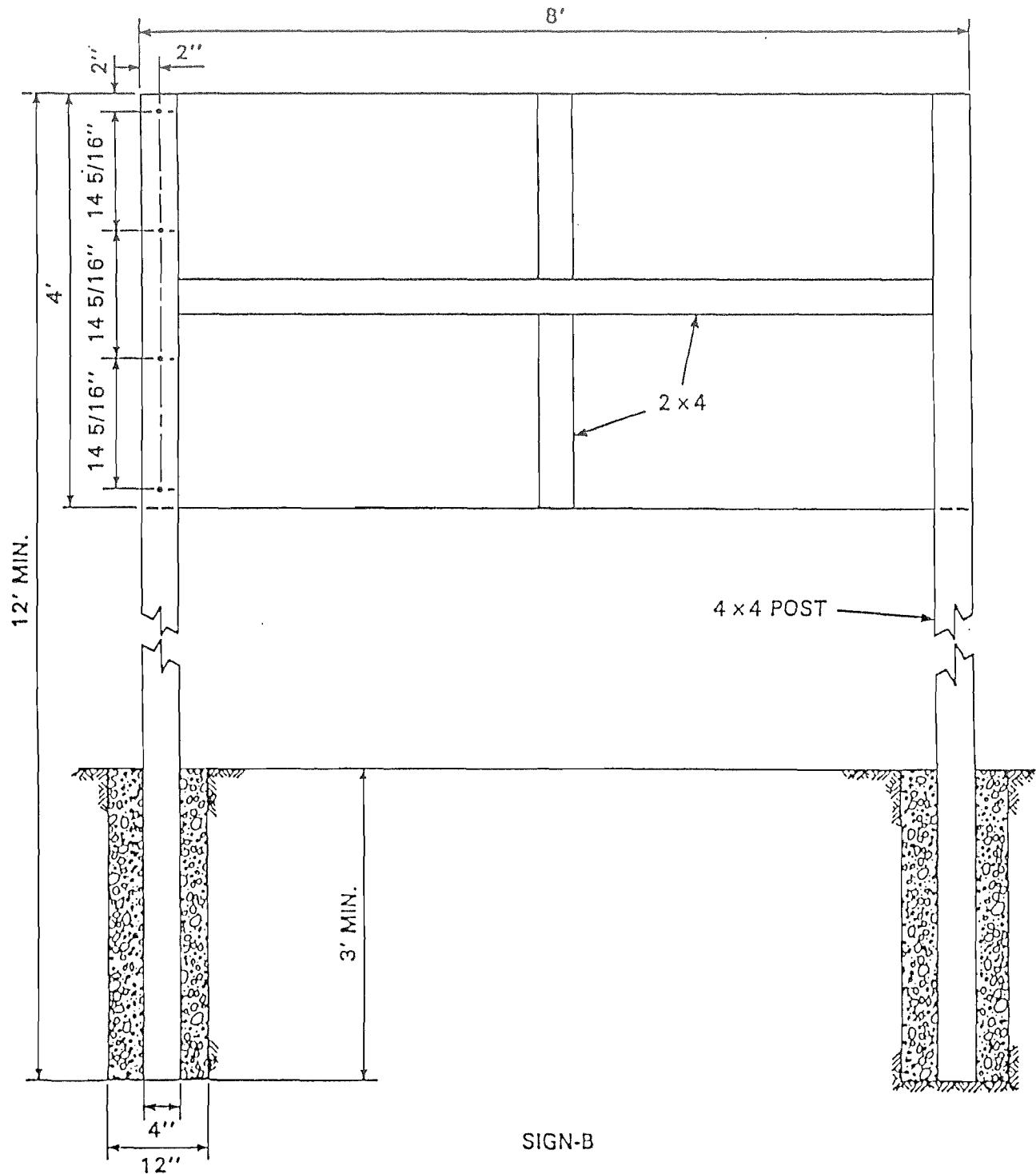
WHITE BACKGROUND

BLACK LETTERING

02210 - 2 of 3

WAVE
BLUE, PMS 655 FADING TO 30% SCREEN
GREEN, PMS 627 @ 30% SCREEN DARKENING
TO 100% SCREEN THEN BACK TO 30% SCREEN

MINIMUM SIGN DIMENSIONS: 1200 x 2400 x 19 MM (4' x 8' x 3/4")
EXTERIOR PLYWOOD (A-B GRADE)
MINIMUM LETTERING SIZE: 5 CM (2-INCHES)



ASSEMBLY OF PLYWOOD SIGN

Exhibit B

SECTION 02551
TRENCH INSULATION

02551.01 GENERAL

Furnish all labor, materials, equipment and appurtenances necessary to install the trench insulation as specified in the Contract Documents. Trench insulation refers to insulation board installed between mains and storm drains or where cover is insufficient.

02551.02 MATERIALS

Trench insulation shall be extruded polystyrene plastic foam insulation board equal to STYROFOAM brand as manufactured by the Dow Chemical Company and as meeting ASTM C-578 Type IV. Insulation shall be Dow STYROFOAM T&G, or Owens Corning Foamular 250 T&G, or equal. Insulation shall be 2" thick and have a minimum compression strength of 25 psi (ASTM D-1621).

02551.03 INSTALLATION

The insulation shall be a minimum of 2 feet wide and shall extend a minimum of 6" beyond the outside edge of the pipe. The insulation thickness shall be 2 inch unless otherwise specified on the drawings or required by the Engineer. In general it shall be used where the top of the pipe is less than the minimum cover specified in the contract drawings.

The insulation shall be installed on top of a smooth, flat surface of compacted select backfill or bedding. The insulation shall be 6 inches above the top of the pipe. Joints shall be butted tightly for maximum protection. Backfilling over the insulation shall be done by hand for the first 8 inches and compacted before remaining backfill is applied.

Installation for each type of insulation shall be according to the manufacturers' recommendations. In general, backfill shall be clean, dry, and be free of any material which can dissolve or harm the plastic such as petroleum products.

SECTION 02560
GEOTEXTILE – SEPERATION & DRAINAGE APPLICATIONS

02565.01 GENERAL

Furnish all labor, materials and equipment necessary to properly install geotextile fabrics for separation and drainage as specified in the contract documents. Geotextile fabric for separation and drainage shall be installed in the locations shown on the plans and where directed by the Engineer.

02565.02 MATERIALS

Geotextile fabric for separation and drainage shall be Mirafi 1120N by TenCate Mirafi, Inc., Pendergrass, Georgia; or approved equal. The fabric shall be a non-woven heavy duty needle punched geotextile comprised of polypropylene fibers and shall have the following minimum properties:

Grab tensile strength	300 lbs.	Puncture strength	800 lbs.
Grab tensile elongation	50% (max.)	Apparent opening size	100 (U.S. Sieve)
Water flow	65 gpm/sf		

02565.03 PRODUCT HANDLING

Geotextiles shall be furnished wrapped for protection against moisture and ultraviolet light. Labels on each roll shall be kept intact and legible until time of installation.

02565.04 INSTALLATION

Install the fabric according to the manufacturer's latest recommendations and as otherwise specified herein. The fabric shall be laid in the direction of construction traffic, unless otherwise noted on the plans. Fabric panels should be overlapped both side-to-side and end-to-end a minimum of 2 feet. The fabric shall be installed on top of the subgrade after proper grade and compaction have been achieved.

Fabric damaged during installation shall be patched with a patch of fabric using the standard overlap of 2 feet.

SECTION 02605
BITUMINOUS PAVEMENT

02605.01 GENERAL

Furnish all labor, materials, and equipment necessary to surface areas designated for paving on the plans and resurface sections of roadway, sidewalks and driveways disturbed by construction. Bituminous paving shall comply with the contract documents and MDOT standard specifications.

Painting and marking of pavement to match pre-construction state is incidental to the paving items. Painting and marking shall conform with MDOT specifications.

02605.02 MATERIALS

- A. Base Gravel (as per Section 02101)
- B. Crushed Gravel (as per Section 02101)
- C. Permanent Pavement

Hot bituminous permanent pavement shall conform to Maine Department of Transportation mixes. Place pavement in layers and compact per MDOT specifications to 95% (+/-2.5%) TMD. All permanent pavement shall be minimum 50 Gyration, 0.3 to 3 million ESAL Design.

Pavement layers and thicknesses are as noted in the contract documents.

02605.03 CONSTRUCTION METHODS

Pavement at the limits of excavations shall be cut prior to excavation. Recut edges prior to paving to insure a uniform and straight edge. Cut edges shall be parallel with the new main and in a continuous straight line to the greatest extent possible. In all cases, edges shall be cut in a manner acceptable to the party having jurisdiction. All edges shall be tacked prior to paving per MDOT standard specifications.

Gravel base courses shall be constructed in accordance with Section 02101.

Install the pavement in layers as specified herein.

Pavement shall match into existing pavement at all joints and edges with a smooth transition. Where required by the party having jurisdiction (and/or as shown on the plans), existing pavement shall be ground and leveled to accept new pavement/overlay with a smooth

transition. Thinning out a pavement layer over existing pavement is not an acceptable method. Grinding, shelving and associated pavement is incidental to the applicable pavement bid item.

Fine grade, install and compact a shim layer of crushed gravel at the edge of all pavement placement not matching into existing pavement for a smooth transition to existing grade. Shim any low or settled areas prior to installing overlays and surface pavement.

02605.04 LIMITS OF PAYMENT

The limits of payment for pavement are as specified on the plans and in Section 01151 (Bid Item Descriptions). Pavement disturbed beyond the pay limits shall be replaced by the Contractor at his expense.

When bituminous curbing is required it shall set on the binder pavement. The cost of the binder pavement under and behind the curb shall be considered incidental to the curbing as specified in Section 02610.

02605.05 PAVEMENT GUARANTEE

The Contractor shall guarantee all pavement (materials and installation) for a period of one (1) year from the date of Substantial Completion. The guarantee shall include repair, replacement and shimming of pavement due to pavement cracking, breaking or settling whether due to pavement or subsurface backfill conditions.

SECTION 02670
LOAM AND SEED

02670.01 GENERAL

Supply all labor, materials and equipment necessary to provide healthy vegetative cover over areas disturbed by construction and any other such areas designated to be loamed and seeded in the contract documents. The Contractor shall be responsible for the vegetative cover (except for routine mowing) for 12 months from project completion.

Full payment shall not be made for loam and seed until after a firm sod with healthy grass growth has developed.

02670.02 MATERIALS

A. Grass Seed -- Grass seed shall have the following composition:

40 percent Creeping Red Fescue
25 percent Kentucky Bluegrass
5 percent White Clover
30 percent Kentucky 31 Fescue

B. Lime -- Lime shall be agricultural ground limestone containing not less than 90% total carbonate. At least 90% shall pass through a No. 20 mesh sieve and at least 50% shall pass through a No. 100 mesh sieve.

C. Fertilizer -- Fertilizer shall be commercial fertilizer with the following minimum percentages:

12% available nitrogen (75% organic)
12% available phosphoric acid
12% available potash

D. Hay Mulch -- Hay mulch shall be long-fibered hay or straw, reasonably free of noxious weeds and other undesirable material. Hay mulch shall be less than one (1) year old. No material shall be used which is so wet, decayed or compacted as to inhibit even and uniform spreading. No chopped hay, grass clippings or other short-fibered material shall be used.

E. Alternative Mulch -- Other materials may be accepted for mulch following submittal of samples by the Contractor and demonstration that performance is similar to hay mulch.

F. Topsoil -- Topsoil shall be natural, friable loam soil possessing the characteristics of representative soils in the vicinity which produce heavy growths of crops, grass, or other vegetation. Topsoil shall be reasonably free from subsoil, brush, objectionable weeds, other litter, large stones, stumps, roots, and other objectionable material. Topsoil shall be free of toxic substances which might be harmful to plant growth or be a hindrance to grading, planting, and maintenance operations. Topsoil shall be from naturally well drained areas. Topsoil shall be screened (1" maximum for lawns; 2" maximum for areas that are not expected to be mowed).

The Contractor shall submit invoices and copies of labels to the Engineer certifying that the above specifications have been met for all seed, lime and fertilizer.

02670.03 SEASONAL AND WEATHER CONDITIONS

Do not place or spread topsoil (or loam/compost) when the subgrade is frozen, excessively wet or dry, or in any conditions otherwise detrimental to the proposed planting or to proper grading. The recommended seeding time is from April 1 to October 1. Regardless of the time of seeding, the Contractor shall be responsible for each seeded area until it is accepted. Do not perform seeding work when weather conditions are such that beneficial results are not likely to be obtained, such as drought, excessive moisture, or high winds.

02670.04 CONSTRUCTION METHODS

A. Topsoil -- Prior to placing topsoil, it shall be tested for recommended fertilizer and lime application rates. Soil tests shall be equal to those available from the University of Maine Soil Testing Laboratory. Soil tests shall be done for each three acres or fraction thereof to be loamed and seeded. Install topsoil uniformly so that final depth of topsoil is 4 inches, unless otherwise noted on the plans. Trim and rake the topsoil to true grades free from unsightly variations, humps, ridges or depressions. Remove all objectionable material and form a finely pulverized seed bed. Thoroughly till to a depth of at least 2 inches by plowing, discing, harrowing, or other approved method to prepare a seedbed.

B. Fertilizer -- Install fertilizer uniformly at a rate determined by the soils tests over the areas to be seeded (12#/1000 sf typical). Incorporate fertilizer into the soil to a depth of at least 2 inches by discing, harrowing, or other approved methods. Installation of fertilizer may be a part of the tillage operation specified above. Installation by means of an approved seed drill equipped to sow seed and distribute fertilizer at the same time will be acceptable.

C. Lime -- Uniformly distribute lime immediately following or simultaneously with the installation of fertilizer. Install lime at a rate determined from the soils tests. Incorporate lime into the soil to a depth of at least 2 inches by discing, harrowing, or other approved methods.

D. Seeding -- Uniformly place seed (5 lbs/1000 square feet) by broadcasting, hydroseeding or drill seeding. With broadcasting, sow half the seed with the

equipment moving in one direction and the remainder of the seed with the equipment moving at right angles to the first sowing. Then cover the seed to an average depth of 1/2-inch by means of a brush harrow, spike-tooth harrow, chain harrow, cultipacker, or other approved devices. Do not perform broadcast seeding work during windy weather. Drill seeding may be performed with approved equipment having drills not more than 2 inches apart.

- E. Mulching -- Install mulch evenly and uniformly over areas to be protected from erosion and after seeding. Install hay mulch at the rate of 1-2 tons per acre. Anchor mulch by "wetting-down", applying approved liquid tackifiers (according to manufacturer's recommendations), or use of a serrated, straight disk. Within the low-flow area of drainageways, mulch should be anchored with erosion control matting or equivalent material and secured with staples.
- F. Compacting -- Compact the area immediately following seeding and mulching by means of a cultipacker, roller, or other approved equipment weighing 60 to 90 pounds per linear foot of roller. If the soil is of such type that a smooth or corrugated roller cannot be operated satisfactorily, use a pneumatic roller (not wobbly wheel) that has tires of sufficient size to obtain complete coverage of the soil. When using a cultipacker or similar equipment, perform the final rolling at right angles to the prevailing slopes to prevent water erosion.

02670.05 MAINTENANCE

The loamed and seeded areas shall be maintained by the Contractor until a firm sod with healthy grass growth sufficient to prevent any erosion of the soil develops. Areas that do not develop sufficient grass growth shall be scarified, re-seeded and mulched by the Contractor until healthy grass growth develops.

Responsibility for maintenance (mowing excluded) of the seeded areas shall extend for 12 months from the completion of the entire project.

SECTION 02701
DUCTILE IRON PIPE

02701.01 GENERAL

Furnish, install and test all ductile iron water mains and fittings as specified in the contract documents. The minimum depth of cover specified in the contract documents refers to cover relative to the pipe location not relative to the profile drawing. This specification is for buried pipe.

02701.02 MATERIALS

A. Pipe

Pipe shall be ductile iron, double cement lined, tar coated, 18-20 foot lengths. Pipe shall be in full conformance with AWWA C151 and AWWA C111 and AWWA C104. All pipe shall be push on unless indicated otherwise on the drawings. Push-on pipe shall be Class 52. Flanged pipe shall be flanged joint Class 53. Mechanical joint pipe shall be mechanical joint Class 52.

B. Fittings

Mechanical joint compact fittings shall be ductile iron Class 350, asphaltic coated with cement-mortar lining or fusion bonded epoxy inside and outside. Fittings shall include gaskets and corten bolts. Fittings shall be in accordance with AWWA C-153, AWWA C111 for joints, AWWA C104 for cement lining, and AWWA C116 for epoxy coating.

All fittings for buried service shall be mechanical joint. Fittings shall be manufactured by Tyler, U.S. Pipe, Griffin, Union, or approved equal.

C. Mechanical Joint Restraint

All mechanical joint fittings and connections shall utilize mechanical joint restraints. The restraining devices shall be of ductile iron construction and shall utilize standard MJ gaskets. Mechanical joint restrainers shall be Megalug (EBAA Iron Sales), Uniflange Series 1400, or approved equal. Conventional retainer glands with set screws are not acceptable.

The mechanical joint restrainers shall be installed according to AWWA standards and the manufacturer's latest recommendations.

D. Foster Adapter (or approved equal)

When shown on the drawings, mechanical joint valves and fittings shall be connected using a bolt-through positive restraining device manufactured of ductile iron conforming to ASTM A 80-55-06. Device shall be Foster Adapter (Infact Corporation), or approved equal, and shall be furnished with required accessories.

E. Push-On Joint Restraint

All push-on joints within 35 feet of elbows, caps and plugs shall be restrained. Also, when shown on the drawings, additional push-on pipe joints shall be restrained. Push-on joint restraint shall be Field-Lok 350 gaskets by US Pipe, Sure Stop 350 Gasket by McWane Ductile, Gripper Gasket by Gripper Gasket, LLC, or approved equal, but MUST meet pipe manufacturers recommendations and NOT void pipe warranty. If wedge action restraint is not provided by the pipe manufacturer, Contractor shall provide Owner certification from pipe manufacturer that gasket is acceptable and warranty is not impacted. Install according to manufacturer's latest recommendations.

F. Poly Wrap

Contractor shall wrap all ductile iron pipe and fittings with V-Bio polyethylene encasement with infused inner layer of corrosion inhibitor to provide protection against galvanic corrosion and microbiological influenced corrosion, or approved equal. Poly wrap shall be in accordance with ANSI/AWWA C105/A21.5 PE Encasement. Poly wrap shall consist of 3 layers of co-extruded linear low-density polyethylene film, minimum 8 mil thickness, that are fused into one. Poly wrap shall be installed in accordance with manufacturers recommendations including overlap, taping, tapping through the approved polyethylene tape, inspection and repairs after installation.

02701.03 INSTALLATION

Installation shall follow the general AWWA standard for installation of ductile iron water mains - AWWA C600. The only exception is that backfill material for buried pipes shall have no stones larger than 6 inches in diameter. Installation shall also follow the manufacturer's latest recommendations.

When ductile iron pipe is installed in earth excavations it shall be laid on the undisturbed bottom of trench. Backfill from the trench bottom to 1 foot over the pipe shall be select excavated material with no stones larger than 1 inch. This material shall be placed in 6 inch lifts and compacted. Backfill to grade shall be per Section 02101.

All trench ledge excavations shall be extended to at least 6 inches below the bottom of the pipe and then brought to grade with screened base gravel (1" max. stone). The screened gravel is considered incidental to the ledge excavation. The pipe shall be placed on this compacted bed and bedded with compacted screened base gravel (1" max. stone) to 6 inches above the pipe.

Foreign material shall be prevented from entering the pipe at all times (including during storage, installation and while in the trench). No debris, tools, clothing, trench water, or other materials shall be placed in the pipe at any time. Immediately following installation of a pipe in the trench (prior to backfilling and moving of trench box) a secure cap or plug shall be installed in the bell end of the pipe. The cap or plug shall be steel or plastic and shall be gasketed and designed to prevent debris and water from entering the pipe during excavation work.

02701.04 DETECTABLE WARNING TAPE

Install Detectable Warning Tape in trench approximately 2 feet below finish grade and directly above new water main. Install per manufacturer's recommendation.

Detectable Warning Tape shall have a minimum thickness of 4 mils with a solid aluminum core to ensure continuity. Tape shall be supplied in 1,000' coils with a width of 6". Tape shall be marked "Water" and shall conform to the APWA color code specifications for underground tape systems. Detectable Warning Tape shall be EJP #91741, or approved equal.

02701.05 SEPARATIONS AND CROSSINGS OF WATER MAINS AND SEWERS

Water mains shall be laid at least 10 feet horizontally from any existing or proposed sanitary sewer, force main, storm sewer or sewer manhole, per State of Maine Department of Health and Human Services Regulations. The distance shall be measured edge of pipe to edge of pipe.

Water mains crossing sewers (including force mains or storm drains) shall be laid to provide a minimum vertical distance of 18 inches of free earth between the water main and the sewer. This shall be the case where the water main is either above or below the sewer. At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required.

**SECTION 02709
TEMPORARY BY-PASS PUMPING**

02790.01 GENERAL

1.01 SCOPE

- A. Contractor is required to furnish all materials, labor, equipment, power, maintenance, etc. to implement a temporary pumping system for the purpose of diverting the existing flow around the work area for the duration of the Project.
- B. The design, installation, and operation of the temporary bypass pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and the Kennebec Water District.
- C. The bypass pumping system shall be fitted with SCADA controls connected to the district's existing SCADA system to allow full control of the by-pass pumps by the districts operators.
- D. Building/ Housing: The temporary pumps, valves and controls shall be housed inside a secure lockable weather protective temporary building. Provide interior lighting and outlet(s) for use by operators and service personnel.

1.02 SUBMITTALS

- A. Conform to the requirements of Section 01300– Submittals.
- B. The following additional items shall be submitted for approval in accordance with Section 01300:
 1. Detailed Bypass Pumping Plan – Contractor shall submit detailed design plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing potable water flows. The pumping system must be designed to provide adequate capacity for peak flows.

0279.02 PRODUCTS

2.01 EQUIPMENT

- A. All pumps used shall be fully automatic units designed for water booster operation. Certification shall be submitted verifying that the pumps have never been used in a sewer or wastewater application.
- B. The pumps may be electric powered only.
- C. Pumps and connections to existing systems must be NSF-61 certified for potable water contact.

D. Contractor shall provide the necessary stop/start controls for each pump tied to the districts existing SCADA.

E. Contractor shall include one primary and one stand-by pump. Back-up pump shall be on-line, isolated from the primary system by a valve.

F. Discharge and suction piping sizing shall be determined according to flow needs and system operating calculations.

G. High Density Polyethylene (HDPE) – Piping shall be new, homogenous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, or other deleterious faults. Pipe shall be assembled and joined on site using couplings, flanges or butt-fusion method to provide leak proof joint. Thread or solvent joints are not acceptable. Pipe fusion shall be carried out by personnel certified as fusion technicians by manufacturer of HDPE pipe and/or fusing equipment. Butt-fusion joints shall be true alignment and uniform roll-back beads resulting from use of proper temperature and pressure.

H. Flexible Hoses and Associated Couplings and Connectors – Flexible hose and couplings shall be abrasive resistant and suitable for the intended services. They shall be rated for external and internal loads anticipated including test pressure. External load design shall incorporate anticipated traffic loadings, including traffic impact loading where applicable. When subjected to traffic loading, the system shall be composed of traffic ramps and covers maintaining a H-20 loading requirement while in use or as directed by the Engineer. Temporary pipe supports and anchoring are required for all piping. All rigid or hard piping shall be constructed with positive restrained joints. Under no circumstance will aluminum irrigation type piping or glued PVC pipe be allowed.

2.02 DESIGN REQUIREMENTS

A. Bypass pumping systems shall have sufficient capacity to pump the flows required.

B. Bypass pumping system will be required to be operated 24 hours a day. Contractor shall provide all necessary monitoring devices to notify the Contractor of any pump failure. The Contractor shall have an adequate standby pump available and ready for immediate operation and use in the event of an emergency or breakdown.

C. The Contractor shall make all arrangements for bypass pumping during the time when the booster pump station is down for any reason. The system must overcome the existing water main pressure on discharge.

2.03 PERFORMANCE REQUIREMENTS

A. It is essential to the operation of the existing water system that there be no interruption in the flow of water throughout the duration of the project. To this end, the Contractor shall provide, maintain, and operate all temporary facilities such as, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labor and

equipment necessary to pump necessary flows around the work area, and return it to the existing water main downstream of the work area.

B. The design, installation, and operation of the temporary pumping system shall be the Contractor's responsibility.

C. The bypass system shall meet the requirements of all local, State, and Federal codes and regulations.

D. The Contractor shall maintain potable water flow around the work area in a manner that will not cause surcharging water storage tank, and that will protect public and private property from damage and flooding.

E. Pumps shall be required to produce an equivalent amount of water as the existing booster pumps:

Design Criteria:

1. Static Suction pressure = 65 PSI (150 ft)
2. Static Discharge pressure = 102 PSI (236 ft)
3. Pump Design Point = 750 GPM @ 140' TDH

0279.03 EXECUTION

3.01 FIELD QUALITY CONTROL AND MAINTENANCE

A. Test – Contractor shall disinfect and perform leakage and pressure tests of the bypass pumping discharge piping using potable water prior to actual operation. The Engineer will be given 24 hours' notice prior to testing. Disinfection and testing shall comply with AWWA C651-23.

B. Inspection – Contractor shall inspect bypass pumping system every day during operation to ensure that the system is working properly. All unmanned bypass pumping operations fitted with SCADA to monitor the operation of the pumping system shall test the system every day and confirm its operation is to the satisfaction of the Owner.

C. Maintenance Service – Contractor shall insure that the temporary pumping system is properly maintained and a responsible operator shall be on available within 1 hour at all times when the by-pass pumping system is operational.

D. Spare parts for pumps and piping shall be kept on site as required.

3.02 PREPARATION

A. Precautions

1. Contractor is responsible for locating any existing utilities in the area the Contractor selects to locate the bypass pipeline. The Contractor shall locate his bypass pipeline to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from Owner. All costs associated with relocating utilities and obtaining approvals shall be the responsibility of the Contractor.
2. During all bypass pumping operation, the Contractor shall protect the pumping station and main and all local water lines from damage inflicted by any equipment. The Contractor shall be responsible for any physical damage to the pump station and main and all local water lines caused by human or mechanical failure.

3.03 INSTALLATION AND REMOVAL

- A. Contractor shall make connections to the existing water and construct temporary bypass pumping structures only at the access location indicated on the Drawings.
- B. The pipeline must be located off streets sidewalks, and on shoulders of the roads.
- C. When the bypass pipeline crosses local streets and driveways, where roadway ramps cannot be used, the Contractor must place the bypass line in trenches and cover with temporary pavement.
- D. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Owner, the Contractor shall remove all piping, restore all property to pre-construction condition, and restore all pavement and roadways.
- E. The Contractor is responsible for obtaining any approvals for placement of temporary pipelines from local agencies.

SECTION 02717 COUPLINGS

02717.01 GENERAL

Furnish and install couplings (solid sleeves, cast couplings and two-bolt couplings) as specified in the contract documents. Couplings shall be used in new piping connections when shown on the drawings and to make repairs to existing utilities. Couplings shall be straight, transition, reducing or repair type couplings (as required). All components and materials that will be in contact with the finish water when the project is complete shall be certified to be in compliance with ANSI / NSF Standard 61.

02717.02 MATERIALS

A. Solid Sleeves

All ductile iron to ductile iron coupling connections shall be made with Solid Sleeves. Solid sleeves shall be ductile iron Class 350 mechanical joint fittings per 02701.02 B. Solid sleeves shall be "long" type (12" minimum length). Mechanical joint restrainers shall be utilized per "Section 02701 Mechanical Joint Restraint" on all connections to ductile iron pipe.

B. Cast Couplings

Cast couplings shall only be used where specified on the drawings or approved by the Engineer. Cast couplings shall have ductile iron sleeves and follower flanges per ASTM A-536. Sleeve ends shall have a smooth inside taper for uniform gasket sealing. Follower flanges shall be designed for a high strength/weight ratio. Nuts and bolts shall be 316 Stainless Steel. Gaskets shall be virgin SBR compounded for water service. Gaskets shall meet ASTM D2000 3 BA715. Sleeves and follower flanges shall be painted with shop coat enamel. When specified on the drawings, epoxy coated sleeves and flanges shall be provided.

Cast coupling center sleeves lengths shall be as shown in the following table.

Pipe Ø	4"	6" & 8"	10" & 12"	over 12"
Minimum Center Sleeve Length	5"	7"	10"	12"

C. Two-Bolt Couplings

Two-Bolt couplings shall be designed for connecting plain-end pipes. Two-Bolt couplings shall be designed to allow 5 degrees of deflection on each end and accommodate extended OD pipe range. Two-Bolt couplings (restraining) shall be used when specified on the drawings when connecting to ductile iron pipe. Two-Bolt couplings (non-restraining) shall be used when specified on the drawings and for coupling connections to PVC, cast iron and AC mains.

All cast components (end rings, center ring, and bolt guides) shall be ductile iron, meeting or exceeding the requirements of ASTM A 536, grade 65-45-12. End rings shall be segmented and joined with a hinge. Gaskets shall be one piece and be formed from virgin Nitrile Butadiene Rubber (NBR) compounded for water and sewer service in accordance with ASTM D2000. Bolts and nuts shall be 304 stainless steel UNC carriage head bolts with heavy hex nuts. Fasteners shall be provided with anti-galling protection. Gaskets shall have heavy gauge 304 stainless steel bonded armor. Center ring shall be fusion bonded with epoxy. End rings shall be E-coated with epoxy. Two-Bolt couplings shall be rated for 305 psi working pressure.

Two-Bolt coupling lengths shall be 11.19" minimum for sizes 4" through 12".

02717.03 INSTALLATION

Install couplings as shown on the drawings and according to the manufacturer's latest recommendations.

SECTION 02720 WATER MAIN TESTING

02720.01 GENERAL

Furnish all labor, materials and equipment required to test all water mains (including temporary pumping system piping) as specified in the contract documents. All water mains, services (if required), and hydrant branch mains shall be tested prior to acceptance. The cost of testing is incidental to pipe installation.

02720.02 QUALIFICATIONS AND NOTIFICATIONS

The Testing Contractor and personnel shall be approved by the Owner and Engineer. All flushing and testing shall be done in the presence of the Engineer. The Contractor shall notify the Engineer at least 48 hours in advance of any testing.

02720.03 WATER PRESSURE TESTING

The testing methods described in this section are specific for water-pressure testing. These procedures should not be applied for air-pressure testing because of the serious safety hazards involved. Air-pressure testing is not allowed.

02720.04 TAPS AND APPARATUS

All taps and apparatus required for testing and disinfection shall be the responsibility of the Contractor per Sections 02720 and 02721. Provide taps at each high spot for expelling air. Provide taps as close to the beginning and end of the tested section as possible for injecting chlorine solution, flushing and sampling for chlorine residual.

Water for test pressure and flow shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Owner and Engineer. The pump, piping, connections and all necessary apparatus for conducting the test shall be furnished by the Contractor. The Owner may supply the gauges for the test. The Contractor shall furnish and install all necessary caps, plugs, taps, blowoffs, piping and valves needed to flush and test the pipe. The Contractor shall remove all tubing and piping from the main once all necessary testing has been completed.

02720.05 MAINTENANCE OF SYSTEM PRESSURE AND QUALITY

Coordinate with Owner regarding water system flow and pressure. Utilize approved methods to prevent backflow and cross connections. Pressure gauges shall be installed on existing pipes that are used to feed flushing water to the new main to allow for pressure monitoring. System pressure shall be maintained at a minimum of 20 psi, or as required by Water Utility.

All valves separating the new main from the existing system shall be kept closed at all times until the main is accepted. Valve operation for flushing, testing, etc. shall require approval of the Water Utility.

02720.06 PROCEDURE

After the pipe has been laid and completely backfilled the Contractor shall perform the water main test. The test shall be in accordance with AWWA C600 except as herein specified. The test shall have a minimum duration of 2 hours. The test pressure at all points in the pipe shall be at least 1.5 times the maximum working pressure in the pipe. The minimum test pressure at any point in the pipe shall be 150 psi. Test pressure shall not vary by more than 5 +/- psi for the duration of the test.

Each valved section of pipe shall be slowly filled with water and all air shall be expelled from the pipe. If permanent air vents are not located at all high points, the Contractor shall install corporations at such points (per 02720.04) so the air can be expelled as the pipe is filled with water.

Flush all water mains and hydrants prior to testing. Flushing shall be accomplished by removing the main hydrant valves and bonnets and flushing water through the full open hydrant barrels. Water mains 6" and larger that do not utilize fire hydrants shall be flushed through an unrestricted 6" (min.) pipe. Water mains smaller than 6" shall be flushed through an unrestricted pipe no smaller than the main being flushed.

After expelling all air from the main and properly flushing it, the specified test pressure shall be applied. The test pressure shall be applied, based on the lowest point of the line under test and corrected to the elevation of the test gauge.

All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings, valves, hydrants, or joints that are discovered during the pressure test shall be repaired or replaced with sound material, and the test shall be repeated.

02720.07 FINAL CONNECTIONS

Any pipe section or connection that is longer than 18 feet shall be capped or plugged and tested per Section 02720.

Final connections shall be made, secured and restrained. Final connections shall be as short as possible but shall not exceed 18 feet in length. Leave final connections exposed until pipe has been pressurized for at least 10 minutes and examine carefully for any signs of leakage.

02720.08 ACCEPTANCE

Leakage shall be defined as the quantity of water that must be supplied into the new pipe or any valved section thereof to maintain pressure within 5 psi of the specified test pressure for the duration of the test.

Acceptance shall be determined on the basis of allowable leakage. If any test of pipe discloses leakage greater than that specified in the following table, the Contractor shall, at his own expense, locate, make approved repairs and retest as necessary until the leakage is within the specified allowance. Visible leakage from connections shall not be allowed.

The allowable leakage from the water main shall be as specified in the following table:

Pipe Diameter (inches)	Allowable Leakage (gph / 1000 ft)
4	0.37
6	0.55
8	0.74
10	0.92
12	1.10
16	1.47

SECTION 02721
WATER MAIN DISINFECTION

02721.01 GENERAL

Furnish all labor, materials and equipment required to disinfect all water mains (including temporary pumping system piping) as specified in the contract documents. All water mains shall be disinfected prior to acceptance. All work under this Section shall comply with AWWA C-651 except as herein specified. The cost of disinfection is incidental to pipe installation.

02721.02 QUALIFICATIONS AND NOTIFICATIONS

The Testing Contractor and personnel shall be approved by the Owner and Engineer. All disinfection shall be done in the presence of the Engineer. The Contractor shall notify the Engineer at least 48 hours in advance of any disinfection.

02721.03 TAPS AND APPARATUS

All taps and apparatus required for testing and disinfection shall be the responsibility of the Contractor per Sections 02720 and 02721. Provide taps at each high spot for expelling air. Provide taps as close to the beginning and end of the tested section as possible for injecting chlorine solution, flushing, sampling for chlorine residual and bacteriological sampling. Taps to be used for collecting bacteriological samples shall be 0.5" to 1.0", discharges shall be setup to minimize splashing and spray, with smooth clean piping ends and with an accessible ball valve. Hydrants are not acceptable for bacteriological testing.

Chlorine solution for disinfection shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Owner and Engineer. The pump, piping, connections and all necessary apparatus for conducting the test shall be furnished by the Contractor. The Contractor shall furnish and install all necessary caps, plugs, taps, blow-offs, piping and valves needed to flush, test and disinfect the pipe. The Contractor shall remove all tubing and piping from the main once all necessary testing and disinfection has been completed.

02721.04 MAINTENANCE OF SYSTEM PRESSURE AND QUALITY

Coordinate with Owner regarding water system flow and pressure. Utilize approved methods to prevent backflow and cross connections. Pressure Gauges shall be installed on existing pipes that are used to feed water to the new main to allow for pressure monitoring. System pressure shall be maintained at a minimum of 20 psi, or as required by Water Utility.

All valves separating the new main from the existing system shall be kept closed at all times until the main is accepted. Valve operation for flushing, testing, disinfection etc. shall require approval of the Water Utility.

02721.05 PREVENTATIVE MEASURES

Prevent contaminating materials from entering the pipe during installation. Plugs shall be used where necessary during installation of the pipe to prevent the pipe from being contaminated with mud and silt. All gaskets and lubricants shall conform to AWWA standards. In no case shall petroleum based lubricants be used.

02721.06 FLUSHING AND TESTING

The water main shall be flushed and tested prior to disinfection as outlined in Section 02720 WATER MAIN TESTING.

02721.07 APPLICATION OF CHLORINE

The required method of disinfecting the water main is by uniform continuous injection of a hypochlorite solution into the main while flowing one source. The chlorine shall be fed into the main at a measured rate so that the entire main is chlorinated to a concentration of 50 mg/l. The chlorine shall be retained in the main for at least 24 hours. At the end of 24 hours the chlorine concentration in the main shall be at least 25 mg/l.

The Slug Method and the Tablet Method of disinfection shall not be allowed. Hypochlorite solutions shall utilize sodium hypochlorite (liquid), solutions shall not be mixed from tablets or powdered hypochlorite.

02721.08 FINAL FLUSHING OF MAINS

After the required retention period, the heavily chlorinated water shall be flushed from the main until the chlorine concentration in the main is no higher than water in the system or is acceptable for domestic use. **Pressure Gauges shall be installed on existing pipes that are used to feed flushing water to the new main to allow for pressure monitoring. System pressure shall be maintained at a minimum of 20 psi, or as required by Water Utility.** The Contractor shall be responsible for the proper disposal/dechlorination of the highly chlorinated water, per Department of Human Services and DEP regulations.

02721.09 BACTERIOLOGICAL TESTING

After final flushing and before the water main is placed in service, initial samples shall be collected from the water main for bacteriological testing per State of Maine regulations and AWWA specifications. Twenty-four (24) hours after collecting the initial samples, confirmation samples shall be collected. The tests shall be done in accordance with Standard Methods and shall be done by a State Certified Laboratory. If both the initial and confirmation tests show that the samples meet State coliform and bacteria standards then the main shall be placed in service.

If the initial tests fail, the main shall be refushed and resampled. If these tests fail, the main shall be rechlorinated and the process repeated at the Contractor's expense until satisfactory results are obtained.

The Utility District or Engineer will collect the bacteriological samples and provide the testing. A sample is required within 20 feet of each dead-end section and samples are required at 1200 ft. maximum spacing along the piping being tested.

02721.10 FINAL CONNECTIONS

Any pipe section or connection longer than 18 feet shall be capped or plugged and then tested and disinfected per Sections 02720 and 02721.

Final connections shall be as short as possible, but shall not exceed 18 feet in length. Final connections shall be disinfected by spraying or swabbing per AWWA C651-05, 4.6.

DIVISION 3
CONCRETE

Concrete Reinforcement	03205
Concrete Formwork	03210
Cast-In-Place Concrete	03220
Concrete Resurfacing	03512

SECTION 03205
CONCRETE REINFORCEMENT

03205.01 GENERAL

Furnish all plant, labor, equipment and materials necessary to install reinforcement in the concrete as specified in the contract documents.

03205.02 MATERIALS

Reinforcing bars shall be deformed billet steel bars. Bars shall have a minimum yield point of 60,000 psi and shall be substantially free of mill scale, oil, rust, dirt or other foreign matter. In the cases of mill scale and rust, it is sufficient merely to remove large flakes; wire brushing or sanding is not recommended. Reinforcing bars shall conform to ASTM specification A615, grades 60 and be installed as indicated on the drawings.

03205.03 DRAWINGS AND SCHEDULES

The Contractor shall submit to the Engineer detailed drawings showing bending and cutting schedules, splice locations, and placement locations for all reinforcing steel. No reinforcement shall be erected until the Engineer has given written approval of these drawings and schedules. Typically splices will only be allowed in horizontal continuous reinforcing. Horizontal steel is continuous unless noted otherwise and as such should wrap around corners and through intersections unless special details or splice bars are shown.

03205.04 FABRICATING AND PLACING REINFORCING

All fabrication and placing shall comply with the applicable CRSI-Code of Standard Practices.

A. Fabrication Tolerances

1. Sheared length: $+\text{-} 1$ inch
2. Depth of truss bars: $+0, -1/2$ inch
3. Stirrups, ties and spirals: $+\text{-} 1/2$ inch
4. All other bends: $+\text{-} 1$ inch

B. Placement Tolerances

1. Concrete cover to formed surfaces: $+\text{-} 1/4$ inch
2. Minimum spacing between bars: $+\text{-} 1/4$ inch
3. Top bars in slabs and beams:
 - a) Members 8 inch deep or less: $+\text{-} 1/4$ inch
 - b) Members more than 8 inches but not over 2 feet deep: $+\text{-} 1/2$ inch
 - c) Members more than 2 feet deep: $+\text{-} 1$ inch
 - d) Crosswise of members: spaced evenly within 2 inches
 - e) Lengthwise of members: $+\text{-} 2$ inches

C. Bar Relocation

Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits, or embedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangement of bars shall be subject to approval.

D. Support

Support all reinforcing bars and wire them together to prevent displacement by construction loads or the placing of concrete beyond the tolerances specified herein. On ground and where necessary, supporting metal chairs shall be used. Use metal, or other approved bar chairs and spacers over formwork. Use galvanized or plastic accessories where concrete surface will be exposed to the weather in the finished structure or where rust would impair architectural finishes.

E. Splices in Fabric, Load Bearing

Lap splice welded wire fabric designated as load carrying reinforcement so that the overlap measured between outermost cross wires is the wire spacing plus 2 inches. Support welded wire fabric as required for reinforcing bars.

F. Splices in Fabric, Non Load Bearing

Lap splice welded wire fabric not specifically designated as load carrying reinforcement so that the overlap measured between outermost cross wires of each fabric sheet is not less than 2 inches; extend welded wire fabric across supporting beams and walls and to within 4 inches of concrete edges; extend welded wire fabric through contraction joints and construction joints except keyed joints in slabs on ground. Position welded wire fabric during placing of concrete to insure its proper position in the slab.

G. Bar Splices

Offset vertical bars at least one bar diameter at lapped splices. Obtain Engineer's approval of all splices not shown on the project drawings.

Table of Minimum Lap Splices				
Bar No.	4	5	6	8
Top Bars	24	30	36	58
Other Bars	24	30	36	48

H. Bending Bars

Steel shall be cold bent around revolving collar of recommended size.

Unless permitted, do not bend reinforcement partially embedded in hardened concrete. Field bending shall not be allowed.

SECTION 03210
CONCRETE FORMWORK

03210.01 GENERAL

Provide concrete formwork as specified in the contract documents. The Contractor shall not use earth cuts as forms for vertical surfaces, unless otherwise specified herein.

03210.02 MATERIALS

- A. FORMS shall be of wood, metal or other approved material that will not adversely affect the surface of the concrete and that will produce or facilitate obtaining the specified surface finish of the concrete.
 - 1. Wood forms shall be commercial standard Douglas Fir, moisture-resistant, concrete-form plywood not less than 5-ply and at least 1/2 inch thick.
 - 2. Metal forms shall be of approved type that will produce surfaces equal to those specified for wood forms.
- B. FORM OIL shall be non-staining and shall not cause softening of the concrete, impede the wetting of surfaces to be cured with water or curing compound, nor be otherwise deleterious. A submittal on form oil is required.
- C. FORM TIES shall be of an approved design, fixed or adjustable in length and free of devices that will leave a hole larger than 7/8 inch in diameter in surface on concrete. When form ties are used where discoloration of the concrete would be objectionable, the metal remaining shall be at least 1 inch below the finished surface.

03210.03 DESIGN

- A. Design formwork in accordance with "Recommended Practice for Concrete Formwork: (ACI 347)" and wind loads as specified by the local building code.
- B. Provide temporary openings at the base of column forms and wall forms and at other points where necessary to facilitate cleaning and observation immediately before concrete is deposited.
- C. Form accessories to be partially or wholly embedded in the concrete, such as ties and hangers, shall be a commercially manufactured type. Nonfabricated wire is not acceptable. The portion remaining within the concrete shall leave no metal within 1 inch of the surface when the concrete is exposed to view. Spreader cones on ties shall not exceed 1 inch diameter.

03210.04 TOLERANCES

- A. Construct so that concrete surfaces will conform to the tolerances of ACI 347.
- B. The maximum deflection of facing materials reflected in concrete surfaces exposed to view shall be 1/240 of the span between structural members. Provide moldings or chamfer strips in the corners of column, beam, and wall forms where the concrete will be exposed to view.
- C. Camber formwork to compensate for anticipated deflections in the formwork due to the weight and pressure of the fresh concrete and construction loads.
- D. Provide positive means of adjustment (wedges or jacks) of shores and struts to take up settlement during concrete placing operation. Brace shores and struts securely against lateral deflections.

03210.05 PREPARATION OF FORM SURFACES

- A. Construct forms sufficiently tight to prevent leakage of grout or cement plaster. Swell board forms having joints opened by shrinkage of wood until closed by wetting before concrete is placed.
- B. Seal plywood and other wood surfaces not subject to shrinkage against absorption of moisture from the concrete by either (1) a field applied, approved form oil or sealer, or (2) a factory applied nonabsorptive liner.
- C. Coat forms prior to placing reinforcing steel. Do not allow coating material to stand in puddles in forms nor to come in contact with concrete against which fresh concrete will be placed.
- D. Where as-cast finishes are required, do not coat form surfaces with materials which will impart a stain to the concrete. Where the finished surface is required to be painted or coated, coat form surfaces with materials compatible with type of paint or coating to be used.
- E. Clean all form surfaces before re-use.
- F. Set edge forms and intermediate screed strips accurately to produce the designed elevations and contours; they shall be sufficiently strong to support vibrating bridge screed or roller pipe screeds if finish specified requires use of such equipment. Align concrete surface to the contours of screed strips by use of strike-off templates or approved compacting type screeds.
- G. When the formwork is cambered, set screeds to a like camber to maintain the proper concrete thickness.

03210.06 REMOVAL OF FORMS

- A. Delay removal of formwork for columns, walls, sides of beams, and other parts not supporting the weight of the concrete until concrete has hardened sufficiently to resist damage from removal operations. Do not remove forms until concrete has achieved at least 75% of its specified 28-day strength. In no case shall forms be removed until at least 72 hours after placement.
- B. Leave formwork for beam soffits and slabs, and other parts that support the weight of concrete, in place until concrete has reached its specified 28-day strength, unless otherwise specified or permitted.
- C. When shored and other vertical supports are so arranged that the form facing material may be removed without loosening or disturbing the shores and supports, the facing material may be removed at an earlier age as specified or permitted.

03210.07 RESHORING

- A. Perform reshoring so that at no time will large areas of new construction be required to support their own weight. While reshoring is under way, do not permit live loads on the new construction. Leave reshores in place until concrete has reached its specified 28-day strength, unless otherwise specified or permitted.
- B. Reshore floors supporting under set concrete above or leave their original shores in place. The reshores shall have at least one-half the load capacity of the shores above and shall be distributed in approximately the same pattern as those above. Leave these reshores in place until the freshly placed concrete has reached 75 percent of its specified 28-day strength, unless otherwise specified or permitted.

0310.08 REMOVAL STRENGTH

- A. When formwork removal or reshoring removal is based on the concrete reaching its specified 28-day strength (or a specified percentage thereof) the concrete shall be presumed to have reached this strength when either of the following conditions has been met:
 1. When testing cylinders, field cured under the most unfavorable conditions prevailing for any portion of the concrete represented, have reached the required strength. Except for the field curing and age at test, the cylinders shall be molded and tested as specified in Division 3, Section 03220.
 2. When the concrete has been cured as specified for the same length of time as the age at the test of laboratory cured cylinders which reached the required strength. The length of time the concrete has been cured in the field shall be determined by the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of the air in contact with the concrete is above 50 degrees F. and the concrete has been damp or thoroughly sealed from evaporation and loss of moisture.

SECTION 03220
CAST-IN-PLACE CONCRETE

03220.01 GENERAL

All materials, testing and workmanship for cast-in-place concrete shall comply with ASTM C94, Standard Specification for Ready-Mix Concrete, and ACI 301 specifications for structural concrete for buildings.

The Contractor shall furnish all labor, material, equipment and incidentals required to prepare, construct and test all cast-in-place concrete required for the project.

The Contractor shall provide field testing of concrete during placing operations including: slump, cylinders, air content, etc. The cost of testing shall be incidental to the concrete.

03220.02 MATERIALS

- A. CEMENT shall conform to ASTM Designation C-150 as revised, Type II.
- B. AGGREGATES shall conform to the Standard Specifications for Concrete Aggregates, ASTM Designation C-33 as revised.
- C. SAND shall be medium gradation with fineness modules of 2.60 to 2.90.
- D. COARSE AGGREGATES shall not exceed 1-1/2 inches for mass concrete and 3/4 inch for reinforced slabs.
- E. WATER shall be from an approved water supply and free of oil, acid, salt, alkali, organics or other foreign matter.
- F. AIR ENTRAINING AGENT shall conform to ASTM Designation C260 and shall be used in all concrete.
- G. WATER REDUCING ADMIXTURES conforming to ASTM Designation C494, Type A shall be used in all concrete. Tests shall be performed to ensure that excessive shrinkage or retarding of set does not result with use. Results shall be provided to the Engineer for approval.

03220.03 PROPORTIONING

Concrete shall be a homogenous mixture of Portland Cement, water, and fine and coarse aggregates as specified and within limits stated herein.

Concrete shall be proportioned by weights. The proportion of ingredients shall be selected to produce proper placeability, durability, strength, and other properties. The mixture shall be proportioned so it will work readily into rock voids, but will not slump down the slope face or cause the materials to segregate.

If it is found impossible to obtain concrete of the desired placeability and workability with the proportions specified, the Contractor shall make such changes in aggregate weights as may be authorized by the Engineer to adjust the workability to a satisfactory condition.

Admixtures shall be proportioned in accordance with manufacturer's recommendations or as determined by trial batches.

Reference for the proportioning and mix design shall be the Portland Cement Association manual "Design and control of Concrete Mixes," latest edition.

A Copy of the mix design shall be submitted to the Engineer for approval.

Proportioning requirements are specified as follows:

28 Day Compressive Strength = 4,000 psi

Maximum Size Coarse Aggregate = 3/4"

% Air Entrainment = 6.0 +/- for Footings, Walls, and Exterior Slabs;

- no air entrainment for interior slabs

Minimum/Maximum Slump = 1" to 3"*

Minimum Cement Content #/cy = 611

Maximum W/C Ratio = .45

* = slump range prior to addition of high range water reducing admixtures. When high range water reducers are used, they shall be added at the site and the manufacturer's latest recommendation shall be followed. High range water reducers ("superplasticizers") conforming to ASTM C494 shall be used during placement of all concrete. High range water reducers should be added at the site to bring the slump up to approximately 6 inches.

03220.04 CONSTRUCTION METHODS

- A. General: Deposit concrete continuously, or in layers so that no seams or planes of weakness will be formed within the section. If a section cannot be placed continuously, locate construction joints at points as indicated or as approved. Deposit new concrete while previously placed concrete is still plastic. Discard concrete which has partially hardened or has been contaminated by foreign materials. Remove temporary spreaders in forms when concrete is at an elevation where they are unnecessary. Permanent metal or concrete spreaders may be left in forms if approved by the Engineer.

- B. Placement: Place concrete as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. Do not place concrete in lifts over 24". Concrete shall not drop more than 2 feet from hopper "elephant trunk" to surface of previous concrete lift.
- C. Consolidation: Consolidate all concrete by vibration, spading, rodding, or forking. Work concrete around reinforcement, around embedded items, and into corners of forms, eliminating all air or stone pockets. Honeycombing, pitting, or places of weakness will not be allowed. Mechanical vibrators shall have a minimum frequency of 7,000 revolutions per minute and shall be operated by competent workmen. Do not over-vibrate or use vibrators to transport concrete within forms.

Vibrate concrete at many points, from 18 to 30 inches apart. Use care in vibrating not to cause segregation. Keep spare vibrator on job site during all concrete placing.

- D. Weather: Unless adequate protection is provided and/or approval is obtained, concrete shall not be placed during rain, sleet or snow. Rain water shall not be allowed to increase the mixing water nor to damage the surface finish.
- E. Placing Temperature:

- a.) Cold Weather: When the mean daily temperature falls below 40 deg F, the minimum temperature of concrete as placed shall be 50 deg F.
- b.) Hot Weather: Concrete deposited in hot weather shall have a placing temperature which will not cause difficulty from loss of slump, flash set, or cold joints (usually less than 90 deg F).

03220.05 CURING

- A. General: Protect all new concrete against injury from weather and construction. Provide moist curing above 50 deg F for at least 7 days. Walls and vertical surfaces shall be covered continuously with saturated burlap or two coats of approved waterseal or other approved means. Horizontal surfaces shall be kept wet with burlap or sprinklers. Protect finished surfaces from direct sunlight. In cold weather, provide 350 day degrees of heat.

Protect freshly deposited concrete from premature drying and excessively hot or cold temperatures; maintain minimal moisture loss at relatively constant temperature for period of time necessary for hydration of the cement and proper curing of the concrete.

B. Initial Curing: Do initial curing immediately following finishing operation. Keep concrete continuously moist at least 24 hours. Use one of the following materials or methods:

- a.) Ponding or continuous sprinkling.
- b.) Absorptive mat or fabric kept continuously wet.
- c.) Continuous steam (not exceeding 150 deg F) or vapor mist wet.
- d.) Curing compounds conforming to "Specifications for Liquid Membrane-Forming Compounds for Curing Concrete" (ASTM C309). Apply such compounds in accordance with recommendations of manufacturer; do not use on any surfaces against which additional concrete or other cementitious finished materials are to be bonded, nor on surfaces specified herein on which such curing is prohibited. Mask off all areas to be caulked prior to the application of curing, sealing and hardening compounds.
- e.) See requirements under (J.) below for curing and sealing of slabs.

C. Final Curing: Immediately following the initial curing and before the concrete has dried, provide additional curing by one of the following materials or methods.

- a.) Continuing the method used in initial curing.
- b.) Waterproof paper conforming to "Specifications for Waterproof Paper for Curing Concrete" (ASTM C171).
- c.) Other moisture-retaining coverings as approved.

D. Duration of Curing: Continue final curing until the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of the air in contact with the concrete is above 50 deg F, totals 7 days. If high-early-strength concrete has been used, continue final curing for a total of 3 days. Prevent rapid drying at the end of the curing period.

E. Formed Surfaces: Keep steel forms which are heated by the sun, and all wood forms in contact with the concrete, wet during the final curing period. If forms are to be removed during the curing period, cure by one of the above curing materials or methods immediately. Continue such curing for the remainder of the curing period.

- F. Cold Weather Curing: When the mean daily temperature of the atmosphere is less than 40 deg F, maintain temperature of the concrete between 50 deg F and 70 deg F for the required curing period. Make arrangements for heating, covering, insulating, or housing the concrete work in advance of placement, arrangements shall be adequate to maintain required temperature and moisture conditions without injury due to concentration of heat. Heat shall be thermostatically controlled and properly vented.
- G. Hot Weather Curing: When necessary, make arrangements for installation of windbreaks, shading, fog spraying, ponding, or wet covering of a light color in advance of placement. Employ such protective measures as quickly as concrete placing and finishing operations will allow.
- H. Excessive Temperature Changes: During curing period protect concrete from temperature changes in excess of 5 deg F in any 1 hour or 50 deg F in any 24 hour period.
- I. Protection from Mechanical Injury: During the curing period protect concrete from damaging mechanical disturbances, particularly load stresses and excessive vibration. Protect all finished concrete surfaces from damage caused by construction equipment, materials, or methods and from rain or running water. Do not overload self-supporting concrete structures.
- J. Curing and Sealing of Slabs: Follow the manufacturer's latest recommendations in regard to surface preparation, curing and sealant application and post application procedures.
 - 1- Slabs intended for water containment applications (reservoirs, clearwells, etc.) Cure and harden slabs with EUCOSIL, or equal, as manufactured by Euclid Chemical Company, Cleveland, Ohio. Do not apply on any surfaces against which additional concrete or cementitious materials are to be bonded.
 - 2 - All other concrete slabs shall be treated with Cure-n-seal by Endur-o-Seal, USA, Pinehurst, TX, or approved equal. The Cure-n-Seal product shall be applied during the final finishing of the concrete surface as recommended by the manufacturer. Once the slab has reached its 28-day strength, it shall be treated with Hydra-Loc by Endur-o-Seal, USA.

Slab curing and sealing products shall be waterborne sealants made specifically for concrete sealing and curing. The sealant shall be a silicate based densifying sealer.

03220.06 FINISHING

A. Slabs: Finished floor and slab surfaces shall be true plane surfaces, with a tolerance of 1/8 inch in 10 feet unless otherwise indicated on the drawings. Surfaces shall be pitched to drains. The dusting of finished surfaces with dry materials will not be permitted.

a.) Monolithic Street Trowel Finish: Except where otherwise specified, floor slabs shall be finished by tamping the concrete with special tools to force the coarse aggregate away from the surface, then screeding and floating with straight edges to bring the surface to the required finish level. While the concrete is still green but sufficiently hardened to bear a man's weight without deep imprint, it shall be wood-floated to a true, even plane with no coarse aggregate visible. Sufficient pressure shall be used on the wood floats to bring moisture to the surface. After surface moisture has disappeared, surfaces shall be steel-troweled to a smooth, even impervious finish, free from trowel marks. After having set sufficiently to ring the trowel, the surface shall be given a second steel-troweling to a burnished finish.

b.) Power-Machine Finish (option): In lieu of hand finishing, the Contractor may use an approved power finishing machine in accordance with the directions of the machine manufacturer. The preparation of concrete surfaces for finishing by machine shall, in general, be as hereinabove required for hand finishing.

B. Formed Surfaces: Knock off all protrusions, fill the holes and honeycombed areas with grout as specified in Section 03601. Grind surface of all exposed walls to remove all protrusions and to provide a smooth surface.

03220.07 CONCRETE TESTING

The Contractor shall employ an approved independent Concrete Testing Laboratory to sample and test the concrete and its materials. The Concrete Testing Laboratory must be approved by the Engineer. Concrete field quality control testing shall be performed only by technicians certified by (1) the Maine Concrete Technicians Certification Board, or (2) another body having a certification reciprocity agreement with the Maine Concrete Technicians Certification Board. The concrete field testing technician shall be employed by the approved lab. The concrete field testing technicians must be approved by the Engineer.

The following tests are required:

A. Slump: ASTM C143; One test for each set of compressive strength test specimens. Sample shall be taken at the start of the load. A slump test must be run prior to the incorporation of the CFP fibers per recommendations of ACI 544. A slump test must be run prior to and following the addition of a water reducer (superplasticizer) per recommendations of ACI 301.

- B. Air Content: ASTM C231 "Pressure method for normal weight concrete." one test for each set of compressive strength specimens measured at point of discharge.
- C. Concrete Temperature: Test hourly when air temperature is 40° F (4° C) and below, and when 80° F (27° C) and above; and each time a set of compression test specimens is made.
- D. Compression Test Specimen: ASTM C31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
- E. Compressive Strength Tests: ASTM C39; one set for each 50 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 2,400 sq. ft. of surface area placed; 1 specimen tested at 7 days and 2 specimens tested at 28 days, 1 specimen retained in reserve for later testing if required.
 - a.) When frequency of testing will provide less than 3 sets of strength tests for a given class of concrete, conduct testing from at least 3 randomly selected batches or from each batch if fewer than 3 are used.
 - b.) When total quantity of a given class of concrete is less than 10 cu. yds., strength test may be waived by Engineer if, in his judgment, adequate evidence of satisfactory strength is provided.
 - c.) When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
- F. Pumped concrete shall be tested at point of discharge per ACI 301.

All test results shall be reported in writing to the Engineer and Contractor on the day following the day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, compressive breaking strength and type of break for 3-day, 7-day and 28-day tests.

03220.08 EVALUATION OF STRUCTURE

- A. Strength: Strength of concrete shall be considered satisfactory if the average of each set of three consecutive strength tests of the laboratory specimens representing each individual placement of concrete is equal to or greater than the specified strength and if no individual strength test result falls below the specified compression strength by more than 10%.
- B. Additional Tests: If concrete shown by laboratory strength tests is defective, the Contractor may, at his own expense conduct such testing as he may deem necessary. Test results so obtained, unless properly calibrated and correlated with other test data, shall not be used as a basis for acceptance or rejection. If cores are taken for such determination, they shall be in accordance with ASTM C42.

- a.) Impact hammers, sonoscopes, or other nondestructive testing devices may be used, if approved, to determine relative strengths of various areas of the structure as an aid in evaluating concrete strength in place or in determining locations of areas to be cored. Test results so obtained unless properly calibrated and correlated with other test data shall not be used as a basis for acceptance or rejection.
- b.) When required, core tests shall be conducted in accordance with "Methods of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete" - ASTM C42. Cores shall be tested saturated-surface-dry if the concrete they represent will be wet at any time during use of the completed structure. Cores shall be tested air-dry if the concrete they represent will be dry at all times during use of the completed structure. The laboratory report shall state whether the cores were tested saturated-surface-dry or surface-dry.
- c.) At least three cores shall be taken from each potentially deficient area. Locations will be determined by the Engineer. Damaged cores may be replaced.
- d.) Strength of cores from each member or area shall be considered satisfactory if their average is equal to or greater than 90 percent of the specified strength.
- e.) Core holes shall be plugged solid with 2:1 grout.

03220.09 ACCEPTANCE OF STRUCTURE

- A. The strength of the structure in place will be considered sufficient if it complies with all requirements which control the strength of the structure as outlined below:
 - a.) Adequate concrete strength as evaluated by the requirements of this section.
 - b.) Reinforcing steel size, quantity, strength, position and arrangements in conformance with the project drawings.
 - c.) Concrete which conforms to the required dimensions and as shown on the project drawings.
 - d.) If specified elsewhere the structure shall pass a leakage test prior to acceptance.

SECTION 03512
CONCRETE REHABILITATION

03512.01 GENERAL

Furnish all labor, materials and equipment necessary to remove all spalled, loose or suspect concrete.

03512.02 SURFACE PREPARATION

Contractor shall chisel, grind, and removal all spalled, loose and suspect concrete. Contractor shall then pressure wash concrete to clean thoroughly following removal of poor concrete in accordance with coating manufacturer recommendations. Areas to be patched/repaired must be clean, sound and free of contaminants.

03512.03 MATERIAL

Repair mortar with SikaQuick VOH LD one component cementitious repair mortar; Ardex B 20 Overhead & Vertical Repair; or approved equal.

03512.04 APPLICATION

Application and curing shall be in accordance with the manufacturer's latest recommendations. Apply in multiple lifts if needed.

DIVISION 4
MASONRY

Masonry - General

04005

Mortar

04010

SECTION 04005
MASONRY - GENERAL

04005.01 GENERAL

- 1.) Furnish and install concrete masonry units, block reinforcing, ties, anchors, inserts, nailing blocks and appurtenant work as shown on the drawings, as required for the door replacement and as specified herein.
- 2.) Clean and remove surplus material and water.
- 3.) Cold Weather Protection:
 - a.) Do not construct masonry in an ambient air temperature below 40 degrees F., except by written permission from the Engineer.
 - b.) When work is permitted by the Engineer in temperatures below 40 degrees F., make approved provisions for heating and drying materials and protecting the completed work. Heat the materials and maintain a temperature above 50 degrees F. Maintain a minimum temperature of 50 degrees F. on both sides of the masonry work for a period of 48 hours or more for Type M or Type S mortar and 72 or more hours for Type N or Type O mortar. Time periods may be reduced to 24 hours if high early strength cement is used.
 - c.) Do not use any material which is frozen or covered with frost or snow.
- 4.) Hot Weather Protection:
 - a.) Protect masonry work from direct exposure to wind and sun when in an ambient air temperature or more than 90 degrees F. with a relative humidity less than 50 percent.
- 5.) Wet Weather Protection:
 - a.) During construction, keep all walls, including partially completed walls not being worked on, dry by covering with polyethylene or other suitable membrane or structure.
 - b.) Do not allow rain water to increase the amount of the mixing water.
- 6.) Metal Protection:
 - a.) Metal in contact with mortar or other masonry materials shall be painted with alkali-resistant coatings such as heavy bodied bituminous paint.

04005.02 INSTALLATION

- 1.) Masonry work shall be laid plumb, true to line, with courses level, joints, and bond uniform.
- 2.) Sizes of masonry units and dimensions of masonry work shall be as shown on the drawings.
- 3.) Construct all masonry slots, chases, or openings required for proper installation of the work specified in other Divisions as shown on the drawings or in accordance with information furnished before the work is performed.
- 4.) Do not cut any slots, chases or openings into any wall, except as directed by the Engineer.
- 5.) Brush masonry surfaces as work progresses and maintain surfaces as clean as practicable.
- 6.) Rake back unfinished work where possible and tooth only where absolutely necessary.
- 7.) Brace all masonry work during construction and until final placement of associated members.
- 8.) Set all anchorage, attachment, and bonding devices to prevent slippage and cover with mortar or grout.
- 9.) Masonry exposed to view requiring a reduction in size which involves a cut not in the vertical plane or with exposed vertical ends, shall be made with a masonry saw.
- 10.) Raking and Tooling: Tool all joints to a firm concave surface when mortar has become thumbprint hard. Joints shall be tooled on both sides of all walls. Joints on the inside of any cavity walls shall also be tooled.

SECTION 04010
MORTAR

04010.01 GENERAL

Furnish all materials, labor, and equipment necessary for the mixing and placing of masonry mortar.

04010.02 MATERIALS

A.) Mortar

Cement: shall be A.S.T.M. Designation C-150 Type II.

Lime: shall be hydrated A.S.T.M. Designation C-207 Type S.

Sand: shall be clean, sharp and with a fineness modules of 2.00 to 2.30 passing sieve requirements of A.S.T.M. Standard C-194-52T.

Water: shall be from an approved water supply.

Mix: The mortar mix by volume shall be composed of:

1 part Portland Cement
1 part lime
4-1/2 to 6 parts sand

Mix may be modified only with the approval of the Owner's Representative.

04010.03 INSTALLATION

A.) Preparation

Mortar shall be prepared such that mortar being placed is sufficiently plastic to insure adequate bonding and sealing, and that minimal mortar is lost due to setting in the trough.

B.) Placing

Mortar shall be placed in accordance with standard masonry practice and as indicated on the project drawings.

DIVISION 5
METALS

Miscellaneous Metal Work

05501

SECTION 05501
MISCELLANEOUS METAL WORK

05501.01 GENERAL

Furnish, fabricate (where necessary) and install all miscellaneous metal work necessary for the completion of the contract, as shown on the drawings, as specified in the appropriate sections of this division and as required to complete the work. Items to be embedded in concrete or masonry shall be furnished under this section but installed under the concrete or masonry sections.

Complete shop drawings shall be furnished for all metal work. Shop drawings shall show sizes, finish, method of assembly, hardware, anchorage, etc. Layout and details shall also be submitted.

05501.02 MATERIAL

Steel shapes (bars, beams, angles, etc.) shall conform to the requirements of ASTM A36-75 "Specifications for Structural Steel." All galvanized items shall be coated by the hot-dip process according to ASTM A123-73, A153-73, A386-73 and A525-73.

Expansion Bolts -- Stainless steel bolts shall be used when anchoring aluminum and in all submerged locations. Where anchors or expansion bolts are required in concrete, Hilti Kwik-Bolt or RedHead Wedge Anchors shall be used.

Thresholds -- Metal thresholds are as shown on the drawings. Thresholds shall be alloy 6063-T5 (mill finish) aluminum extrusions. Thresholds shall be cut to size, fitted to jambs and secured in place by countersunk flat-head screws in anchors built into the floor.

Aluminum Decking -- Aluminum shall be alloy 6061-T6. Aluminum decking shall be fabricated as shown on the drawings and to fit as-installed piping, etc. Stainless steel bolts, nuts and washers shall be provided, as required. Design and reinforce decking for 300 psf live load with 1% maximum deflection. Decking shall be $\frac{1}{4}$ " minimum thickness with diamond pattern traction surface. All welds shall be continuous. Provide each section with recessed lifting handles.

Anchor Bolts -- Anchor bolts shall be made of ASTM A307 galvanized steel except where stainless steel is noted. Anchor bolts shall be of the sizes indicated, hooked and threaded. Stainless steel bolts shall be used to anchor aluminum to masonry or concrete and shall include stainless steel washers and nuts.

05501.03 INSTALLATION

Materials and workmanship shall be subject to review and approval by the Engineer. Sectional work shall be shop assembled as far as practicable. All bolts that project beyond nuts in exposed work shall be cut off. All cutting, tapping, drilling and fitting required to install the work and make connections shall be included in this work. When welding is permitted or required, it shall conform to the current requirements of the American Welding Society for the type of work in question. The design details and workmanship of steel plates and structural steel shall conform to the current AISC specifications for design, fabrication and erection of steel for buildings as applicable.

Shop painting of metals shall be as follows:

Non-Immersion Service -- All ferrous metal work shall be cleaned in accordance with SSPC-SP6 specifications for commercial blast cleaning and given one coat of prime paint.

Immersion Service -- All ferrous metal items shall be cleaned in accordance with SSPC-SP10 specifications for near white blast cleaning and given two coats of prime paint.

Where aluminum surfaces come in contact with metals other than stainless steel or zinc, aluminum surfaces shall be kept from direct contact with such parts by utilizing mylar isolators, painting with zinc chromate paint, or installing non-absorptive tape between the dissimilar metals. When aluminum comes in contact with concrete or masonry, the aluminum shall be coated with bituminous paint.

DIVISION 6
WOOD & PLASTICS

Carpentry	06110
Plywood Sheathing	06115

SECTION 06110
CARPENTRY

06110.01 GENERAL

Perform all carpentry and furnish and install all materials as specified in the contract documents. Coordinate all carpentry work with other trades and provide carpentry assistance as required by other trades.

06110.02 RELATED WORK SPECIFIED ELSEWHERE

Insulation is specified in Division 7. Doors are specified in Division 8. Finishes are specified in Division 9.

06110.03 MATERIAL PROTECTION

Only new undamaged materials are to be used. Store all materials under cover and in such a manner as to insure proper ventilation and drainage. Protect materials from damage and weather. Protect materials from extreme changes in temperature and humidity.

06110.04 MATERIALS

- A. SILLS: Sill plates shall be pressure treated lumber of the dimensions shown on the plans. Install foam sill sealer between sill and foundation. Sill shall be bolted securely to the foundation with 1/2" diameter anchor bolts spaced 4' o.c. maximum. Use anchor bolts on each side of door openings.
- B. FRAMING LUMBER: Framing lumber shall be kiln dried structural grade native spruce. All lumber shall be dressed four sides and shall bear the grade mark of the appropriate inspection bureau grading to conform with the rules of the Lumber Manufacturer's Association. Unit dimensions of lumber are "nominal" unless otherwise noted.
- C. TIMBERS THICKER THAN 2": Timbers thicker than 2" shall be Douglas fir, No. 1 structural.
- D. PLYWOOD: See Section 06115.
- E. N/A
- F. EXTERIOR and INTERIORWOOD TRIM: Match existing.
- G. N/A
- H. N/A

- I. NAILS: All nails and screws shall be galvanized.
- J. OTHER MATERIALS: All other materials not specifically described but required for a complete and proper installation as indicated on the Drawings, shall be new, suitable for intended use, and subject to the approval of the Engineer.

06110.05 INSTALLATION

A.) ROUGH CARPENTRY

1.) WORKMANSHIP

All rough carpentry shall produce joints true, tight, and well nailed, with all members assembled in accordance with the drawings and all pertinent codes and regulations. Carefully select all members. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making connections. Cut out and discard all defects that render a piece unable to serve its intended function. Lumber shall be rejected for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting. Do not shim sills, joists, short studs, trimmers, headers, lintels, or other framing components.

Set all horizontal or sloped members with crown up. Do not notch, bore, or cut members for pipes, ducts, conduits, or other reasons except as shown on the drawings or as specifically approved in advance by the Engineer. Make all bearings full unless otherwise indicated on the drawings. Finish all bearing surfaces on which structural members are to rest so as to give sure and even support. Bearing ends of framing members that slope shall be cut or notched as required to give a uniform bearing surface.

Install all blocking required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas. Fire-blocks shall be two inches (nominal) in thickness by the full width of the opening being blocked. Install fire-block in all stud walls at ceiling and floor levels including furred spaces, so that the maximum dimension of each concealed space is not more than eight feet. Install fire-blocks at all other locations where openings could afford passage for rodents or flames. Install wood cross bridging of not less than two inches

by three inches nominal, metal cross bridging of equal strength, or solid blocking between joists where the span exceeds eight feet. The distance between a line of bridging and a bearing shall not exceed eight feet. Install solid blocking between joists at all points of support and wherever sheathing or flooring is discontinuous. Blocking may be omitted where joists rest on ribbons and are nailed to studs, and where joists are supported on metal hangers.

Use no less than two joists spiked together to support partitions running parallel to the joists, provided, however that where necessary to permit passage of pipes such joists may be separated by solid blocking spaced at no more than four feet on center.

Make all studs single length, un-spliced, and platform framed. Frame all corners and intersections with three or more studs to provide all required bearing for wall finish.

On all framing members to receive a finished wall or ceiling, align the finish subsurface to vary not more than 1/8 inch from the plane of surfaces of adjacent framing and furring members.

2.) FASTENING

For bolts drill holes 1/16 inch larger in diameter than the bolts being used. Drill straight and true from one side only. Bolt threads shall not bear on wood. Use washers under heads and nuts that bear on wood; use washers under all nuts. For lag screws and wood screws, pre-bore holes same diameter as root of thread; enlarge holes to shank diameter for length of shank. Screw, do not drive, all lag screws and wood screws.

Use common wire and galvanized nails or spikes of the dimension shown on the Nailing Schedule.

For conditions not covered in the Nailing Schedule or IBC-2009, provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike provided, however, that 16d nails may be used to connect two pieces of two inch nominal thickness.

Do all nailing without splitting wood. Pre-bore as required. Split members shall be replaced at the Contractor's expense.

NAILING SCHEDULE: The following schedule is summarized, in part, from the International Building Code 2009, Table 2304.9.1. See IBC for additional information and options.

Blocking to joist bearing:	Three 8d toenailed each side
Blocking to joist or stud:	Three 8d toenailed each side
One inch brace to stud:	Two 8d face nailed
Bridging to joist:	Two 8d toenailed
Built-up beams and girders	20d @ 32" on centers, staggered
Joists and rafters: to support:	Two 20d @ ends & splices
At laps (12") minimum:	Three 8d toenailed each side
Multiple joists:	Three 16d face nailed
Joists to sill or girder:	16d @ 12" on centers, staggered
1" furring to underside of joists:	Three 8d toenailed
Studs toenailed to plate:	#8 x 2" screw
Studs nailed together:	Four 8d
Plates: Upper to lower:	16d @ 24" on centers, staggered
At splices:	16d @ 16" on centers, staggered
Plate lap at corners:	Eight 16d face nailed
	Two 16d face nailed

B.) FINISH CARPENTRY

Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims.

Install to a tolerance of 1/8" in 8'-0" for plumb and level and with 1/16" maximum offset in flush adjoining surfaces and 1/8" maximum offsets in revealed adjoining surfaces.

Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

Install standing and running and miscellaneous trim with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners, to produce tight fitting joints with full surface contact throughout length of joint. Use scarf joints for end-to-end joints.

Anchor finish carpentry work to anchorage devices or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nail for exposed nailings, countersunk and filled with flush with finished surface, and matching final finish where transparent is indicated.

Attach panels to supports with countersunk finish nailing where covered by moldings (if any), in accordance with manufacturer's instructions for concealed-fastener installation. Putty holes with matching color.

Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork. Adjust joinery for uniform appearance.

Clean finish carpentry work on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.

Refer to Division 9 sections for final finishing of installed finish carpentry work.

Installer of finish carpentry work shall advise Contractor of final protection and conditions to maintain to ensure that work will be without damage or deterioration at time of acceptance.

SECTION 06115
PLYWOOD SHEATHING

06115.01 GENERAL

Furnish all labor and materials necessary to install plywood sheathing required for a complete project, as specified in the contract documents. All sheathing shall be new. Sheathing used as concrete forms shall not be reused as part of the building.

06115.02 MATERIALS

A.) Interior

- 1.) Interior Plywood shall be T1-11 to match existing plywood thickness.
- 2.) Strapping shall be kiln dried pine or spruce and of the nominal dimensions shown on the plans.

B.) Exterior

- 1.) Plywood shall be CDX fir (to match existing plywood thickness). When placing portions of sheathing on existing structures, plywood shall be of a thickness which accommodates existing sheathing. TYPAR wind barrier shall be installed over entire exterior sheathed walls per manufacturer's recommendations.

06115.03 INSTALLATION

Strapping shall be installed 16" o.c. (unless noted otherwise on the plans) and securely fastened to any concrete or masonry. Install blocking between strapping to support all plywood edges.

Clean and smooth all surfaces where sheathing is to be applied.

Nail sheathing securely with 8d nails (galvanized) 12" c/c for intermediate members and 6" c/c for end supports. Galvanized screws shall be used to secure all interior sheathing. Leave 1/16" space at all panel end joints and 1/8" space at all panel side joints.

Roof sheathing shall be installed with face grain perpendicular to framing members with panel and joints staggered 48".

Installation shall be according to the manufacturer's latest recommendations.

DIVISION 7
THERMAL AND MOISTURE PROTECTION

Vapor Barriers	07015
Insulation	07280
Corrugated Metal Wall Panels	07462
Flashing	07620
Joint Sealing & Caulking	07910

SECTION 07015
VAPOR BARRIERS

07015.01 GENERAL

The Contractor shall furnish all material and labor for and shall install all necessary vapor barriers as indicated on the drawings and as herein specified. The Contractor shall also supply all incidental work necessary for the installation of that item.

07015.02 MATERIAL

Polyethylene film and sheeting shall conform to ASTM D-2103 and D2578 and shall be supplied in six (6) mil thick sheets unless otherwise specified on the drawings. Butyl rubber barriers shall conform to ASTM E-96-66 for permeability and ASTM D-297-72A for specific gravity and shall be of the highest quality and formed from multiple plies of rubber fabricated into single ply rubber membrane. Splicing materials, sealants, prefabricated accessories and termination shall be of the highest quality and supplied by the manufacturer of the vapor barrier membrane.

07015.03 INSTALLATION

Before applying barriers the Contractor shall correct defects or conditions such as debris, bulges, cracks, etc., that will interfere with or prevent a satisfactory vapor installation.

Installation of vapor barriers that have become damaged shall be repaired or removed and replaced with new acceptable material to the satisfaction of the Engineer. Complete vapor barrier repairs and installation in one area where directed, and obtain approval of such work on remaining areas. The vapor barrier in the approved sample area shall be properly identified to establish the quality of workmanship acceptable for the installation of vapor barriers for the project.

Apply membrane and accessories in accordance with manufacturer's written instructions and as shown on the drawings and details.

SECTION 07280 INSULATION

07280.01 GENERAL

Furnish and install the general building insulation as specified in the contract documents.

07280.02 QUALITY ASSURANCE

Comply with fire-resistance and flammability ratings as shown and specified; and comply with governing regulations as interpreted by authorities. The materials shown are for the thermal resistance values R specified for each material. Provide adjusted thickness as directed for the equivalent use of material having a different thermal conductivity. Submit manufacturer's specifications and installation instructions for each type of insulation required. Include data substantiating that materials comply with specified requirements.

07280.03 MATERIALS

Stone Fiber Insulation (Rockwool): Stone fiber insulation shall be non-combustible, lightweight, semi-rigid stone wool batt insulation of thickness specified on the drawings with a U-value of 0.24 at 75 degrees F. Density shall be 2 lbs. per cubic foot. Insulation shall conform to ASTM C665 Type 1, ASTM C167, ASTM C518, ASTM E136 and ASTM E84. Stone fiber insulation shall be Roxul Comfortbatt, as manufactured by Roxul, Inc. or equal. Dimensions shall be manufacturer's standard lengths and widths, as needed to coordinate with structural elements of spaces to be insulated.

07280.04 INSTALLATION

Do not allow insulation materials to become wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

Install all insulation as shown on the drawings and according to the manufacturer's latest recommendations. Comply with manufacturer's instructions for the particular conditions of installation in each case; including method of support or anchorage to the substrate, as appropriate for each application indicated. If printed instructions are not available or do not apply to the project conditions, consult the manufacturer's technical representative for specific recommendations before proceeding with the work.

Extend insulation full thickness as shown over entire surface to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Apply a single layer of insulation of the thickness indicated or the required thickness for the thermal value indicated, unless otherwise shown or required to make up the total thickness.

SECTION 07462
CORRUGATED METAL WALL PANEL

07462.01 GENERAL

Furnish and install corrugated metal wall panels as specified in the contract documents.

07462.02 MATERIALS

Metal wall panels shall be 29-gauge corrugated screw-down panels. Fastening shall be with color-matched #10 self-tapping hex head galvanized screws with rubber or EPDM washers. Panel pattern and color shall be standard options, selection by Owner.

Contractor shall supply a manufacturer's paint finish warranty for all components for 40 years and base metal warranty for 25 years. Contractor shall supply a workmanship warranty for 10 years.

07462.03 INSTALLATION

Install metal wall panels and accessories in accordance with the manufacturer's recommendations. Fasten wall panels in place, level and plumb. Fasten to aligned pattern. Install corner strips, closures, and trim. Install metal flashings at sills and head of wall openings.

Upon completion of installation, clean all related work; wash down siding to remove fingerprints and soiled areas, and remove all scrap materials.

SECTION 07620
FLASHING

07620.01 GENERAL

Furnish and install all flashing as specified in the contract documents.

07620.02 MATERIAL

Flashing shall be 28-gauge aluminum and of a width to accommodate area of installation.

Flashing for windows, doors, wall louvers, wall fans, and other wall openings shall be Grace Vycor Butyl self-adhering flashing.

07620.03 INSTALLATION

Install per manufacturer's latest recommendations.

SECTION 07910
JOINT SEALING AND CAULKING

07910.01 GENERAL

Furnish all materials, labor and equipment required to do all caulking and sealing for the proper completion of the project. Caulking shall be done at exterior and interior windows, doors, joints, and all exterior wall openings.

07910.02 MATERIALS

All sealants shall be of a single manufacturer. The color shall be approved by the Engineer. Acceptable products are Sikaflex 1-A. Caulking shall be a premium-grade, high-performance, moisture-cured, 1-component, polyurethane-based, non-sag elastomeric sealant. Caulking shall meet Federal specification TT-S-00230C, Type II, Class A. Caulking shall meet ASTM C-920, Type S, Grade NS, Class 25; Canadian Standard 19-GP-16A, Type II. Caulking shall be permanently flexible, watertight and non-staining.

07910.03 INSTALLATION

Install per manufacturer's latest recommendations. Utilize manufacturer's primer where required.

All caulking shall be done on clean dry joints to the minimum depth recommended by the manufacturer. All joints shall be vacuum cleaned before caulking. Masonry and concrete work shall be properly covered and dry before caulking. Finish material shall be properly protected by masking tape before caulking.

DIVISION 8
DOORS AND WINDOWS

Doors and Frames 08020

SECTION 08020 DOORS AND FRAMES

08020.01 GENERAL

Furnish and install all doors, frames, and accessory items as indicated on the drawings and/or specified herein.

Submittals: Shop drawings for the fabrication and installation of doors and frames shall include details of each door and frame type, elevations of floor design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, details of joints and connections, anchorage and accessory items.

Delivery and Storage: Deliver doors and frames cartoned or crated to provide protection during transit and job storage. Inspect doors and frames upon delivery for damage. Minor damages may be repaired provided the finished items are equal in all respects to new work and acceptable to the Engineer; otherwise, remove and replace damaged items as directed.

Store doors and frames at the building site under cover. Place the units on at least 4" high wood sills or on the floors in a manner that will prevent rust and damage. If the cardboard wrapper on the door becomes wet, remove carton immediately. Provide a 1/4" space between stacked doors to promote air circulation.

The Contractor must examine the substrate and conditions under which the doors and frames are to be installed and notify the Engineer in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

08020.02 MATERIALS

Doors and frames shall be manufactured by Republic or approved equal. Doors shall be Republic DE Series Flush Doors, 1 $\frac{3}{4}$ " thick, galvanized steel construction. Exterior doors shall be 16 gauge (minimum) and interior doors shall be 18 gauge (minimum) unless otherwise specified on the Door Schedule. All doors shall be insulated.

Frames shall be 14 gauge galvanized steel and designed for wood frame, steel or masonry construction as required.

Furnish doors complete with all hardware and accessories including:

- Closers w/stay-open feature
- Stainless steel hinges (3 ea)
- Weather stripping and thresholds as shown in schedule
- Insulation
- Silencers
- Bolts, anchors, inserts, supports, fasteners, etc.
- Installation instructions

- Shop applied paint
- Standard hardware
- Lockset, keyed-alike locks (match owner keys), keys, strikeplates and accessories
- Floor-mounted stops
- Top and bottom caps
- All components shall comply with ADA requirements

08020.03 DOOR SCHEDULE

See Plans.

08020.04 INSTALLATION

Install units and accessories accurately and neatly into their respective locations in accordance with final shop drawings and manufacturer's data and as herein specified. Doors shall be installed true, plumb and square, such that they remain open in any position.

All doors and frames shall be painted per Division 9.

DIVISION 9
FINISHES

Painting

09910

SECTION 09910
PAINTING

09910.01 GENERAL

Furnish all labor, materials and equipment required to paint all items as specified in the contract documents. Surface preparation, priming and coats of paint specified are in addition to shop priming and surface treatment specified under other sections of the work. The term "paint" as used herein means all coating system materials, which includes primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

09910.02 SUBMITTALS

- A.) Submit copies of manufacturer's technical information, including paint label analysis and application instructions for each material proposed for use. Transmit a copy of each manufacturer's instructions to the paint applicator.
- B.) List each material and cross-reference to the specific paint and finish system and application. Identify by manufacturer's catalog number and general classification.
- C.) Submit samples for Owner's review of color and texture. Compliance with all other requirements is the exclusive responsibility of the Contractor.

09910.03 DELIVERY AND STORAGE:

- A.) Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label, and the following information:
 - a.) Name or title of material
 - b.) Manufacturer's stock number and date of manufacture
 - c.) Manufacturer's name
 - d.) Contents by volume, for major pigment and vehicle constituents
 - e.) Thinning instructions
 - f.) Application instructions
 - g.) Color name and number
- B.) Store materials in a protected area at a temperature between 40 and 110 degrees F.

09910.04 MATERIALS

A.) Quality:

Provide the best quality grade of the various types of coatings as regularly manufactured by acceptable paint manufacturers. Materials not displaying the manufacturer's identification as a standard, best grade product will not be acceptable.

B.) Colors and Finishes:

Colors will be selected by the Owner in accordance with 09910.02. No colors containing lead or other toxic substances shall be used.

C.) Acceptable Manufacturers: Paint shall be manufactured by Sherwin-Williams, Tnemec, CarboLine, or approved equal.

09910.05 EXECUTION

A.) Inspection:

- 1.) Examine the areas and conditions under which painting work is to be performed and notify the Engineer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Applicator.
- 2.) Starting of painting work will be construed as the Contractor's acceptance of the surfaces within any particular area.
- 3.) Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint.

B.) Surface Preparation:

- 1.) General: Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition. All surfaces shall be clean, dry and free of contamination.

2.) Wood:

- a.) Clean wood surfaces to be painted of all dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off.

- b.) Prime, stain, or seal wood required to be job painted or stained immediately upon delivery to job. Prime or stain edges, ends, faces, undersides, and backsides of such wood.
- c.) When transparent finish is required, use spar varnish for backpriming.
- d.) Backprime paneling or interior partitions only where masonry, plaster, or other wet wall construction occurs in backside.
- e.) Seal tops, bottoms and cut-outs of wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.
- f.) Scrape clean small, dry seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of the priming coat.
- g.) After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
- h.) Sand surface after prime coat has dried and between coats of finish paint to produce a smooth uniform finish.

3.) Shop Primed Metal: Hand or power tool clean field connections, welds, burned and abraded areas to remove rust and contaminants and touch up with compatible primer before further rusting occurs.

4.) Ferrous Metals: Remove loose rust, mill scale and other foreign matter by hand or power tool cleaning and apply specified prime coat before further rusting occurs.

5.) Galvanized Steel: Remove protective mill coating by solvent cleaning.

6.) Non-Ferrous Metals: Clean surface with mineral spirits.

7.) Gypsum Drywall:

- a.) Sand joint compound smooth and flush with the surface using fine grit sandpaper.
- b.) Fill nicks, scratches and uneven spots with spackling compound and after dry, sand flush with the surface.

- 8.) Interior Concrete and Masonry Units: All surfaces must be clean and dry. Prepare surfaces with a brush-off blast or acid etch. Apply epoxy filler.
- 9.) Interior Concrete Slab: All surfaces must be clean and dry. Remove all existing paint and prepare surfaces with a brush-off blast.

C.) Material Preparation and Application:

Mix and prepare painting materials in strict accordance with the manufacturer's directions. Apply paint by brush, roller, spray, or other acceptable practice in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by the paint manufacturer for material and texture required.

D.) Protection:

Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing and repainting, as acceptable to the Owner.

Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

E.) Cleanup:

During the progress of the work, remove from the site all discarded paint materials, rubbish, cans, and rags at the end of each work day. Upon completion of painting work clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

F.) Painting Schedule:

Paint surfaces per paint/finish schedule on drawings.

- 1.) Verify with Engineer which specific surfaces are to be painted prior to painting. Surfaces not to be painted include:
 - a.) Items with factory applied final finish
 - b.) Concealed ducts, pipes, conduits and surfaces
 - c.) Exterior concrete surfaces
 - d.) Aluminum finishes, stainless finishes
 - e.) Rigid galvanized electric conduits

2.) Painting Schedule (all thicknesses are dry mils)

Surface to be Painted Sherwin-Williams Industrial Coating (or approved equal)

	a.) Wood and Plywood (interior)	3 coats – MacroPoxy 646 Fast Cure Epoxy (5.0 mils each) (B58 Series)	
	b.) Ductile Iron Pipe, Steel, Ferrous Metals	3 coats – MacroPoxy 646 Fast Cure Epoxy (5.0 mils each) (B58 Series)	
	c.) PVC Pipe (when specified on plans)	3 coats – MacroPoxy 646 Fast Cure Epoxy (5.0 mils each) (B58 Series)	
	d.) Interior Concrete Masonry Units	1 st coat – Kem Cati Coat Epoxy Filler (10-30 mils) (B42WA8/B42WA9) 2 nd /3 rd coats – MacroPoxy 646 Fast Cure Epoxy (5.0 mils each) (B58 Series)	
	e.) Interior Concrete Slab	1 st coat -- Measure moisture content of existing slab, Seal/prime slab with Tnemec Series 208. 2 nd /3 rd coats – Series 288/289 water based epoxy (8-12 mils each coat). Broadcast non-skid into 1 st coat of Series 288/289.	

DIVISION 11
EQUIPMENT

Equipment - General	11001
Pumps & Accessories	
Booster Pumps	11110
Pressure Transducers	11400
Instruments & Monitors	
Electromagnetic Flow meters	11816
On-Line Monitoring Equipment	11826

SECTION 11001
EQUIPMENT - GENERAL

11001.01 GENERAL

Furnish, install and test all equipment specified in the contract documents.

11001.02 QUALITY ASSURANCE

Provide only new equipment of proven reliability and performance. Acceptable manufacturers are listed for each piece of equipment specified. Certificates, patents, licenses, and other required legalities are specified where applicable for each piece of equipment.

11001.03 SUBMITTALS TO THE ENGINEER

Attention is called to the Shop Drawings and Submittals sections of the General Conditions and of Division 1. Manufacturers' literature and illustrations shall be submitted on all equipment to be installed. Installation instructions, operating data, operating manuals, and maintenance data shall also be submitted.

11001.04 GUARANTEE

Submit the equipment manufacturers' warranty to the Engineer for approval. All materials and workmanship shall also be warranted as specified in the General Conditions.

11001.05 MATERIALS

All standard recommended spare parts, as indicated in the manufacturers' instruction manuals shall be provided for each piece of equipment.

11001.06 DELIVERY, STORAGE AND HANDLING

Deliver equipment according to manufacturers' detailed instructions and/or as specified within the appropriate applicable sections of the specifications.

11001.07 INSPECTION

All equipment will be inspected by the Engineer, the Contractor, and the manufacturers' representative to determine the condition. See the appropriate section for the details of inspection for the various pieces of equipment.

11001.08 INSTALLATION AND ADJUSTMENTS

Install all equipment in accordance with the manufacturers' requirements. Install equipment under the direct supervision of a manufacturer's representative when specified. All equipment shall be checked and adjusted for proper operation and alignment.

11001.09 POTABLE WATER CONTACT

All components and materials that will be in contact with the finish water when the project is complete shall be certified to be in compliance with ANSI / NSF Standard 61. This includes but is not limited to piping, valves, fittings, pumps, tanks, meters, and other appurtenances, etc.

SECTION 11110 BOOSTER PUMPS

11110.01 GENERAL

Furnish and install the horizontal split-case booster pumps and accessories as specified in the contract documents.

Submit a copy of the pump manufacturer's warranty to the Engineer. The pump and motor shall carry a minimum 1-year warranty.

11110.02 EQUIPMENT

The horizontal split case booster pumps shall be Aurora Pump Series 410, model 411, 4 x 5 x 15 or approved equal. In order to be considered equal, a pump must meet or exceed the performance and construction of the Aurora Pump. The dynamic head in the pump curve shall not vary more than 5% at any given flow from the Aurora Pump curve. The pump shall have a shut-off head of at least 165 ft. The curve shall pass through the following points: 750 gpm @ 140'.

Pump motors shall be 40-HP, 1800 RPM, 460V, 3Ø, 60Hz. Pump motors shall be TEFC and shall have the maximum energy efficiency available. The motors provided shall have a minimum service factor of 1.15. Motors shall be non-overloading for the entire published pump operating range without utilizing the motor service factor. Motors shall be inverter duty rated for service on variable frequency drives as specified in Division 16. Written certification of inverter duty by pump supplier is required. Pump shall have 4" flange In and 5" Flange Out.

11110.03 INSTALLATION

Install the pumps as shown on the plans and according to the manufacturer's latest recommendations. The pumps shall be mounted on a cast-in-place concrete pad and securely bolted to the pad with anchor bolts. Start the pump and confirm its proper operation. Supply the services of the manufacturer's representative during pump startup.

**SECTION 11400
PRESSURE TRANSDUCERS**

11400.01 GENERAL

Furnish and install the pressure transducers and accessories as specified in the contract documents. Submit a copy of the manufacturer's warranty to the Engineer. The transducers shall carry a minimum 1-year warranty.

11400.02 EQUIPMENT

Pipeline Transducer: Pressure transducer shall be:

- Constructed of stainless steel
- Loop Powered
- 4-20mA @ 24 V DC output
- Range as specified
- Accuracy $\pm 0.1\%$ of full scale or better
- Operating temperature 0-150°F
- Stainless steel wetted parts
- Backlit LCD Display
- NEMA 4X aluminum enclosure
- Transducers shall be Siemens Sitrans P320 or approved equal
- Provide digital read out with 4-20ma retransmission to PLC

<u>Location</u>	<u>Number</u>	<u>Range</u>	<u>Model</u>
Booster Station High	1	0-232 psi	P320
Booster Station Low	2	0-232 psi	P320

11400.03 INSTALLATION

Install as shown on the plans and according to the manufacturer's latest recommendations. Provide with isolators and surge protection as shown and recommended by manufacturer.

Install twisted shielded pair (#16 AWG min.) in conduit from transducers to digital displays and from digital displays to SCADA panel.

SECTION 11816 ELECTROMAGNETIC FLOW METERS

11816.01 GENERAL

Furnish and install the electromagnetic flow meters and accessories as shown on the plans and as specified herein. Meters used in potable water service shall be certified to NSF/ANSI 61 Drinking Water System Components - Health Effects.

Two 6" diameter meters are required for this project.

11816.02 MATERIALS

The electromagnetic flow meters shall utilize electromagnetic induction to measure fluid flow through the meter. The meter shall include a detector through which the fluid flows and which produces a low-level electrical signal proportionate to the flow rate. The meter shall also include a converter that supplies excitation current to the detector and which amplifies the signals from the detector and processes them into a 4-20 mA DC current signal proportional to fluid flow.

Electromagnetic flow meters shall be hard rubber lined and shall be Siemens Sitrans FM, or approved equal.

Provide meter capable of remote detector and converter installation, however the intent on this project is for the detector and converter be integral. Magmeter detector shall be IP68 rated for complete submergence.

Meter end connections shall be as flanged as shown on the plans. Provide grounding rings, as required.

Provide flow meter with excitation and signal cables as recommended by manufacturer.

11816.03 INSTALLATION

Install the flow meter detector and converter as shown on the drawings and according to the manufacturer's latest recommendations. All conduits and connections shall utilize waterproof flexible conduit for connection from rigid conduit to converter for both 120 VAC and signal. Provide services of manufacturer's representative to start up, program, test meter and confirm proper operation.

SECTION 11826
ON-LINE MONITORING EQUIPMENT

11826.01 GENERAL

Furnish and install the on-line monitoring equipment as shown on the plans and as specified herein.

11826.02 MATERIALS

An Online Chlorine and pH Monitor shall be provided to continuously measure (specify free or combined chlorine residual) as shown on the plans and as specified herein.

Each Chlorine Monitor shall consist of a direct measuring chlorine sensor, a clear constant-head flowcell, 25 feet of sensor interconnect cable with quick disconnect plug, and an electronic monitor housed in a NEMA 4X enclosure suitable for wall, pipe, or panel mounting.

The chlorine sensor shall be a direct measuring polarographic sensor utilizing a special polymeric membrane to isolate the sensing electrodes from the sample and eliminate the potential for electrode contamination. The membrane shall allow chlorine to diffuse into the sensor where it shall react with the sensing electrode, generating a signal that is linearly proportional to chlorine concentration. The sensor assembly shall also contain a precision RTD temperature sensor to continuously measure sample temperature to allow temperature compensation of the measured chlorine value. The chlorine sensor shall be constructed with a quick disconnect receptacle to allow easy sensor servicing or exchange.

Chlorine sensors shall be supplied complete with at least 10 spare membranes, electrolyte, and a spare parts kit that includes all O-rings and special hardware.

The flowcell assembly supplied with the monitor shall be constructed of clear material allowing the condition of the sensor membrane to be inspected without removal of the sensor. The sensor shall slide easily into the side of the flowcell, with a double O-ring seal to prevent water leakage. Flow to the sensor shall be regulated automatically through a constant-head overflow arrangement. Hose barbs for sample inlet (1/4 in. I.D. tubing) and drain (1/2 in. I.D. tubing) shall be supplied as part of the flowcell.

The chlorine monitor shall be supplied with a pH sensor. The pH sensor shall allow free chlorine monitors to automatically correct the chlorine value for changes in sample pH to maintain measurement accuracy over wide pH swings from pH 7 to pH 9.5. The pH sensor shall fit into the inlet chamber of the chlorine sensor flowcell. The pH value shall be available for display on the second line of the monitor display, and one analog output shall be assignable as a pH output.

Monitors shall be powered by either 120V AC single-phase line power. Monitor shall provide three isolated 4-20 mA outputs. Outputs shall be configurable for chlorine, pH, temperature, or PID control. Analog outputs shall be both ground isolated and isolated from each other.

For alarm purposes, monitors shall contain three SPDT relays. Relay functions shall be programmable for control, alarm, or fail functions, and may be designed for either normal or failsafe operation. For monitors supplied with only 2 analog outputs, monitors shall have the option of an additional 3 low-power relays to allow for additional external alarm functions. The chlorine monitor electronic assembly shall provide a variety of functions as follows:

1. Provide user selectable display of PPM chlorine, process temperature, or PID % output on the main display. Main display variable shall be indicated with a minimum character height of 0.75 inches to allow easy readability up to 20 feet away.
2. Allow selection of operating ranges of 0-200 PPB, 0-2 PPM, 0-20 PPM or 0-200 PPM. Display ranges shall be configurable by operators, or the monitor may be configured for Auto-Ranging. The auto-ranging function shall automatically switch to the display range that provides the best resolution for any given operating level.
3. Provide automatic pH correction of the measured free chlorine level based on input from an optional pH sensor. The pH compensation may be enabled or disabled by the user, and the pH value at which the correction factor is disabled (comp. stop value) may also be programmed by the user.
4. Provide the ability to use the 4-20 mA output for PID control. Proportional, Integral, and Derivative functions shall be user-adjustable and provide output hold when needed.
5. Provide two isolated 4-20 mA outputs, with output spans programmable by the user for any segment of a display range. to allow simultaneous output of both free chlorine and pH. A third analog output shall be provided for separate outputs for chlorine, pH, and temperature.
6. Provide output hold and output simulate functions to allow for testing or remote receiving devices or to allow maintenance without disturbing control systems.
7. Provide three 6 Amp SPDT relay outputs in standard unit. Software settings for relay control include setpoint, deadband, phase, delay, and failsafe. Provide an optional 3-relay card, for 0-30 V signals, to bring the total to 6 relays. Relays shall be programmable for either control or alarm function, or relays may be assigned to diagnostic functions for use in indicating trouble conditions at a remote location.
8. Provide data logging option for digital communications.

9. Diagnostic functions shall be incorporated into the transmitter. The 4-20 mA output shall be capable of being assigned to safely rise to 20 mA, fall to 4 mA, or be left alone, during diagnostic failures. Diagnostic error messages shall be displayed in clear language; no confusing error codes shall be displayed.

The complete chlorine monitor shall be supplied with spare parts and accessories for up to 2 years of operation. A minimum of 10 replacement membranes shall be supplied for the sensor.

The complete Chlorine/ pH Monitor shall be Series Q46H/62-63 as manufactured by Badger Meter, Inc. or approved equal.

11826.03 INSTALLATION

Install units as shown on the plans and according to the manufacturer's latest recommendations. Provide services of manufacturer's representative during start-up and to provide training in unit operation, maintenance and calibration.

DIVISION 15
MECHANICAL

Piping

Ductile Iron Pipe & Appurtenances	15110
Check Valves - Silent	15124
Stainless Steel Pipe & Appurtenances	15195

HVAC

Heating System	15315
Louvers, Dampers & Exhaust Fans	15381

SECTION 15110
DUCTILE IRON PIPE & APPURTENANCES

15110.01 GENERAL

Furnish, install and test all ductile iron pipe, fittings and appurtenances installed in the booster station as specified in the contract documents.

15110.02 MATERIALS

A.) Pipe:

Pipe shall be ductile iron, double cement lined, shop primed and of the appropriate lengths necessary. Pipe shall be in full conformance with AWWA C151 and AWWA C111 and AWWA C104. All pipe shall be flanged unless indicated otherwise on the drawings. Flanged pipe shall be Class 53.

B.) Fittings:

Flanged pipe fittings shall be ductile iron Class 250 and shop primed. Fittings shall be in accordance with AWWA C110 for radii of curvature and AWWA C104 for cement lining. Fittings shall have 125 lb. faced and drilled flanges in accordance with ANSI B16.1. Bolt holes on flanges shall be foundry drilled to allow alignment of fittings as shown on plans.

C.) Gaskets & Bolts:

All gaskets for flanged pipe shall be of the ribbed type. All bolts and nuts for flanged pipe and fittings shall be stainless steel. Utilize approved thread lubricant (never seize) to prevent galling of stainless threads.

D.) Wall Pipes:

Wall pipes of the sizes and dimension shown on the drawings shall be provided. Wall pipes shall have welded waterstops and shall be tar-coated when one end of the pipe will be buried.

E.) Omni-Sleeves:

When shown on the drawings, Omni-Sleeve ductile iron waterstop anchor rings shall be installed in concrete walls. Omni-Sleeves shall be furnished with ductile iron sleeve pipes of the appropriate length. Mechanical joint restraint used with Omni-Sleeves shall be One-Lok. Omni-Sleeve and One-Lok are by Sigma/Nappco.

F.) Flange Adapters:

All flanged pipe shown on the drawings shall utilize foundry-installed flanges, except where shown as RFCA (restrained flange coupling adapters). RFCA shall be used where shown. RFCA shall be ductile iron with ductile iron bolts. RFCA shall be Romac RFCA, or approved equal.

G.) Gate Valves:

When shown on the drawings, gate valves shall be furnished and installed. Gate valves for non-buried service shall be resilient seat type flanged, NRS (unless specified on the plans as OS&Y). The body and bonnet shall be ductile or cast iron and shall conform in thickness to those listed for gray iron in the applicable AWWA gate valve standards. The valve stem root diameter shall meet or exceed AWWA C-500 and the valve shall have a bronze thrust collar bushing. Valves shall have heat fusion bonded epoxy coating inside and out. Handwheels shall be provided. Valves shall open left. Acceptable manufacturers are:

Clow R/W
Metroseal 250 RS
Approved Equal

H.) Butterfly Valves:

When shown on the drawings, butterfly valves shall be furnished and installed. Butterfly valves shall conform to AWWA C504 for Class 150B. Valve bodies shall be cast iron short body design with 125 # flanged ends. Discs shall be offset and shall be ductile iron. Seating edge shall be 316 SS. Valve shaft shall be 304 SS and seat shall be Buna N. Valves shall be painted inside and outside and factory tested per AWWA C504.

Provide with 10 position locking manual lever actuators. When specified, valves shall have rotary manual actuators with handwheels.

Butterfly valves shall be Dezurik BAW or approved equal.

I.) Pipe Supports:

Pipe supports shall be as shown on the contract drawings.

J.) Saddles:

Chemical injection taps and other small connections shall utilize saddles. Saddles shall have ductile iron (65-45-12) body and double u-bolt type. Straps shall be 304 (18-8) SS with Teflon-coated threads. Saddles for use on PVC pipe shall be double strap pre-formed at the factory to the exact pipe size to avoid overstressing the pipe during installation.

K.) Plug Valves:

Plug valves shall be eccentric and 3-way plug valves by DeZurik or equal. Valves shall have 125 lb. flanges, cast iron construction, single lever handle and resilient plugs.

L.) Other Appurtenances:

The following items are specified elsewhere in Division 15, if applicable:

Check Valves
Hydraulic Operated Valves
Air Release Valves
Meters
Static Mixers

15110.03 INSTALLATION

Install all pipe and appurtenances as shown on the drawings per AWWA specifications and according to the manufacturer's latest recommendations.

15110.04 PAINTING FLANGED PIPE

Flanged pipe and fittings installed in interior locations shall be painted as specified in Division 9.

SECTION 15124 CHECK VALVES

15124.01 GENERAL

Furnish and install all check valves as specified in the contract documents.

15124.02 MATERIALS

Check valves in ductile iron piping shall be flanged Globe Style Silent Check Valves and shall be constructed with ductile iron bodies, brass seat and plug, stainless steel spring. The valve plug must be center-guided at both ends with a thru-integral shaft and spring-loaded for guaranteed silent shut-off operation.

The spring must be helical or conical. The seat and plug shall be hand replaceable in the field for ease of maintenance. The flow area through the body shall be equal to or greater than the cross-sectional area of the equivalent pipe size.

All materials of construction shall be certified in writing to conform to A.S.T.M. specifications as follows:

Body	Ductile Iron	Type 60-45-10 ASTM A536
Plug & Seat	Brass	ASTM B584 C83600
Spring	Stainless Steel	ASTM A313 T316
Exterior Paint	Phenolic Primer	FDA Approved for
	Red Oxide	Potable Water

Valve shall be Apco Series 600 Silent Check Valves or equal, as manufactured by APCO/Valve & Primer Corporation, Schaumburg, Illinois, U.S.A.

15124.03 INSTALLATION

Install the check valves as shown on the plans and according to the manufacturer's latest recommendations.

SECTION 15195
STAINLESS STEEL PIPE & APPURTENANCES

15195.01 GENERAL

Furnish, install and test all stainless-steel pipe, fittings and appurtenances installed in buildings, vaults and tanks as specified in the contract documents.

This specification covers the materials, fabrication, welding, inspection, and installation of Schedule 10S type 304 stainless steel piping with welded joints and welded/rolled flanged joints, for potable water service.

This is an alternative to interior ductile iron piping on this project. Submit a detailed plan showing configuration of pipe and fittings demonstrating functional compatibility with the ductile iron design for dismantling joints, joint restraint and equipment replacement or servicing.

15195.02 REFERENCES

Piping materials and workmanship shall conform to the latest editions of the following:

Material Standards

- **ASTM A312/A312M** — Seamless and Welded Austenitic Stainless Steel Pipe
- **ASTM A403/A403M** — Wrought Austenitic Stainless Steel Fittings (if fabricated)
- **ASTM A182/A182M** — Forged or Rolled Alloy and Stainless Steel Flanges, Fittings, and Valves
- **ASME B16.5** — Pipe Flanges and Flanged Fittings
- **ASME B31.1 / B31.3** — Pressure Piping (as applicable)

Welding & Fabrication Standards

- **ASME IX** — Welding Qualifications
- **AWS A5.9** — Bare Stainless Steel Welding Electrodes and Rods
- **AWS D1.6** — Structural Welding Code — Stainless Steel

Inspection & Testing

- **ASTM A308/A308M** — Tension Testing of Welds
- **ASTM E165/E165M** — Liquid Penetrant Inspection
- **ASTM E709** — Magnetic Particle Testing

15195.03 MATERIALS

Pipe: Stainless-Steel pipe shall be ASTM A312/A312M, Type 304 stainless steel, Schedule 10S, with dimensions conforming to ASME B36.19. Pipe markings shall include material specification, grade, Sch 10S, heat lot, and manufacturer.

Fittings: Fittings not provided by the pipe manufacturer shall be:

Welded butt-weld fittings conforming to ASTM A403/A403M Type 304, grade WP316 (or as specified), Sch 10S or heavier. Note: Where pipe schedule is not available in wrought fittings, use properly matched fabricated or butt-weld fittings.

Flanges: Flanges shall be ASTM A182/A182M, forged or rolled, Type 304 stainless steel, sized to match Sch 10S line pipe. Flange class shall be ASME B16.5 Class 150.

Types of flanges:

Weld neck flanges — preferred

Slip-on flanges — only where specified

Blind, lap joint, or other types — as required

Gaskets and Bolting:

Gaskets: Full-faced, non-asbestos, elastomeric or compressed fiber for Class 150 service.

Bolting: Stainless steel (ASTM A193 B8/B8M bolts and A194 8/B8M nuts) or other corrosion-resistant bolting as specified.

Welding Consumables:

Welding filler metal shall be appropriate for 304 stainless steel:

AWS A5.9: ER308L or ER308 stainless welding filler rods/ electrodes.

15195.04 EXECUTION

Fabrication:

Clean and align pipe prior to welding. Remove all contaminants, mill scale, and foreign material at weld surfaces. Use proper fit-up to control distortion and maintain alignment.

Welding:

Welding procedures and personnel shall be qualified per ASME IX.

Joint Type:

Butt joints: Full penetration TIG (GTAW) or MIG (GMAW) as approved.

Flanged connections: Welded/rolled necks or properly tack welded prior to assembly.

Clean welds between passes and remove heat tint after welding with pickling paste or electropolishing.

Inspection and Testing:

Visual Inspection: All welds shall be visually inspected.

Nondestructive Testing (as specified):

Liquid penetrant or magnetic particle inspection on butt welds.

Radiography only if required by Engineer.

Pressure Testing: Hydrostatic test the piping system in accordance with project requirements (200 psi) after installation.

Corrosion Protection and Finish:

Stainless piping shall be free of field coatings unless specified.

Field welds shall be cleaned and passivated to restore corrosion resistance.

15195.05 INSTALLATION

Support piping per structural design and vibration criteria. Ensure positive slope/drainage where required. Install flanged joints with proper torque and lubricant compatible with stainless bolting. All materials and installation shall comply with applicable codes (local and national). Welding shall be performed by certified welders with documented qualifications.

Install all pipe and appurtenances as shown on the drawings per AWWA specifications and according to the manufacturer's latest recommendations.

Install all other piping appurtenances and accessories per Section 15110.

SECTION 15315
HEATING SYSTEM

15315.01 GENERAL

Furnish and install the heating system as specified in the contract documents.

15315.02 MATERIALS

A. Electric Unit Heater -- The Booster Station shall be heated with two electric unit heaters. Heater model shall be Amp Dawg by Modine model AMP057 or approved equal. Provide ceiling mounting brackets

15315.03 INSTALLATION

Install heating system as shown on the plans, according to the following detail and as recommended by the manufacturer. Comply with all state and local code requirements.

SECTION 15381
LOUVERS, DAMPERS & EXHAUST FANS

15381.01 GENERAL

Furnish and install the louvers, dampers and exhaust fans as specified in the contract documents.

15381.02 MATERIALS

A.) Exhaust Fan and Appurtenances

Wall exhaust fans shall be furnished and installed. The fan shall be Penn Breezeway Model P16Q as manufactured by Penn Ventilator Co., Inc., Philadelphia, PA, or approved equal. The fan is a direct drive axial exhaust fan with a 1/4-HP motor and a capacity of 1,890 cfm at 0.250 inches. Provide fans with Lek-Trol variable speed controllers.

Motor operated dampers shall be installed on the outside of the fan and shall be compatible with fan. Furnish fan and dampers with galvanized steel wall collars.

Install fixed louver on the outside of MOD per Drawing Details.

B.) Motor-Operated Dampers

Motor-operated dampers shall be furnished and installed in the sizes shown in the contract documents. The dampers shall be Model PCD-10S (parallel blade dampers) as manufactured by Penn Ventilator Co., Inc., or approved equal.

Damper frames are to be constructed of formed 13-gauge galvanized sheet steel mechanically joined with linkage concealed in the side channel. Compressible spring stainless steel side seals, and synthetic or bronze bearings shall be provided. Damper blades are to be constructed with 16-gauge galvanized steel. Damper blade width shall not exceed nominal eight inches. Blades shall rotate on 3/8" square zinc plated pins. Pivots shall extend through the jamb and be connected to concealed blade linkage also located in the jamb.

Provide vinyl gasket along the full width of each blade to seal mating blade surfaces. Also provide stainless steel jamb seal cushion attached to inside of jamb face to seal blades at pivot ends.

Motors shall be electric, power open, spring return type and have a rating of not less than twice the torque needed for actual operation of the damper. Provide adjustable stops for the open and closed positions and adjustable return spring. Damper motors shall be mounted on a base and frame compatible with the damper. The damper motors and mounting base shall not be mounted directly on cold or insulated ducts

and casings, but shall be mounted outside the insulated covering in a manner which will prevent sweating and interference with the insulation.

C.) Fixed Louvers

Fixed louvers shall be furnished and installed as shown in the contract documents. Louvers shall be 4-inch wide extruded aluminum louvers as manufactured by Penn Ventilator Co., Inc., Model ASA, in 0.081" gauge thickness.

Head, sills and jambs shall be one-piece extruded structural members. Blades shall have continuous reinforcing bosses on underside. All fastenings shall be either stainless steel or aluminum.

Provide 1/4" aluminum expanded bird exclusion screen secured to louver with removable extruded aluminum frames on inside of louver. Bird screen shall have a minimum free area of 80% of gross area. All louvers shall have mill finish.

Louver, Damper, and Exhaust Fan Schedule

<u>Location</u>	<u>Fan</u>	<u>Fixed Louver</u>	<u>MOD</u>	<u>Notes:</u>
Through Wall Exhaust Fan	Penn P16Q	16" x 16"	16" x 16" Outlet	
Through Wall Inlet Louver	N/A	16" x 16"	16" x 16" Inlet	

15381.03 INSTALLATION

Installation of exhaust fans, louvers and motor-operated dampers shall be according to the plans and the manufacturer's latest recommendations. The units shall be properly caulked and sealed to protect against the weather.

DIVISION 16
ELECTRICAL

Electrical Service	16010
Electrical General	16020
SCADA Panel	16101
Variable Frequency Drive	16212
Standby Generator Systems	16620

SECTION 16010 ELECTRICAL SERVICE

16010.01 GENERAL

Furnish all labor, materials and equipment necessary for providing or upgrading electrical utility services at all project sites as specified in the contract documents. Electrical utility service work includes all electrical related items from the primary service connections to, and including metering and the main service disconnect.

16010.02 SCOPE

The scope of electrical utility service work is shown in the power one-line drawings on the project electrical drawings. Without limiting the scope of electrical service work required for the project, the following summary is noted for this project:

- Secure all necessary permits with the OWNERS assistance.
- Coordinate and schedule with electric utility and project OWNER.
- Coordinate and schedule with other trades.
- Provide electrical power service to the various project locations as shown on the project drawings.
- Provide and install service entrance equipment for the various project locations.
- Coordinate and provide temporary power to various project locations.
- Provide, install, start up and test all electrical equipment specified.
- Coordinate and provide all required inspections and certifications.

16010.03 QUALITY ASSURANCE

All electrical work shall be performed by a duly licensed electrician who is thoroughly trained and experienced in the type of work covered by this Section. The electrician shall be thoroughly knowledgeable and familiar with all electrical standards, codes, ordinances and laws.

In addition to complying with all pertinent standards, codes and regulations, comply with:

- 1.) Requirements of the Electrical Utility Company.
- 2.) National Electrical Code and National Electrical Safety Code.
- 3.) Federal, State and Local ordinances, codes, regulations and laws.
- 4.) Requirements of Underwriters' Laboratories, Inc. for all items installed for which UL Standards have been established.

Secure all permits and inspections required by any of the foregoing authorities. The electrical inspection shall be made and approved by the Board of Fire Underwriters or other

State and/or Local authority having jurisdiction. All certificates shall be in duplicate and shall be delivered to Engineer and become the property of Owner. Fees for permits and inspections shall be paid by the OWNER.

16010.04 ELECTRIC UTILITY COORDINATION AND COSTS

Coordinate and schedule with the electric utility and the project OWNER. Arrange onsite meeting with the electric utility planner, project OWNER and ENGINEER to review the electrical service configuration and schedule.

Costs and fees from the electric utility for work and items supplied by them will be paid by the project OWNER. The power one-line drawings show who is responsible to provide and pay for the various parts of the electrical utility services.

If poles or other items are shown on the one-line drawings to be the responsibility of the CONTRACTOR and they are installed by the electric utility any costs billed to the OWNER for these items shall be reimbursed by the CONTRACTOR.

16010.05 ELECTRICAL SERVICE DROP

Unless specifically noted otherwise the primary service connections, transformers and secondary service drop shall be provided by and installed by the electric utility. Any costs related to the electric service drop from the electric utility shall be paid by the OWNER.

16010.06 ELECTRICAL SERVICE POWER CHARACTERISTICS

Power characteristics (voltage, amperage, phases, conductors, etc.) for the project electrical services are shown on the project drawing power one-line drawings.

16010.07 SECONDARY ELECTRICAL SERVICE

The secondary electrical service from the service head at the pole or conduit riser at the building (see one-line drawing) shall be in rigid galvanized conduit. This applies to pole mounted, building mounted and buried electrical entrance conduits.

16010.08 METERING

Furnish and install all equipment and meter trim for metering, in accordance with electric utility requirements, except that the utility meter will be provided by the local utility. Any required meter transformer enclosure is to be provided by the CONTRACTOR, to local utility standards. The CONTRACTOR shall furnish and install the meter socket to the electric utility's specifications.

16010.09 MAIN SERVICE BREAKER

Provide main service breaker, NEMA enclosure rated as shown on one-line drawings, with interrupting capacity as required by fault current available from serving utility, but in no case less than 42,000 amperes RMS symmetrical at 240 volts or 65,000 amperes RMS symmetrical at 480 volts. Breaker must have instantaneous trip and be of make and model to provide UL listing protection of transfer switch as specified later in Division 16 when applicable.

16010.10 GROUNDING

Provide grounding system per NEC and as shown on the project drawings.

The ground electrode conductor shall be connected by a process approved equal to "Cadweld" process to copperweld ground rods, 3/4" diameter by 10 feet long. Provide certified test of recognized testing agency that ground resistance does not exceed 25 ohms.

The conduit system and the neutral conductor of the wiring system shall be grounded. The grounded connection between the electric system neutral and the conduit system shall be made at the main electrical service panel.

SECTION 16020
ELECTRICAL GENERAL

PART 1 - GENERAL

16020.100 GENERAL

Furnish all labor, materials and equipment necessary for providing electrical equipment, installations and connections for all equipment, structures and facilities as specified in the contract documents. Work related to electrical service connections from the electrical utility is covered under Section 16010.

Any product named in this specification section is intended to indicate the type and features of product intended. Products of equal function and quality can be substituted unless specific wording indicating that no substitute will be accepted is included.

16020.110 SCOPE

Without limiting the scope of electrical work required for the project, the following summary of the project electrical scope is noted for this project:

- Secure all necessary permits.
- Coordinate and schedule with other trades.
- Coordinate and provide temporary power to various project locations.
- Provide, install, start up and test all electrical equipment specified.
- Provide complete operation and maintenance documentation.
- Coordinate and provide all required inspections and certifications.

The intent is to obtain an electrical installation of all systems, complete in every detail within and about the project, and with all facilities properly interconnected with power. The Electrical Subcontractor shall furnish and install all such parts as may be necessary to complete the systems in accordance with the best trade practice and to the satisfaction of the ENGINEER. Upon completion, the electrical systems and all equipment throughout the structures shall operate properly and adequately and function as intended.

16020.120 ELECTRICAL DRAWINGS

All work shown on the drawings is intended to be approximately correct to the scale of the drawings, but figured dimensions and detailed drawings are in all cases to assume precedence over them. The electrical drawings are diagrammatic and are not intended to show every detail of construction or the exact location of equipment. Where construction makes it advisable or necessary to change the location of equipment, the Subcontractor shall perform such work without cost to the OWNER upon written request of the ENGINEER.

Any doubt as to the intended location of equipment shall be resolved by the ENGINEER before proceeding with the installation.

Standard symbols have been employed, where such will meet the need. These are augmented and modified to illustrate, as necessary. The chart on the contract drawings is intended to illustrate all symbols and explain the function and installation method of the device represented. When not clear, or where one has been inadvertently omitted, it shall be the responsibility of the Electrical Subcontractor to obtain a ruling on the intent before proceeding with any work.

16020.130 RELATED WORK

Refer to the complete contract documents for related work and specifications. Important sections that could relate to electrical include: Division 2-Sitework (for buried conduits and equipment), Division 11-Equipment, Division 13-Special Construction, Division 15-Mechanical, and other sections of Division 16-Electrical.

Wire power to and install local disconnects for all mechanical equipment and equipment by other trades per this section (16020.130) and per contract documents. Review plans and specifications for all sections providing equipment to be wired to determine special wiring or control requirements to be provided for such under this specification.

16020.140 QUALITY ASSURANCE

- A. All electrical work shall be performed by a duly licensed electrician who is thoroughly trained and experienced in the type of work covered by this specification. The electrician shall be thoroughly knowledgeable and familiar with all electrical standards, codes, ordinances and laws.
- B. In addition to complying with all pertinent standards, codes and regulations, comply with:
 - 1.) Requirements of the Electrical Utility Company.
 - 2.) National Electrical Code and National Electrical Safety Code.
 - 3.) Federal, State and Local ordinances, codes, regulations and laws.
 - 4.) Requirements of Underwriters' Laboratories, Inc. for all items installed for which UL Standards have been established.
- C. Secure all permits and inspections required by any of the foregoing authorities. The electrical inspection shall be made and approved by the Board of Fire Underwriters or other State and/or Local authority having jurisdiction. All certificates shall be in duplicate and shall be delivered to ENGINEER and become the property of OWNER. Fees for permits and inspections shall be paid by the OWNER

- D. Before commencing work, review the Project with the Local and State inspectors and the Electrical Utility Company. Conform, in every respect, with their separate recommendations unless the recommendations are inferior to, or in direct conflict with, the contract documents, then ENGINEER's approval will be required before proceeding with the work.
- E. Nothing in the Specifications, or shown on the Drawings, shall be construed as requiring a violation of any law, code, or regulation. Any work or device which fails to receive the approval of any agency shall be promptly changed so as to fully comply.
- F. Test all parts of the electrical systems before placing them in service. Upon completion of the work of this specification, furnish all equipment and personnel and conduct all tests required to secure approval of the installation from all agencies having jurisdiction. All systems shall test free from short circuits and grounds, and shall be free from mechanical and electrical defects. All systems shall show proper neutral connections.

Insulation test of equipment, motors, cables, etc. shall pass the Standard Insulation Test established by the IEEE and shall be made before and after all required high potential tests. All insulation testers shall be of the motor driven, direct reading type, unless otherwise noted.

Conduct a ground test on each and every circuit. The test result shall not be less than those required by the NEC or Underwriters Laboratories. Furnish a detailed record of these tests. Test all wiring in accordance with IPCEA Standards test methods. Test all electrical devices for proper control of motors and equipment. Lamp all fixtures with lamps of designated rating, color and pattern and check operation. Check amperage in all circuits and compare to nameplate data.

Notify ENGINEER at least 48 hours in advance of all testing so that he may witness the tests and the testing procedures.

- G. Replace any portion of the Work which does not conform to established standards and requirements. During tests, make all adjustments and changes until the equipment and systems are operating satisfactorily. Should any defects be suspected or found after tests have been completed, make all required adjustments, repairs, and replacements, and retest to the satisfaction of ENGINEER.

Clean all exposed electrical work and remove all unnecessary labels, soil, marking and foreign materials. Do not remove required labels.

16020.150 SUBMITTALS AND RECORDS

A.) **Shop Drawings and Submittals:** Submit shop drawings and submittals as required in Division 1 of the Specifications and the General and Supplemental Conditions.

Shop drawings are required on all major pieces of equipment in the following list, but is not necessarily limited to: wire, breakers, motor starters, contactors; relays of all types involved, push button stations, device boxes, enclosures, junctions, terminal boxes; disconnect switches, lighting fixtures, panel boards, breaker, etc.

B.) **Samples:** Within thirty days after award of the Contract, submit samples of all materials requested by the ENGINEER. Samples shall be prepared and submitted in accordance with the requirements of the contract, all postage and transportation costs being paid by the CONTRACTOR submitting same.

C.) **Record Drawings:** In accordance with requirements of the contract, the CONTRACTOR shall furnish and keep on the job at all times one complete set of blackline prints of the electrical work, on which shall be clearly, neatly and accurately noted, promptly as the work progresses, all building and electrical changes, revisions and additions to the work. Wherever work is installed otherwise than as shown on the contract drawings, such changes shall be noted.

No approval of requisition for payment for work installed will be given unless supported by record prints as required above.

At the conclusion of work, prepare record drawings in accordance with the requirements of the contract.

D.) **Operating Instructions and Maintenance Manuals:** The CONTRACTOR shall instruct, to the OWNER's satisfaction, such persons as the OWNER designates in the proper operation and maintenance of systems and their parts.

Furnish in accordance with contract installation, operating and maintenance manuals and forward same to the ENGINEER for transmittal to the OWNER. The operating instructions shall be specific for each system and shall include copies of posted specific instructions.

For maintenance purposes, provide shop drawings, parts lists, specifications and manufacturer's maintenance bulletins for each piece of equipment. Provide name, address and telephone number of the manufacturer's representative and service company, for each piece of equipment so that service or spare parts can be readily obtained.

E.) **Arc-Flash Analysis:** Provide Arc-Flash Analysis, written report and labeling for all electrical panels on this project per NFPA 70E.

16020.160 TEMPORARY POWER

Furnish and install temporary feeders of proper capacity power required for the project while under construction and for temporary by-pass pumping if electric powered by-pass pumps are used. Sufficient outlets shall be installed at convenient locations so that extension cords of not over 50 feet will reach all areas requiring power.

CONTRACTOR and all Subcontractors shall furnish their own extension cords and such lamps as may be required for their work, and shall pay for the cost of temporary wiring of construction offices or shanties used by them and any temporary wiring of a special nature for light and power required.

16020.170 ALTERATIONS

- A.) Execute all alterations, additions, removals, relocations, or new work, etc., as indicated or required to provide a complete installation in accordance with the intent of the drawings and specifications.
- B.) Remove all existing equipment to be discontinued as directed by OWNER.
- C.) Existing equipment to be discontinued and removed shall remain the property of the OWNER and shall be carefully packed and delivered for on-site storage by the OWNER.
- D.) Any existing work disturbed or damaged by the alterations or new work shall be repaired or replaced to the ENGINEER's and OWNER's satisfaction.
- E.) Renovations in existing areas may not be limited to those noted in contract documents. Review of the existing building to determine the full scope of removals and/or relocations is required by the CONTRACTOR prior to bidding.
- F.) Any existing wiring discontinued under this project shall be completely removed.

16020.171 NON-CODE CONFORMING WIRING IN SYSTEMS NOT BEING UPDATED

Any non-code conforming wiring conditions in the existing facility service and distribution and/or other wiring are not to be corrected under this contract unless noted on contract documents. If required to be corrected by code authorities, they will be handled outside the scope of this Contract.

PART 2 - PRODUCTS

16020.200 GENERAL

All materials, devices, and equipment, unless specifically excepted, shall be new. All materials shall bear UL labels where such have been established for the particular device. All devices shall show make, type, serial number (where applicable), voltage, amperage, wattage, motor ratings, and all other pertinent data.

16020.205 CONDUITS

Conduits shall be of the type specified on the project drawings for each specific equipment installation. If type is not specifically labeled the type shall match other specified conduits in the same location connected to similar equipment. Sizes specified shall be considered the minimum size, provide larger size conduit if required per the NEC or the equipment manufacturer. The following designations for conduits are used on the project drawings.

Conduit Type	Drawing Label
Rigid Galvanized Steel Conduit	RGS-C
PVC Conduit	PVC-C
Intermediate Metal Conduit	IM-C
Liquid-Tight Flexible Metallic Conduit	LT-C

- A.) Rigid Galvanized Steel Conduit: Rigid galvanized steel conduit shall be schedule 40 and have threaded connections. When installed in direct burial applications (or below concrete), it shall be double coated with bitumastic dried at least 24 hours between coats before installation.
- B.) PVC Conduit: PVC conduits shall be Schedule 40 PVC or Schedule 80 PVC as specified on the drawings. PVC conduit connections shall be solvent weld. When installed in direct burial applications all elbows and offsets shall be rigid galvanized steel. Sweeps and extensions from buried to above ground shall be rigid galvanized steel.
- C.) Interior/ Dry Locations:
As labeled on the drawings interior/ dry location conduits shall be rigid galvanized steel, intermediate metallic conduit or PVC installed exposed on walls or ceilings.
- D.) Interior and Exterior, Wet or Corrosive Areas:
As labeled on the drawings wet or corrosive area conduits shall be rigid galvanized steel with factory applied 40 mil PVC exterior coating, or PVC installed exposed on walls or ceilings.

E.) Motor Conduits:

As labeled on the drawings. Conduits from VFDs to motors shall be rigid galvanized steel. Liquid-tight flexible metallic conduit (24" max. length) shall be used to tie in all motors or similar equipment. Provide adequate slack/ flexibility in LT-C.

F.) Aluminum Conduits:

Schedule 40 aluminum conduit can be used in interior locations where RGS-C is specified.

All terminations of conduits shall have smooth, rounded bushings. All conduit 1" and larger shall have insulation which may be integral with the bushing connector, or an insulated bushing may be added. Minimum size conduit for light and power wiring, shall be 3/4". All rigid conduit joints shall be threaded. Do not use any type of clamp on fittings. All plastic joints shall be cemented or heat welded.

16020.210 WIRE AND CABLE

All cable and wire shall comply with the latest requirements and specifications of the NFPA and/or the Insulated Power Cable ENGINEERs Association (IPCEA). All conductors used in the wiring system shall be soft-drawn copper wire having a conductivity of not less than 98% of that of pure copper, unless otherwise indicated or specified. All conductors shall be stranded. Solid conductors are not acceptable. Aluminum conductors are not permitted.

All wire and cable shall be stamped approximately every two feet to indicate voltage, type, temperature rating, UL listing, manufacturers' name, size, etc.

All underground conductors shall be installed in conduits. All underground conductors shall enter manholes, building walls, or termination points through a protective galvanized steel conduit sleeve of appropriate size.

All cable and wire shall be: 600 volt; installed in approved raceways or conduit; not less than No. 12 AWG (except that No. 14 AWG may be used for control wiring).

Insulation for cable and wire shall be as follows (per NEC):

Wet or Moist Locations and Underground Feeders	XHHW
All others	THHN/THWN-2

All internal wiring to fixtures shall be minimum, No. 14 AWG, silicon rubber insulated (150° C) with minimum 300-volt insulation.

All branch circuit wiring from panelboards to any outlet on the circuit over 50' but under 100' shall be No. 10 AWG for the first half of the circuit, over 100' but under 175', use No. 8 AWG for the first half.

The following color code shall be used for all conductors. The colors must be fast, fadeless, and capable of withstanding cleaning.

3-Phase Systems

Phase A	Black
Phase B	Red
Phase C	Blue
Neutral	White
Bond	Green

All circuit wires shall be tagged in cabinets, etc., with 1/16" thick tags securely fastened to the conductors with a heavy type of linen wrap at time wires are pulled in and tested. Circuit numbers shall be indicated on the tags. Tags shall not be removed for any reason.

At least 8" loops or ends shall be left at each outlet for the installation of devices or fixtures in the future. All wires in outlet boxes not for the connection to fixtures at that outlet shall be rolled up, connected together, and taped.

Wires and cables shall be carefully handled during installation.

When a lubricant is necessary for pulling wires, it must be listed by UL and be of such consistency that it will leave no obstruction or tackiness that will prevent pulling out old wires or pulling in new wires or additional wires. No soap flakes or vegetable soaps will be permitted.

Conductors shall be continuous from panelboard to outlet and from outlet to outlet. No splices shall be made except within junction or outlet boxes.

Splices and tapes in wires No. 8 AWG and larger shall be made with crimp-on type connectors designed for the purpose. All connections between wires at fixtures and boxes shall be made with UL approved 600 volt pressure connectors equal to ideal "Wire-Nut" or "Wing-Nut" (for general lighting and receptacle circuits, only -- See 16021.211).

Type NM, NMC, AC, MC, or similar cables shall not be permitted on this project. All wiring shall be installed in conduit.

All conductors and connections shall be free of grounds, shorts, and opens.

16020.211 WIRE CONNECTORS AND DEVICES:

All wire joints shall be made with a pressure squeezed connector such as T & G Sta-kon and Ideal, or bolted clamp such as made by Dossert. Twist-on type wire nuts are also permitted

for general lighting and receptacle circuits, only. Make up to terminals shall be mechanical squeeze connector. Wherever only a screw connector is available, install a conductor terminal like T & G Sta-kon spade or donut and designed for the application and compression set to the conductor.

Cover all joints made with non-insulated clamp devices with Scotch brand plastic electrical tape (type #33). Triple wrap joints, each wrap having a 50% overlay.

16020.215 DEVICE BOXES:

All boxes shall be held to wood surfaces by wood screws. On metal surface, boxes shall be held by metal-to-metal screws or by machine bolts. On masonry surfaces utilize appropriate expansion screws.

All boxes shall be mounted exposed in the buildings and shall be cast metal type with integral threaded hubs, or NEMA 4X where indicated.

16020.220 SWITCHES AND PLATES

Switches shall be specification grade, 20 amperes at 120/277 volts, with ivory handle, such as Bryant 4901-I, for SPST applications. For three-way use No. 4903-I, and for four-way use 4904-I. All switches must have machine screw held wire and be back wired. Automatic grips will not be permitted. All switches must be classed as heavy duty.

Mount all switches vertically, wall-flush, and at a height of 4'-0", adjusted to minimize cut of tile or masonry unit, unless otherwise specified.

All flush plates are to be smooth-line nylon, one piece construction for all grouped switches, or Mulberry equivalent. On surface boxes they shall match the box style for the device installed. Plates in corrosive areas shall be non-metallic, NEMA 4X rated.

16020.222 CONVENIENCE AND OTHER OUTLETS AND PLATES

Convenience outlets shall be duplex, specification grade, ivory face, side wired binding screw type, two-pole, three-wire, rated 20 amperes at 120 volts, Bryant 5362-I or equal. Use Bryant ivory nylon plates or equal. Mount all outlets a minimum of 24" AFF. Where single outlet unit is indicated, use Bryant #5361-I. Automatic grip set outlets are not permitted.

Where "GFI" receptacles are indicated on drawings, it is the intent that ground fault protection be provided by individual Class A, 20 ampere, 120 volt, GFI receptacles for each device shown, equal to Bryant GFR53FT-I.

Outdoors and elsewhere as shown, use weatherproof covers, Hubbell 5206 or equal, with double covers, spring held gasketed. Mount the outlet horizontally.

Corrosion resistant receptacles (for chemical feed pumps) shall be approved equal to Bryant 5361-CR, NEMA 5-20R, with non-metallic enclosure and weather protective polycarbonate cover #7418-B by Bryant.

On exposed FS and FD boxes, use cast feraloy covers matching the box or stainless steel as above, if styled for the box. Outdoor and in damp locations, use twin spring loaded weatherproof covers, Bryant 4500 FS or equal.

16020.230 PANELBOARDS

Panelboards shall be provided with main lugs or main breakers and branch circuit breakers, according to the schedules on the drawings.

The general requirements for the panels are shown on the drawings including mounting and gutters. Mount the panels 6'-6" up to top of roughing cabinets. Gutters shall not be less than 5". Breaker frame size is shown on the drawings. Handle ties will not be permitted anywhere. Multi-pole breakers shall have common trip and one handle.

All breakers shall be trip-free, suitable for switching, and thermal magnetic. All breakers shall be bolted to bus type secured in place by holding bolt. "Space" means provisions for adding breakers. Breakers or busses shall contain terminations or tappings designed for these attachments. All points of contact between bus and sub-bus shall be of copper, full silvered between all contact surfaces. All 240 VAC breakers shall have an interrupting capacity of 22,000 amperes at 240 volts AC (symmetrical RMS amperes). All 480 VAC breakers shall have an interrupting capacity of 35,000 amperes at 480 volts AC (symmetrical RMS amperes).

Provide a typewritten tabulation indicating fixture outlets, devices, machines, or apparatus served by each breaker and their room location. This shall follow coding on the drawings with breakers numbered from top to bottom. Mount tabulation inside the door in a frame for the purpose, with a transparent plastic cover.

Where existing panels are indicated to be replaced, provide new panel with breakers that match those in the existing panel regarding amperage and poles.

16020.240 LIGHTING FIXTURES

Lighting fixtures are listed in schedules on the drawings. This includes interior, exterior, emergency lighting and exit lights. The lighting fixtures listed on the drawings are to indicate quality, appearance, lamping and photometric characteristics acceptable. Alternative fixtures may be proposed for the project where they provide the equivalent characteristics, quality and appearance, and subject to ENGINEER approval.

16020.250 TRANSFORMERS (if shown on plans)

NEMA ST20, general-purpose, dry-type, self-cooled, ventilated. Provide transformers in a NEMA 1 enclosure. transformer shall have 220°C insulation system with a temperature rise not exceeding 150°C under full rated load in a maximum ambient of 40°C. Transformer shall be capable of carrying continuously 115% of the nameplate kVA without exceeding the insulation rating.

16020.255 FUSES (if shown on plans)

Provide a complete set of fuses for each fusible switch. Time-current characteristic curves of fuses serving motors or connected in series with circuit breakers or other circuit protective devices shall be coordinated for proper operation; submit coordination data for approval. Fuses shall have a voltage rating not less than circuit voltage.

Cartridge Fuses, Current-limiting Type (Class R): UL 198E, Class RK-1 time-delay type. Associated fuse holders shall be Class R only.

Cartridge Fuses, Current-limiting Type (Classes J and L): UL 198C, Class J for 0 to 600 amps and Class L for 601 to 6000 amps.

16020.260 DISCONNECTS:

Where shown on the drawings, or when NEC required whether or not shown, install disconnect switches appropriate for the application. When serving motors, they shall be motor rated. Those for equipment (if any) outdoors shall be in rain-tight enclosures, or as otherwise indicated on contract drawings.

Switches shall be heavy duty, quick make and break type. They may be non-fused by a solid copper bar, silver-plated, heavy duty on motors over 2-HP. For small motors (1/8-HP and less), a toggle switch, motor rated, may be used; otherwise, they shall be similar to Square D Type HU. Where NEMA 4X switches are noted they shall have "krydon" enclosures. Manual starters with overload protection built in are approved when NEC acceptable.

16020.265 OVERCURRENT PROTECTION SERVICES:

Overcurrent protection for motors is to be in the starters. There is to be protection in each phase wire. Overcurrent protection of conductors is by thermal and magnetic molded case circuit breakers in the panelboards. Where combination starters are used, the breaker is to be a motor circuit protector with only magnetic trips. These must be supplied from a branch circuit protected by a thermal and magnetic trip breaker.

16020.270 NAMEPLATES:

Provide black laminated nameplates with white letters to identify all panel boards, starters, disconnects, equipment panels, push buttons, etc. Plates shall be secured to outdoor equipment with epoxy glue and to indoor equipment with epoxy glue or self-tapping stainless-steel fasteners. Minimum letter height shall be 3/8".

PART 3 - INSTALLATION

16020.300 GENERAL

The entire work provided in this specification shall be constructed and finished in every respect in a professional substantial manner and to accepted industry standards.

The Subcontractor shall obtain detailed information from the manufacturer of apparatus as to the proper method of installing and connecting same. The Subcontractor shall also obtain all information from the CONTRACTOR and other Subcontractors that may be necessary to facilitate the work and the completion of the whole project.

Before installing any of the work, the Subcontractor shall see that it does not interfere with the clearances required for finished columns, pilasters, partitions, walls, and ceilings, as shown on the contract drawings and details.

Work installed by the Subcontractor which interferes with or modifies the building design as shown on the contract drawings shall be changed as directed by the ENGINEER, and all costs incidental to such changes shall be paid by the Subcontractor.

In any and all cases of discrepancy in figures, plans or specifications the matter shall be immediately submitted to the ENGINEER for decision.

16020.302 SLEEVES, JUNCTION BOXES, ANCHORS & ACCESS PANELS

Advise the General CONTRACTOR of locations for all sleeves, openings, anchors, supports, conduits, metal access panels and boxes, and provide same so that they may be built into the job wherever feasible.

Coordinate locations and sizes of all such panels with the General CONTRACTOR, subject to the ENGINEER's approval.

16020.304 SITE VISITS

The Subcontractor will be required to visit the site as the work progresses and to carefully investigate the structural and finished conditions affecting all details of the work, and shall arrange such work required to meet such conditions.

16020.305 CUTTING AND PATCHING

It is the duty of the Subcontractor to furnish and install all sleeves required in the performance of this Contract and to furnish to the CONTRACTOR the size and location of all openings required on the performance of this Contract; and it shall be the duty of the CONTRACTOR to provide the required openings during building construction.

If this Subcontractor fails to provide for all sleeves and openings as required in the performance of this Contract, the Subcontractor shall instruct the CONTRACTOR, who shall do such cutting, drilling, patching and grouting and so forth necessary for the proper installation of this Subcontractor's work. The CONTRACTOR is to charge this Subcontractor for this work and it shall be done at no additional expense to the OWNER.

Should the CONTRACTOR, after having been fully advised by the Subcontractor, fail to arrange for this work, the Subcontractor shall promptly notify the ENGINEER in writing of such failure. In the event of any disagreement between the Electrical Subcontractor and the CONTRACTOR over the foregoing, and in the absence of any written requests or agreements between the two, the decision of the ENGINEER shall be final.

16020.310 INTERIOR CONDUIT SYSTEMS

Electrical Subcontractor shall coordinate with ENGINEER as to locations, sizes and number of conduit sleeves to be installed through cast concrete.

Exposed runs of conduit shall have supports not more than 6'-0" apart and shall be installed with runs parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceilings with right angle turns consisting of cast metal fittings or symmetrical bends. Conduit bends and offsets shall be avoided where possible, but where necessary, shall be made with an approved hickey or conduit bending machine. Conduit which has been crushed or deformed in any way shall not be installed. Expansion fittings shall be used to provide for expansion joints. Wooden plugs inserted in masonry or concrete shall not be used to secure conduits or boxes. Conduits shall be supported on approved types of stainless steel wall brackets, ceiling trapeze, straphangers or pipe straps, secured by means of toggle bolts in hollow masonry units, expansion bolts in concrete or brick, machine screws on metal surfaces, and wood screws on wood construction. Provide stainless steel hardware for stainless steel support systems. Conduit shall be installed in such a manner as to insure against trouble from the collection of condensation, and all runs of conduit shall be so arranged as to be devoid of traps wherever possible. The CONTRACTOR shall exercise the necessary precautions to prevent the lodgment of dirt, trash, or plaster in conduits, fittings, or boxes during the course of installation. A run of conduit which has become clogged shall be entirely freed of the accumulation or shall be replaced.

In corrosive areas, all clamps, fasteners, etc. shall be stainless steel or PVC coated clamps with stainless steel fasteners.

Conduits shall be securely fastened to all sheet metal outlets, junction boxes, pull boxes, and panelboards with galvanized locknuts and bushings, care being taken to establish a firm mechanical and electrical contact between the box and the conduit.

Flexible conduit shall be installed only where necessary to overcome vibration at motor connection, and shall be as short as possible between the motor terminal box and the junction box on the branch circuit rigid conduit. All flexible conduit shall be of the liquid-tight type similar to "Sealtite", with proper fittings. Provide minimum 2-foot diameter loop.

All rigid metallic conduit shall utilize threaded fittings.

Pull boxes, junction boxes and cabinet boxes shall be constructed of code gauge galvanized sheet steel of not less than the minimum size recommended by the National Electrical Code. Boxes shall be furnished with screw fastened covers. Where pull boxes are used in finished areas, the ENGINEER shall be consulted as to the location, type of cover, and finish of box and cover. Locations shall be as inconspicuous as possible.

16020.315 CONDUCTORS

A complete system of conductors shall be installed in the raceway system, except where otherwise noted. Conductors shall be continuous from outlet to outlet, and no splices shall be made except within outlet or junction boxes. Compression type connectors properly taped shall be utilized for all splices.

16020.320 OUTLETS

Outlets shall be installed in locations as indicated on the contract drawings. The Subcontractor shall study the general building plans in relation to the spaces surrounding each outlet in order that the work may fit the other work required by these specifications. Where necessary, the Subcontractor shall relocate outlets so that installed fixtures are symmetrically located according to room layout and will not interfere with other work or equipment.

16020.325 DEVICE PLATES

Device plates shall be installed on each outlet to suit the device installed therein. Plates shall normally be installed vertically, with an alignment tolerance of 1/16".

16020.330 GROUNDING

The conduit system and the neutral conductor of the wiring system shall be grounded. The grounded connection between the electric system neutral and the conduit system shall be made at the main electrical service panel. A bare copper conductor sized per NEC shall be installed in non-metallic conduit from the breaker enclosure to the entrance of the water service. Connection to the water pipe shall be made by a suitable ground clamp or a lug

connection to a plugged tee. If flanged pipes are encountered, the connection shall be made with the lug bolted to the street side of the flange connection.

If non-metallic water lines are provided on the project, the ground electrode conductor shall be connected by a process approved equal to "Cadweld" process to copperweld ground rods, 3/4" diameter by 10 feet long. Provide certified test of recognized testing agency that ground resistance does not exceed 25 ohms.

Ground wires shall be grouped and bonded to panel boxes, not to system neutrals. The ground terminal or receptacles shall be bonded to outlet boxes with No. 12 AWG bare or green insulated wire, or other suitable means per the National Electrical Code.

All electric heating equipment shall be grounded.

Conduit and/or raceway shall not be utilized as the bonding conductor.

16020.340 EXPLOSION PROOF REQUIREMENTS

There are no explosion proof requirements.

16020.345 CORROSIVE AREAS

There are no corrosive areas.

16020.350 PULLING CABLES

Cables shall be installed utilizing pulling equipment designed for the types of wireways or conduits installed. Where lubricating material is required, it shall be a material manufactured for and designated by UL label as suitable for the types of insulation involved on the conductors. Care shall be taken during cable pulling not to cause kinks or sharp bends in the conductors. If insulation on conductors is cut or nicked during pulling, the conductors involved shall be removed and replaced at no added cost to the OWNER. During pulling, the maximum strain applied to the conductors shall not exceed 50% of the ultimate strength of the conductors.

16020.360 BALANCING OF LOADS:

The CONTRACTOR shall balance all loads between phases in all panels, etc., around the neutral. Neutral conductors shall be the same size as phase conductors unless specifically noted otherwise. No common neutrals will be permitted. All circuits shall be distributed among the phases so as to restrict any phase load imbalance to less than 10% at any panelboard.

After completion of the installation, record under full load conditions the current flow in each phase feeder. Submit four copies to the ENGINEER giving name and location of each panel, etc.

Circuit members assigned to home runs and devices on the drawings are for purposes of indicating individual circuits and are intended to correspond with the circuit numbers in the panels. The panelboard directory shall designate each circuit and its associated load. If the numbers deviate from the drawings, the as-built drawings shall reflect this.

16020.380 EXAMINATION AND APPROVAL OF WORK

No work shall be covered before examination and approval by the ENGINEER and by all inspectors and authorities having jurisdiction. Replace any imperfect or condemned work with work conforming to requirements and satisfactory to the ENGINEER, without extra cost to the OWNER. If work is covered before due inspection and approval, the Subcontractor shall pay all costs of uncovering and reinstating work.

16020.385 CLEAN UP AND REPAIR

At the completion of the work, the work area shall be left clean. Any damage caused to work of other trades by electrical installation shall be repaired at the expense of the Electrical Subcontractor.

16020.390 GUARANTEE

Attention is directed to provisions of the General Conditions regarding guarantees and warranties for work under this Contract.

Manufacturer shall provide standard guarantees for work under this Section. However, such guarantees shall be in addition to and not in lieu of all other liabilities which the manufacturer and Subcontractor may have by law or by other provisions of the contract documents.

SECTION 16101 SCADA PANEL

16101.01 GENERAL

Furnish and install the SCADA panel and associated equipment as specified in the contract documents. The SCADA panel shall be purchased from the District's SCADA contractor and reimbursed under the allowance in the bid schedule. Supply other equipment specified. PLC programming, communications programming and programming of offsite devices shall be completed by the KWD's SCADA contractor. Contractor shall coordinate with the KWD and its SCADA contractor to get this work completed. Programming costs for the programming shall be paid for by Contractor and reimbursed under the allowance for SCADA programming in the bid schedule.

The Kennebec Water District SCADA Contractor is:

Automatrix, Inc.
PO Box 56
Winthrop, Maine 04364
207-377-3487
info@automatrixinc.com

16101.02 RELATED SPECIFICATIONS

Comply with all other specifications in Division 16. Comply with electrical drawings and details.

Refer to Divisions 11, 15 and 16 for information on pumps, VFDs, monitors and other equipment to be interfaced with and/or controlled by panels.

16101.03 SUBMITTALS

The control schematics shown on the contract drawings are intended to show the control/operational logic of the station controls, alarms, and monitors. Design of wiring and connections in the SCADA panel shall be by the District's SCADA contractor.

Shop drawings and submittals are required for the SCADA panel and all its major components. Shop drawings shall include panel schematics, equipment and component submittals, panel interior layout (to scale with dimensions) and nameplate schedule.

16101.04 INSTALLATION

Install the panels and all associated equipment in accordance with the contract documents and as recommended by the manufacturers. Ground panel and components per NEC requirements. The District's SCADA contractor will check the installation of the panel, supervise its start-up and to confirm its proper operation. The cost will be reimbursed under the allowance in the bid schedule.

Wall-mounted panels shall be installed using SS struts.

16101.05 AS-BUILTS

The panel manufacturer shall provide as-built drawings and an updated schematic for the panels following installation and start-up.

SECTION 16212
VARIABLE FREQUENCY DRIVES

16212.01 GENERAL

Furnish, install and start up the variable frequency drives, accessories and controls as specified in the contract documents.

16212.02 MATERIALS

A.) Variable Frequency Drive (VFD) -- VFDs shall be Automation Direct GS4 Series, or approved equal.

The specifications and features of the GS4 Drive shall be the minimum acceptable standard.

The drives should be a PWM (Pulse Width Modulated) transistorized inverter with fully digital control. The manufacturer shall not have less than five years of experience in the manufacture of drives. The manufacturer shall be ISO-9001 certified and shall manufacture both AC drives and motors at the same facility.

Drives shall have two integral Ethernet ports for communication of control and monitoring functions with the SCADA system and PLC.

Drive manufacturer and supplier shall have at least 5 years experience in installation and startup of 50 HP and larger VFDs at wastewater or water pumping facilities in the State of Maine.

The drives shall be UL listed and CSA approved, be capable of constant and variable torque applications, and utilize IGBT (insulated gate bipolar transistors) in its power section. The drive shall have a common design for all horse power models.

The drives shall be suitable for operating at an ambient temperature of -10°C to 50°C and at an altitude of up to 3,300 feet. Drives shall be suitable for operation at 93% relative humidity and at 0.6 G vibration.

Drives shall be NEMA 1 enclosed and wall mounted as shown on the plans.

B.) Drive Schedule --

<u>Desc.</u>	<u>VFD Rated Motor HP</u>	<u>VFD Model</u>	<u>Input/Output</u>	<u>Rated Output</u>
Booster Pump #1	40 HP	GS4-4040	460V,3Ø / 460V,3 Ø	57A continuous
Booster Pump #1	40 HP	GS4-4040	460V,3Ø / 460V,3 Ø	57A continuous

C.) Drive Control System --

The drive main input power shall be 460V, 3-Phase, 60Hz. The drive shall require no external control power and shall have a tolerance for voltage +10% to -15% and frequency $\pm 5\%$. The drive shall have an output frequency of 0.1Hz to 400Hz and a frequency resolution of 0.01Hz digital and 0.03Hz analog. The drive shall have a frequency accuracy of $\pm 0.5\%$ of maximum frequency at $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$.

The drive shall have the following volts/hertz characteristics:

- Constant V/Hz or second order non-linear variable V/Hz;
- Maximum voltage frequency adjustable from 25Hz to 400 Hz;
- Voltage boost adjustable from 0 to 30%; and
- Starting frequency adjustable from 0 to 10Hz.

The drive overload current shall be 100% continuous and 150% for 60 minutes.

The drive shall accept the following frequency command signals:

- Potentiometer;
- 0-10VDC;
- 0-5VDC; and
- 4-20mA.

The drive shall contain three critical frequency jump points with individual bandwidth and shall be capable of setting both upper and lower limit frequencies. The PWM carrier frequency shall be adjustable from 500Hz to 3,000Hz (Drives 125 HP and below shall be capable of up to 10,000Hz carrier frequency). The drive shall be capable of PID set point control.

16212.03 OPERATIONAL FUNCTIONS

The drive shall contain two separate acceleration/deceleration times (0.1 to 6,000 seconds) with choice of linear S, or C curves.

The drive shall have the following electric braking:

- Dynamic braking circuit standard; and
- DC injection braking - starting frequency (0-10Hz), breaking voltage (0-20%), and braking time (0-5 seconds).

The drive shall operate the motor in the forward and/or reverse direction. The drive shall be capable of jogging the motor up to 20Hz, then stopping the motor by deceleration, DC injection, or coasting. The drive shall contain seven preset speeds which can be activated from the keypad, terminal inputs, and host computer. The drive shall restart into a rotating motor by sensing the coasting motor's speed and matching that frequency. The drive shall have adjustable soft stall (10%-150%) which reduces frequency and voltage of the inverter

to sustain a run in an overload situation. The drive shall be capable of performing a time base pattern run using the seven preset speeds. The drive shall have adjustable electronic overload protection (10%-100%) and shall have a custom programmable volt/hertz pattern.

16212.04 PROTECTIVE FEATURES

The drive shall have an external fault input and shall be capable of re-setting faults remotely and locally.

The drive shall identify and display the following faults:

- OC1 -- Overcurrent during acceleration;
- OC2 -- Overcurrent during deceleration;
- OC3 -- Overcurrent during run;
- OCA -- Overcurrent during start-up;
- OCL -- Overcurrent due to load-side short circuit;
- Ocr -- Overcurrent in regenerative discharge resistor;
- OP -- Overvoltage;
- OP2 -- Overvoltage during deceleration;
- OL -- Overload;
- Olr -- Overload in regenerative discharge resistor;
- OH -- Overheat;
- EF -- Ground fault;
- E -- Emergency stop;
- Err.1 -- Frequency setting abnormality;
- EEP/EEP2/EEP3 - EEPROM abnormalities;
- Err.t -- Computer link abnormalities;
- POFF -- Control power supply undervoltage;
- nOFF -- Main power supply undervoltage.

16212.05 MONITOR FUNCTIONS

The drive digital display shall be capable of being sealed to display values other than frequency, like motor RPM. The drive shall have programmable parameters which can be changed while the drive is operating.

16212.06 FILTERS & LINE REACTORS

Furnish and install an NEMA 1 enclosed MTE 5%-line reactor for each drive.

16212.07 WARRANTY

A full one-year warranty shall be on the complete system, not just the inverter.

The manufacturer must certify in writing that the drive(s) will not produce any harmonic or line notching disturbances on the AC line that will adversely affect operation of any other VFD's, instruments, or equipment within the facility.

The supplier of the AC drive described herein, shall have a factory trained service representative to startup and configure the drives. The factory trained representative shall be trained in the maintenance and troubleshooting of the equipment as specified herein. Start-up service for each drive shall be included in the Contractor's bid plus an added 4-hour review training session approximately 6 months after start-up.

16212.08 TRAINING

The Contractor shall include in his bid having AC drive manufacturer provide on-site training for plant personnel. This program shall provide operating and instruction manuals, training in equipment operation, and troubleshooting of the AC drive, and shall be for one 4-hour period as mutually arranged between the Contractor and Owner.

16212.09 DOCUMENTATION

Two instruction manuals for programming and hardware shall be provided with the drive at time of shipment. Provide 2 copies of MOD BUS documentation.

16212.10 SPARE PARTS

- A.) Recommended spare parts list and prices shall be provided with the O & M Manual.
- B.) One set (total) of recommended spare parts shall be provided by the Contractor to the Owner as part of the Contractor's bid price. This shall include one complete set of fuses as a minimum.

16212.11 INSTALLATION

VFD's shall be installed as shown on the drawings and according to the manufacturer's latest recommendations. Start-up assistance shall include a manufacturer's representative as each separate drive is placed into service, including all representatives required for all portions of the system. This may require more than a single trip by the representatives involved.

Program each drive on-site for proper operation.

Programming to include:

- Ramp up, ramp down, current & voltage monitor
- Current limit drive output to motor full load amps
- As recommended by manufacturer
- As required by Engineer at start-up

SECTION 16620
STANDBY GENERATOR SYSTEM

16620.01 GENERAL

Furnish and install standby diesel-fired generator system with automatic transfer switch as specified in the contract documents.

16620.02 QUALITY ASSURANCE

- A.) Manufacturer: Provide system from one (1) manufacturer. Acceptable manufacturers include Cummins, Inc., Kohler Power Systems or approved equal.
- B.) Warranty: Provide one (1) year comprehensive extended warranty from date of installation on entire standby power systems (gen-set and ATS) by the system manufacturer (includes parts, labor, travel, etc.).
- C.) NEC Compliance: Comply with applicable standby generator requirements of NEC.
- D.) NFPA Compliance: Comply with applicable requirements of NFPA requirements of NFPA 37, "Installation and Use of Stationary Combustion Engines and Gas Turbine". Also, fully conform to NFPA 110, "Emergency and Standby Power Systems".
- E.) UL Compliance: Provide standby generator system components which are UL listed and labeled.
- F.) ANSI/NEMA Compliance: Comply with applicable requirements of ANSI/NEMA MG 1, "Motors and Generators", and MG 2, "Safety Standard for Construction and Guide for Selection, Installation and Use of Electric Motors and Generators".
- G.) IEEE Compliance: Comply with applicable portions of IEEE Std. 241, "IEEE Recommended Practice for Electric Power Systems in Commercial Buildings" pertaining to standby power.

16620.03 SUBMITTALS

Submit manufacturer's product data, operation and maintenance instruction, and manufacturer's product warranty. Submit dimensioned DRAWINGS and wiring diagrams of generator units and accessories including start-stop stations, and instruments, showing accurately scaled generator set layout and its spatial relationship to associated equipment, and connections to remote equipment. Provide manufacturer's computer size verification for each unit per loads as indicated in 16620.04.B, below.

16620.04 GENERAL SYSTEM REQUIREMENTS

A.) Power: 277/480 volts, three-phase, 4-wire, 60 Hz.

B.) Capacity: Size for all indicated equipment, sequentially as follows:

Step #1 -- 15 kW Miscellaneous Load
1 @ 1.5 HP FVS Motor

Step #2 -- 1 @ 40 HP, Pump (VFD)

Step #3 -- 1 @ 40 HP, Pump (VFD)

Maximum Frequency Dip: 7%

Maximum Starting Voltage Dip: 15%

Maximum Voltage Distortion: 10%

Provide any required larger size unit/system at no added cost to Owner to comply with above. Sizing noted under C.) (1) below is not to be utilized without verification; it indicates the minimum rating that will be accepted.

C.) System Components: Provide entire generator system furnished by generator manufacturer with additional equipment as specified.

1.) Generator: Provide Kohler 100 REOZJF 100 KW (or approved equal), 1800 RPM diesel-fired generator. Provide a larger size unit/system if required per sizing requirements in "B" above. Provide unit in full compliance with all EPA and other environmental regulations. Generator to include:

- Diesel-fired engine
- Radiator cooling system with pusher fan
- Full pressure lube system with spin-on full flow filter and relief valve
- 12 volt starting system with 640 CCA battery minimum, with battery rack, 3-amp automatic type battery charger
- Engine coolant heater-120 volts
- Revolving field, single bearing, brushless, 4-pole drip-proof construction
- 105°C rise extended slack alternator.
- PMG excitation
- Automatic voltage regulator, 1%
- Closed coupled to engine flywheel
- Class H insulation
- Engine coolant fill for -35°F shall be provided by the Supplier
- Fuel electric solenoid and flexible fuel connector
- Enclosure, Sound Attenuated
- Exhaust System
- 200 Amp Generator Circuit Breaker

2.) Controls: Provide control panel shock mounted on generator end of unit. Control panel shall include panel lights, safety devices and engine starting controls which include, but are not limited to:

- Battery charge rate ammeter
- Oil pressure gauge
- Water temperature gauge
- Run-stop-remote switch
- AC voltmeter, ammeter, frequency meter, and tachometer
- Voltage adjusting rheostat
- Emergency latch-relay with manual reset and indicator light
- Cranking limiter
- Manual reset circuit breaker
- Electronic isochronous governor

3.) Safety Circuits: Provide safety circuits with pilot light annunciation (NFPA 110 detector 12) for the following:

- High water temperature shut down with prewarn
- Low oil pressure shutdown with prewarn
- Overspeed shutdown
- Overcrank shutdown
- Unit run
- Switch off (flashing red)
- Low coolant level shutdown
- Low coolant temperature
- Low fuel

4.) Vibration Isolators: Vibration isolators shall be provided between generator and skid frame.

5.) Exhaust: Provide generator exhaust in compliance with manufacturer's latest recommendations and sound attenuation requirements.

6.) Automatic Transfer Switch: Per Section 16620.05 below.

7.) Housing: Provide manufacturer's sound attenuating (minimum of 65.4 dBA at 23') weather protection housing with lockable doors.

D.) Performance Certification: Provide factory certified production test report of the following.

- 1.) Full power rating.
- 2.) Stability.
- 3.) Voltage and frequency regulation.
- 4.) All other certifications per NFPA 110.
- 5.) Safety shutdowns.

E.) Starting Capability: Unit shall be capable of starting after extended periods at -35 degrees F.

16620.05 AUTOMATIC TRANSFER SWITCH

A.) General: Automatic Transfer Switch (ATS) shall be Kohler Model KSP-DMVA0300S (or approved equal) to match Gen-Set (200A rated). Automatic Transfer Switch shall be UL listed (standard 1008) for all classes of load. Maximum 600 volt rated. ATS shall be NEMA 1 (or higher) enclosed.

B.) Operation:

- 1.) Sequence as follows: Sense complete loss of power on any phase and signal generator to start.

When emergency power attains a minimum of 90% of rated speed and voltage, transfer load to emergency power.

Transfer load to normal power when normal power is restored; signal generator to stop. NOTE: Transfers shall incorporate a “dead band” time in the neutral position in all operations.

- 2.) Obtain operating current for load transfer from source to which load is to be transferred.
- 3.) Emergency power malfunction: Automatically disconnect load to allow generator to restart with no connect load. Reconnect emergency power when 90% of rate's speed and voltage is attained.

C.) Features:

- 1.) Disconnect device: Device to electrically disconnect control section from transfer switch to permit safe access for maintenance or service during normal operation.
- 2.) Test switch: Simulate power outage for operational test of engine, alternator and load transfer control.
- 3.) Float type battery charger: Fused with adjustable charge rate, millimeter, rated 2 amps.
- 4.) Cranking limiter: (24/12 volt, 2-wire start) fail to start protection for generator starting system.
- 5.) Operation and selector switch: (24/12 volt, 2-wire start) fail to permit operation of generator at the control site. Provide check, stop, automatic and handcrank functions.

- 6.) Undervoltage protection: Monitor normal power source and start emergency power on partial loss of power on any phase where feedback voltages exist. Provide devices: Solid-state voltage sensitive, calibrated dial adjustment, temperature compensated for a maximum deviation of ± 2 volt from -25°F to +175°F.
- 7.) Time delay to start emergency power: Provide to prevent emergency power from starting during normal voltage fluctuations, adjustable from 1.5 to 15 seconds.
- 8.) Time delay to pick up load: Provide to allow emergency power to operate for a period of time before accepting load, adjustable 5 to 50 seconds.
- 9.) Time delay to retransfer load: Provide to delay transfer of load to normal power to override initial voltage fluctuations of returning normal power and to provide a minimum period of operating time for emergency power.

Bypass time delay if emergency power fails during delay period; retransfer load immediately to normal power.

Adjustment: 2 to 60 minutes.

- 10.) Time delay to stop emergency power: Provide to allow engine to run unloaded before being shut down after load has been retransferred to normal power, adjustable 2 to 60 minutes.
- 11.) Indicating lights: Provide an enclosure door, label to indicate transfer switch position.
 - Green – normal source – connected
 - Red – emergency source – connected
 - White – normal source – available
 - Amber – emergency source -- available
- 12.) Automatic engine exerciser: Provide built-in unit to exercise generator weekly for adjustable time periods. Loads to be transferred under exercise mode.
- 13.) Provide added auxiliary contacts to be operated by the generator control for the following:
 - a.) Alarm
 - b.) Damper motor control (2)
 - c.) Heater interlocking

NOTE: Transfers to emergency and from emergency to normal shall have a deadband period to ensure residual voltages have decayed before new power source is applied. Adjustable time limit of 0 to 7.5 seconds.

D.) Rating and Performance:

- 1.) Continuous duty in a non-ventilated NEMA 3R enclosure.
- 2.) Load: All classes of load including inductive and non-inductive at 600 volts; tungsten lamp load at 250 volts.
- 3.) Close on inrush current of 20 times continuous rating without welding or excessive burning of the contacts.
- 4.) Load switching capability: 15 times continuous rating.
- 5.) Cycles of operation: 600 cycles at rated current at a rate of 6 cycles per minute. One cycle: One complete opening and closing of both sets of contacts in inrush current 10 times continuous rating.

E.) Withstand Ratings:

Switch withstand rating based on manufacturer's published U/L listing of acceptable protective devices (which limit any fault currents to within switches published withstand rating) must be provided. Contractor and vendor must provide written certification that new or existing circuit protective devices ahead of the transfer switches provide proper protection. If they do not do so, the required appropriate devices will be provided and installed under this specification section.

F.) Construction:

- 1.) General: No wearing surfaces or moving parts requiring routing lubrication or maintenance.
- 2.) Enclosure: NEMA 3R for outdoor installation; key operated door locks, swingout service panel, prepunched for future addition of control components.
- 3.) Interlocking: Mechanical and electrical interlocking to prevent simultaneous energizing of load by normal and emergency power.
- 4.) Contacts: Double break design for fast arc suppression, solid silver cadmium, completely enclosed in heat resistant contact chambers.
- 5.) Permanently attached manual operating handles which can be used under load conditions.

16620.06 FUEL TANK

Provide an in-base mounted, diesel fuel tank, complete with all piping. Tank shall be at least 200 gallons capacity, double walled with spill containment alarm and low fuel alarm switches. Completely fill fuel tank following all testing and acceptance of system.

16620.07 INSTALLATION

- A.) Install as indicated, in accordance with the equipment manufacturer's written instructions, and with recognized industry practice. Comply with NFPA and NEMA standards.
- B.) Coordinate with other WORK, including fuel system, piping and accessories.
- C.) Attach base using galvanized steel anchor bolt with vibration protection, as recommended by generator manufacturer.
- D.) Provide and pay for any permits, inspections or approvals required by code.

16620.08 GROUNDING

Provide equipment grounding of engine-generator system in accordance with applicable sections of National Electric Code.

16620.09 TESTING

After circuitry has been energized with normal power source, test engine-generator to demonstrate standby capability and compliance with requirements. Correct malfunctioning units, then retest to demonstrate compliance. Test shall conform to NFPA 110 requirements (2-hour load test) and shall utilize a load bank.

Provide Manufacturer's Representative to confirm operation and train project personnel.

16620.10 SCADA CONNECTIONS

Provide clearly identified and accessible dry contacts in ATS for interconnection to monitoring terminals in control panel as follows:

- #1 Closed = ATS in Utility Position
- #2 Closed = GenSet Running
- #3 Closed = GenSet/ ATS Fault