

Contract Documents & Specifications

For

Big Mountain County

Sewer District

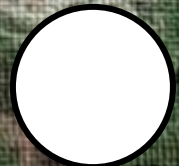
***Community Sewer Infiltration
& Inflow Mitigation Project***



June 2022



Set No.



PREPARED FOR:

Big Mountain County Sewer District

Infiltration and Inflow (I&I)

Mitigation Project

June 2022

The project consists of the following:

BASE BID:

- Cured-In-Place (CIP) lining 14 sanitary sewer manholes;
- Replacing one sanitary sewer manhole;
- Raising/rebuilding 17 sanitary sewer manhole chimney sections;
- Raising/re-sealing 7 sanitary sewer manhole casting/lids;
- Spot repair 8" sewer at 1 location;
- Abandon one manhole;
- Abandon one manhole inlet.

ALTERNATE B

- Cured-In-Place (CIP) lining 4 sanitary sewer manholes;
- One new sanitary sewer manhole;
- Raising/rebuilding 7 sanitary sewer manhole chimney sections;
- Raising/re-sealing 1 sanitary sewer manhole casting/lid;

ALTERNATE C

- Cured-In-Place (CIP) lining 1 sanitary sewer manhole;
- Spot repair 8" sewer at 2 locations

Prepared By: Paul Montgomery, P.E.

Checked By: Adam Eckhart, P.E.

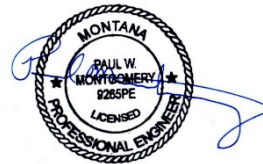


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**SECTION 00 11 16
INVITATION TO BID**

Separate sealed bids for the **Big Mountain County Sewer District Infiltration & Inflow Mitigation Project** will be received by the Big Mountain County Sewer District (BMCSD), **Attn: Jennifer Sato, Board President, at the BMCSD Maintenance Shop – 3808 Big Mountain Road, Whitefish, MT 59937, until 2:00 p.m. local time on Tuesday, June 28, 2022**, and then publicly opened and read aloud. ***Bids submitted via post shall be received by BMCSD at its mailing address (P.O. Box 1252, Whitefish, MT 59937) by June 27, 2022 @ 5:00 pm.*** The project will include the furnishing of all labor, skill, equipment, and construction materials to construct the proposed improvements to the (BMCSD) wastewater collection system in accordance with the plans and specifications. Bids will be for a single base contract and up to two bid alternates, bid on a Unit Price basis.

The project will generally consist of the following work:

BASE BID:

- Cured-In-Place (CIP) lining 14 sanitary sewer manholes;
- Replacing one sanitary sewer manhole;
- Raising/rebuilding 17 sanitary sewer manhole chimney sections;
- Raising/re-sealing 7 sanitary sewer manhole casting/lids;
- Spot repair 8" sewer at 1 location;
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ALTERNATE C

- Cured-In-Place (CIP) lining 1 sanitary sewer manhole;
- Spot repair 8" sewer at 2 locations

WORKSCOPE FOR BASE BID & ALL ALTERNATES INCLUDES:

- **All appurtenant work: Bypass pumping; dewatering; traffic control; asphalt and surface restoration; etc.**

The contract documents, consisting of Drawings and Project Specifications, may be obtained at the office of AMCE at 1064 N. Warren St., Helena, MT 59601 (phone: 406-449-3303). The Instructions to Bidders outlines specific requirements for all Bidders to observe. The required payment for a complete set of contract documents is **\$100** per set or **\$30** for electronic media, which is not refundable. A Set of Drawings and Project Specifications can be examined online at AMCE's website at www.a-mce.com, available **June 12, 2022**. Bidders must purchase a

numbered set of drawings & specifications in order to be placed on the official Planholders list and to submit a responsive bid.

A Set of Drawings and Project Specifications on the Project will be made available to the local and regional Plans Centers.

There will be no Pre-Bid Conference for this re-bid. Interested CONTRACTORS are instructed to contact the Engineer with any questions.

CONTRACTORS and any of the CONTRACTOR's subcontractors submitting a bid on this project will be required to obtain registration with the Montana Department of Labor and Industry (DLI) Contractor Registration Unit prior to submitting bids. Forms for registration are available from the Department of Labor and Industry, P.O. Box 8011, 1805 Prospect, Helena, Montana 59604-8011. Information on registration can be obtained by calling 1-406-444-7734. All laborers and mechanics employed by CONTRACTORS or subcontractors in performance of the construction work shall be paid wages at rates as may be required by the laws of and the state of Montana. The CONTRACTOR must ensure that employees and applicants for employment are not discriminated against because of their race, color, religious views, gender or national origin. The **highest** of Montana Prevailing Wage **or** Federal Davis-Bacon Wage Rates apply to this project.

Each bid or proposal must be accompanied by a Certified Check, Cashier's Check, or Bid Bond payable to the Big Mountain County Sewer District, in an amount not less than ten percent (10%) of the total amount of the bid plus alternates. Successful BIDDERS shall furnish an approved Performance Bond and a Labor and Materials Payment Bond, each in the amount of one hundred percent (100%) of the contract amount. Insurance as required shall be provided by the successful BIDDER(s) and a certificate(s) of that insurance shall be provided. Bidders must demonstrate their qualifications to do the work.

This project is funded with grant and loan funding from the DNRC Renewable Resources Grant Program, Montana Department of Commerce Treasure State Endowment Program and American Rescue Plan Act (ARPA) administered by the Montana DNRC. Award of the project will be contingent upon available funding and award concurrence from the MDNRC, MDOC and ARPA fund administrators.

No bid may be withdrawn after the scheduled time for the public opening of bids.

The right is reserved to reject any or all proposals received, to waive informalities, to postpone the award of the contract for a period of not to exceed sixty (60) days, and to accept the lowest responsive and responsible bid which is in the best interest of the OWNER.

The Big Mountain County Sewer District is an Equal Opportunity Employer.

Please publish on:

June 12, 2022

June 19, 2022

Big Mountain County Sewer District
Jennifer Sato, Board President
P.O. Box 1252
Whitefish, MT 59937

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

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.
 - 1. For purposes of this document, the Issuing Office shall be as follows:
ANDERSON-MONTGOMERY CONSULTING ENGINEERS
1064 N WARREN ST. HELENA, MT 59601
 - B. *Bidder* - The Individual or entity who submits a Bid directly to the Owner
 - C. *Successful Bidder* – The lowest responsible Bidder submitting a responsive Bid to whom Owner (on the basis of Owner’s evaluation is hereinafter provided) makes an award.
 - D. *Owner* – The client for which the proposed project is intended to benefit, in this case, Big Mountain County Sewer District.

ARTICLE 2 -COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and formats for the deposit sum stated in the Invitation for Construction Bids. The deposit sum stated is *NON-REFUNDABLE*.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 -QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder’s qualifications to perform the Work, Bidder shall submit with its Bid (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:
- A. Evidence of Bidder’s authority to do business in the State of Montana.
 - B. Bidder’s contractor license number
 - C. Completed Form C-451 – Qualification Statement
 - D. Subcontractor and Supplier qualification information
 - 1. Coordinate with provisions of Article 12 of these Instructions, “Subcontractors,

Suppliers, and Others.”

- E. DBE Subcontractor Solicitation Information
 - F. SRF Certifications regarding Debarment, Suspension, and other Responsibility Matters
 - G. Purchase a number set of Contract Documents and is actively listed on the Planholders List for the project.
- 3.02 A Bidder’s failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder’s qualifications.
- 3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder’s representations and certifications.

**ARTICLE 4 -SITE AND OTHER AREAS; EXISTING SITE CONDITIONS;
EXAMINATION OF SITE; OWNER’S SAFETY PROGRAM; OTHER
WORK AT THE SITE**

4.01 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.

4.02 Existing Site Conditions

- A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
 - 1. The Supplementary Conditions identify:
 - a. Those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
 - b. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - 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 Report: *No geotechnical investigations have been conducted for any of the individual construction areas throughout the project site. The Bidder/Contractor is encouraged to conduct its own geotechnical studies in order to derive the necessary information upon which to base its bid and determine means and methods for construction. Generalized soil mapping is available through the USDA Natural Resources Conservation Service Web Soil Survey website at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.*

Note that the Contractor will be responsible for obtaining soil samples and conducting proctor tests in order to establish optimum moisture levels and compaction rates for native materials used in backfill. All required compaction rates shall be verified by the Contractor. Sampling/analysis shall be conducted for each varying classification of soil encountered over the entire jobsite.

- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 Site Visit and Testing by Bidders

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
 1. If Bidder wishes to schedule an appointment to conduct Bidders site visit outside of the Pre-Bid Conference, please contact Jason Hanchett, 406-862-1991 to schedule an appointment. The Engineer makes no guarantees as to the availability of the Owner to accommodate Bidder's desired appointment times.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations

of Site conditions.

- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder 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.
- D. Bidder shall 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.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 Owner's Safety Program

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

4.05 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 5 - BIDDER'S REPRESENTATIONS

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

- A. Examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. Visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. Become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. Carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface

or subsurface structures at the Site that have been identified in the Supplementary Conditions or Appendices, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;

- E. Consider 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. Agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. Become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. Promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. Agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 - PRE-BID CONFERENCE

- 6.01 No Pre-Bid conference will be held for this Bid. Bidders are encouraged to contact the Engineer with any questions relevant to the project.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior

to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

- 7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 - BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of ten-percent (10%) of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 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 Documents, 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 Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.
- 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 seven 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 seven days after the Bid opening.
- 8.05 Attorneys-in-fact who sign Bid Bonds must file with the Bid Bond a certified and effective, dated copy of their power of attorney.

ARTICLE 9 - CONTRACT TIMES

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

ARTICLE 10 - LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, 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 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

- 11.01 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 at least 15 days prior to the date for receipt of Bids in the case of a proposed substitute. Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner. Substitutes and “or-equal” materials and equipment may be proposed by Contractor in accordance with Paragraphs 7.4 and 7.5 of the General Conditions after the Effective Date of the Contract.

- 11.02 All prices that Bidder sets forth in its Bid shall 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.
- 11.03 If an award is made, Contractor shall be allowed to submit proposed substitutes and “or-equals” in accordance with the General Conditions.
- 11.04 Whether explicitly written or not explicitly written, “OR EQUAL” is implicitly listed as an “Approved Manufacturer” for any and all manufacturers listed in any and all specification sections or included herein or added by addendum or construction drawings, either included or added by addendum.**

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 **If required by the bid documents**, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work:

- A. Mechanical Sub-Contractor(s)
- B. Electrical Sub-Contractors(s)
- C. Environmental Sub-Contractor(s)
- D. Other Major Sub-Contractor(s) requested

If requested by Owner, Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall 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.

- 12.02 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.
- 12.03 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.6.A

ARTICLE 13 - PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
 - A. All blanks on the Bid Form shall be completed in ink or typewriter and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, 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.”
- 13.02 A Bid by a corporation shall 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 seal shall be affixed and attested by the corporate secretary or an assistant corporate secretary. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- 13.04 A Bid by a limited liability company shall 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 shall be shown.
- 13.05 A Bid by an individual shall show the Bidder’s name and official address.
- 13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.07 All names shall be printed in ink below the signatures.
- 13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.10 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the

Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

- A. Title 39, Chapter 9, Parts 1 and 2 MCA stipulate contractor registration requirements for the State of Montana. Pursuant to 39-9-201 MCA, each construction contractor must be registered with the Montana Department of Labor and Industry. In accordance with 39-9- 201 MCA, "construction contractor" means a person, firm, or corporation that, in the pursuit of an independent business, offers to undertake, undertakes, or submits a bid for construction.
- B. No bid shall be considered that does not carry the Bidder's Montana Contractors Registration Number on the bid form.
- C. Registration forms and additional information may be obtained by contacting the Montana Department of Labor and Industry, 1805 Prospect Ave., P.O. Box 8011, Helena, MT 59604- 8011, or by calling 406-444-7734.

ARTICLE 14 - BASIS OF BID

14.01 Base Bid

- A. Bidders shall submit a Bid on a unit price basis for the base Bid as provided for in the Bid Form. The cumulative amount on the Bid Form, the Bidders Qualifications and analysis of the Bidder's Questionnaire will be utilized to determine the lowest responsive and responsible bidder.
- B. The Agreement as executed will contain the Substantial Completion time and readiness for final payment time. The Contractor will be assessed liquidated damages at the rate stated in the Agreement for failure to attain Substantial Completion within that time.**

14.02 Unit Price

- A. NOT USED

14.03 Allowances

- A. NOT USED

ARTICLE 15 - SUBMITTAL OF BID

- 15.01 With each purchased copy of the Bidding Documents, a Bidder is furnished one separate bound copy of the Bid Form, and, if required, the Bid Bond. The actual copy of the Bid Form, or a complete and accurate copy, is to be completed and submitted with the Bid security. The supplemental requirements that must be submitted with Bid Form are described in detail on the Bid Form. As noted in the Bid Advertisement, Bidders must purchase a numbered set of drawings & specifications in order to be placed on the official Planholders list and submit a responsive bid.
- 15.02 A complete Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid, and shall be enclosed in a plainly marked envelope (or suitable package) and marked with the project title, "**Big Mountain**

County Sewer District I&I Mitigation Project - 2022” plus the name and address of Bidder, accompanied by the Bid security and other required documents. To be considered complete, the submitted bid must include the Bid Form, Bid Security and all other required attachments. The bidder’s checklist is located in Section 00 43 93 for reference. ***Bids mailed (USPS, FedEx, UPS, etc.) to the Big Mountain County Sewer District Address (P.O. Box 1252, Whitefish, MT 59937) MUST BE RECEIVED AT LEAST ONE DAY PRIOR TO THE BID OPENING.*** Otherwise they can be hand carried to the location where bids will be opened on **June 28, 2022**.

- 15.03 Any irregularities or deviations from the above stated directions, including failure to acknowledge any or all addenda, failure to include any or all of the required Bidder Qualifications, or any and all other irregularities and informalities will be noted at the time of Bid Opening. A judgement on the Bidders Response or Responsibility will be made at the time of Bid Opening, and, contingent upon said judgement, the Bid will either be read aloud or judged unresponsive and not read. Any judgement as to the question of a Bidder’s Response or Responsibility will be subject to further interpretation which may result, without undue justification, in a Bidder’s Bid being ruled disqualified after the time of Bid Opening. Bids deemed unresponsive at the time of Bid Opening are to be considered disqualified this ruling will be FINAL.
- 15.04 A Bid shall be received no later than the date and time prescribed and at the place indicated in the invitation for construction bids. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation “**BID ENCLOSED, Big Mountain County Sewer District I&I Mitigation Project - 2022**” A mailed Bid shall be addressed to:

**Big Mountain County Sewer District
Jen Sato, President
PO Box 1252
Whitefish, MT 59937**

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

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

ARTICLE 17 - OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid **Invitation for Construction Bids** and, unless obviously non-responsive, read aloud

publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 - EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. 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, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.
- 19.03 Evaluation of Bids
- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. In the comparison of Bids, **after the determination of the lowest base bid**, alternates (**if applicable**) 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 shall 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.
- 19.04 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.
- 19.05 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 20 - BONDS AND INSURANCE

- 20.01 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 and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 - SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall 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 shall 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 ten days thereafter, Owner shall 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 2.2 of the General Conditions.

ARTICLE 22 - SALES AND USE TAXES

- 22.01 Owner is exempt from taxation as legislated by Title 15 of Montana Code Annotated (15-6-201, MCA) & (15-31-102, MCA). Owner is exempt from Montana state sales and use taxes on materials and equipment to be incorporated in the Work.
- 22.02 All applicable laws, ordinances, and the rules and regulations of authorities having jurisdiction over construction of the project shall apply to the Contract throughout. State laws and ordinances which the Contractor must comply with include, but are not limited to, those involving workmen's compensation insurance, contractor registration, and gross receipts tax.

ARTICLE 23 - WAGE RATE REQUIREMENTS

- 23.01 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.

ARTICLE 24 - FUNDING AGENCY SPECIAL PROVISIONS FOR MONTANA PUBLIC FACILITY PROJECTS

- 24.01 This project is being funded with funds from the following public facility funding programs or agencies:
- A. Renewable Resource Grant and Loan Program (RRGL)
 - B. Treasure State Endowment Program (TSEP)
 - C. American Rescue Plan Act (ARPA) Minimum Allocation Grant
 - D. Flathead County ARPA Match
 - E. Big Mountain County Sewer District local funds

- 24.02 Bidder's attention is directed to Section 00 90 00 – Funding Agency Requirements of these contract documents. The successful Bidder shall comply with all applicable articles therein, including but not limited to, the following Instructions to Bidders;

ARTICLE 25 - EQUAL EMPLOYMENT OPPORTUNITY

- 25.01 BIDDER'S attention is directed to ARTICLE 1.5.1 [Equal Employment Opportunity and Affirmative Action Requirements] of Section 00 90 00, the requirement for ensuring that employees and applicants for employment are not discriminated against because of their race, color, religion, national origin, gender, marital status, age, or political ideas. Bidders on this work will be required to comply with the President's Executive Orders No. 11246 as amended, 11458, 11518, and 11625.

ARTICLE 26 - DISADVANTAGE BUSINESS ENTERPRISES

- 26.01 DBE solicitation requirements are located in ARTICLE 1.5.2 [Guidance for Participation By Disadvantaged Business (DBE) Enterprises In United States Environmental Protection Agency Programs of 40 CFR 33] of Section 00 90 00. An online DBE quote request form is available to BIDDERS at <https://app.mdt.mt.gov/dbeqt/>. The BIDDER should fill out and submit the quote request form as early in the bidding period as possible to allow sufficient time for qualified DBE firms to respond. A DBE must be certified as such by a state or federal agency (e.g., the Small Business Administration, the Department of Transportation, or EPA) or by a state, local, or independent private organization, provided their criteria match those under section 8(a) (5) and (6) of the Small Business Act and Small Business Administration's 8(a) Business Development Program Regulations. Self-certification of DBEs is not allowed. Inadequate DBE solicitation efforts by the BIDDER may be grounds for the MDEQ State Revolving Fund program to withhold funds for the project and withhold authorization to award the construction contract. In accordance with Section 00 90 00 Article 1.5.2, failure to submit evidence showing a "good faith effort" may cause the bid to be rejected as non-responsive.

ARTICLE 27 - DEBARMENT CERTIFICATION

- 27.01 BIDDER'S attention is directed to ARTICLE 1.5.3 [Certification Regarding Debarment, Suspension and Other Responsibility Matters] of Section 00 90 00 with respect to Certification Regarding Debarment. Federal funding is being utilized on this project and the successful bidder must provide the debarment certification statement at the time of bid opening with the bid and other forms required.

ARTICLE 28 - COMPLIANCE WITH WAGE RATE REQUIREMENTS

- 28.01 BIDDER'S attention is directed to ARTICLE 1.5.7 [Wage Determination] of Section 00 90 00 with respect to wage rates. Under all Schedules of this Contract with the Owner, the Contractor and all subcontractors shall pay for all labor employed at no less than the minimum standard prevailing rate of wages for each classification, which shall be the higher of either the Montana Prevailing Wage Rates or the Federal Davis-Bacon

Prevailing Wage Rates, as appended.

ARTICLE 29 - AMERICAN IRON AND STEEL (AIS) REQUIREMENTS

29.01 BIDDER'S attention is directed to ARTICLE 1.5.10 [American Iron and Steel Requirements] of Section 00 90 00. All of the iron and steel products used in the project must be produced in the United States. The term "iron and steel products" means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, rebar, and construction materials. The iron and steel products permanently incorporated in the project must comply with the American Iron and Steel requirements of Section 436 of the Consolidated Appropriations Act of 2014 (P.L. 113-76) and as further interpreted by applicable EPA guidance (see http://water.epa.gov/grants_funding/aisrequirement.cfm).

END OF SECTION 00 21 13

**SECTION 00 41 00
BID FORM**

ARTICLE 1 – BID RECIPIENT

1.1 This Bid is submitted to:

**Big Mountain County Sewer District
Jennifer Sato – Board President
P.O. Box 1252
Whitefish, MT 59937**

For the:

Sewer Infiltration & Inflow Mitigation Project

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

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

- 2.1 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
- 2.2 Bidder acknowledges the provisions of the Agreement as to the assignment of the procurement contract for procurement of goods and special services for the **Big Mountain County Sewer District I&I Mitigation Project.**

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.1 In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. 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 any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.1 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

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

ITEM #	BID ITEM DESCRIPTION	UNITS	QUAN.	UNIT PRICE	LINE ITEM TOTAL
BASE BID - 100					
102	Mobilization/Bonding/Insurance	LS	1	\$ _____	\$ _____
104	MH A1 – Raise & CIP	LS	1	\$ _____	\$ _____
106	MH A1B - Raise & CIP	LS	1	\$ _____	\$ _____
108	MH A1-1.1 - Raise & CIP	LS	1	\$ _____	\$ _____
110	MH A1-1.3 - Raise & CIP	LS	1	\$ _____	\$ _____
112	MH A1-1.4 - CIP	LS	1	\$ _____	\$ _____
114	MH A2-1.5 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
116	MH A2-4A – Chimney Seal	LS	1	\$ _____	\$ _____
118	MH A3-5 - CIP	LS	1	\$ _____	\$ _____
120	MH A3-5.1 - CIP	LS	1	\$ _____	\$ _____
122	MH A3-5.3 – Raise & CIP	LS	1	\$ _____	\$ _____
124	MH A3-5.6 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
126	MH A4.5 - abandon/seal inlet	LS	1	\$ _____	\$ _____
128	Cedar Lot MH - Abandon	LS	1	\$ _____	\$ _____
130	MH A4B - CIP	LS	1	\$ _____	\$ _____
132	MH S1-1 – Raise & CIP	LS	1	\$ _____	\$ _____
134	MH 7 - CIP	LS	1	\$ _____	\$ _____
136	MH 8 - Replace	LS	1	\$ _____	\$ _____
138	MH 9 - Raise, CIP & Chimney Seal	LS	1	\$ _____	\$ _____
140	MH 11 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
142	MH 16 - CIP & Chimney Seal	LS	1	\$ _____	\$ _____
144	MH 21 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
146	MH 22 - Raise, CIP & Chimney Seal	LS	1	\$ _____	\$ _____
148	MH 26A – Raise & Chimney Seal	LS	1	\$ _____	\$ _____
150	MH 27 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
152	MH 30 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
154	MH 30A - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
156	MH 31 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
158	MH 32 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
160	MH 32A - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
162	MH 33 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
164	MH 33A - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
166	Spot Repair A3-1A to A3-1B	LS	1	\$ _____	\$ _____

ITEM #	BID ITEM DESCRIPTION	UNITS	QUAN.	UNIT PRICE	LINE ITEM TOTAL
ALTERNATE B - 200					
202	Mobilization/Bonding/Insurance				
204	MH A2-2 - Raise, CIP & Chimney Seal	LS	1	\$ _____	\$ _____
206	MH A2-2.1 - Raise, CIP & Chimney Seal	LS	1	\$ _____	\$ _____
208	MH A2-2.4 - Raise & Chimney Seal	LS	1	\$ _____	\$ _____
210	MH A3-2.3 – Raise, CIP & Chimney Seal	LS	1	\$ _____	\$ _____
212	MH A3-1A – Raise & Chimney Seal	LS	1	\$ _____	\$ _____
214	MH A3-3 - Raise, CIP & Chimney Seal	LS	1	\$ _____	\$ _____
216	MH A4.6 - Chimney Seal	LS	1	\$ _____	\$ _____
218	MH A4.5-1 – New Manhole	LS	1	\$ _____	\$ _____
220	MH 1B – Raise	LS	1	\$ _____	\$ _____
ALTERNATE C - 300					
302	Mobilization/Bonding/Insurance				
304	MH A3-1 – CIP & Chimney Seal	LS	1	\$ _____	\$ _____
306	Spot Repair A3-1 to A3-1A	LS	1	\$ _____	\$ _____
308	Spot Repair A4-5 to A4-6	LS	1	\$ _____	\$ _____

BID FORM (CONTINUED)					
ITEM #	BID ITEM DESCRIPTION	UNITS	QUAN.	UNIT PRICE	LINE ITEM TOTAL
174					
176					
178					
180					
182					
184					
186					
188					
190					
192					
194					
196					
Total Estimated Bid Price (in figures):			\$ _____		
Total Estimated Bid Price (in words):			_____ _____ <u> dollars </u>		

ARTICLE 6 – TIME OF COMPLETION

- 6.1 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.6 of the General Conditions on or before the dates or within 60 calendar days as indicated in the Agreement.
- 6.2 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.1 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security See SECTION – 00 43 13;
 - B. List of Proposed Subcontractors See Article 12 of SECTION – 00 21 13;
 - C. Evidence of authority to do business in the state of Montana; or a written covenant to obtain such license within the time for acceptance of Bids;
 - 1. Montana Contractor’s Registration Number:
 - D. Required Bidder Qualification Statement with supporting data
 - 1. FORM C-451 (See SECTION – 00 45 13).
 - E. USEPA Certification Regarding Debarment, Suspension, and Other Responsibility Matters

F. DBE Subcontractor Solicitation Information

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

This Bid is SUBMITTED on _____, 2022

BY:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's Signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____

State of Incorporation: _____

Type (General Business, Profession, Service, Limited Liability): _____

By: _____
(Signature – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Attest: _____

(Signature of Corporate Secretary)

Date of Qualification to do business in Montana is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venture Name: _____

By: _____

(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venture Name: _____

By: _____

(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

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

BIDDER'S BUSINESS ADDRESS & CONTACT INFORMATION:

Bidder's Business address: _____

Business Phone No. _____

Business Fax No. _____

Business E-Mail Address _____

State Contractor License No._____. (If applicable)

Employer's Tax ID No._____

ADDRESS FOR GIVING NOTICES:

Phone and e-mail address, and Address for receipt of *official communications* if different from Business address and contact information:

SECTION 00 43 13
BID BOND

BIDDER (Name and Address):

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

OWNER (Name and Address):

Big Mountain County Sewer District

P.O. Box 1252

Whitefish, MT 59937

BID

BID DUE DATE: _____, 2022

PROJECT:

As described in Project Documents, the Bid is for provision of General Construction Services for the Big Mountain County Sewer District I&I Mitigation Project located within the Village at Big Mountain and the District's sewer outfall line along Big Mountain Road, Whitefish, MT 59937.

BOND

BOND NUMBER: _____

DATE (Not later than Bid due date): _____

PENAL SUM: _____ (Words) _____ (Figures)

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

BIDDER

SURETY

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature and Title

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

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible and responsive Bidder as determined by OWNER for the Work required by the Contract Documents, provided that:

1.1. If there is no such next lowest, responsible and responsive Bidder, and OWNER does not abandon the Project, then Bidder and Surety shall pay to OWNER the penal sum set forth on the face of this Bond, and

1.2. In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or

3.2. All Bids are rejected by OWNER, or

3.3. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power or Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

END OF SECTION 00 43 13

**SECTION 00 43 93
BIDDERS CHECKLIST**

Directions: The following items are to be enclosed in the bid envelope received no later than the bid opening date (see below) of: **June 28th, 2022, 2:00 p.m.** at either of the following address:

**Big Mountain County Sewer District
Jennifer Sato – Board President**

At:

- **BMCS D Maintenance Shop – 3808 Big Mountain Road, Whitefish on day of bid opening, or:**
- **P.O. Box 1252, Whitefish, MT 59937, no later than one day before bid opening**

-
- _____ Review Instructions to Bidders (Section 00 21 13)
 - _____ Complete Bid Form (Section 00 41 00)
 - _____ Bid Bond (Section 00 43 13)
 - _____ Bidder Qualifications Form C-451 (Section 00 45 13)
 - _____ Funding Agency Forms (Section 00 90 00)
 - _____ Contractor's Registration
 - _____ Review Site Conditions
 - _____ DBE Subcontractor Solicitation Information
 - _____ SRF Certification Regarding Debarment, Suspension, and Other Responsibility Matters

**SECTION 00 45 13
BIDDERS QUALIFICATIONS FORM C-451**

QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT PERMITTED BY LAWS AND REGULATIONS
--

1. SUBMITTED BY:

Official Name of Firm: _____

Address: _____

2. SUBMITTED TO: _____

3. SUBMITTED FOR: _____

Owner: Big Mountain County Sewer District

Project Name: Big Mountain County Sewer District – I&I Mitigation

TYPE OF WORK: _____

4. CONTRACTOR'S CONTACT INFORMATION

Contact Person: _____

Title: _____

Phone: _____

Email: _____

5. AFFILIATED COMPANIES:

Name: _____

Address: _____

6. TYPE OF ORGANIZATION:

☐ SOLE PROPRIETORSHIP

Name of Owner: _____

Doing Business As: _____

Date of Organization: _____

☐ PARTNERSHIP

Date of Organization: _____

Type of Partnership: _____

Name of General Partner(s): _____

☐ CORPORATION

State of Organization: _____

Date of Organization: _____

Executive Officers:

- President:

- Vice President(s):

- Treasurer:

- Secretary:

☐ LIMITED LIABILITY COMPANY

State of Organization:

Date of Organization:

Members:

☐ JOINT VENTURE

Sate of Organization:

Date of Organization:

Form of Organization:

Joint Venture Managing Partner

- Name:

- Address:

Joint Venture Managing Partner

- Name: _____
- Address: _____

Joint Venture Managing Partner

- Name: _____
- Address: _____

7. LICENSING

Jurisdiction: _____
Type of License: _____
License Number: _____
Jurisdiction: _____
Type of License: _____
License Number: _____

8. CERTIFICATIONS

CERTIFIED BY:

Disadvantage Business Enterprise: _____
Minority Business Enterprise: _____
Woman Owned Enterprise: _____
Small Business Enterprise: _____
Other (_____): _____

9. BONDING INFORMATION

Bonding Company: _____
Address: _____

Bonding Agent:

Address:

Contact Name:

Phone:

Aggregate Bonding Capacity:

Available Bonding Capacity as of date of this submittal:

10. FINANCIAL INFORMATION

Financial Institution:

Address:

Account Manager:

Phone:

INCLUDE AS AN ATTACHMENT AN AUDITED BALANCE SHEET FOR EACH OF THE LAST 3 YEARS

11. CONSTRUCTION EXPERIENCE:

Current Experience:

List on **Schedule A** all uncompleted projects currently under contract (If Joint Venture list each participant's projects separately).

Previous Experience:

List on **Schedule B** all projects completed within the last 5 Years (If Joint Venture list each

participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

12. SAFETY PROGRAM:

Name of Contractor's Safety Officer: _____

Include the following as attachments:

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) OSHA No. 500- Log & Summary of Occupational Injuries & Illnesses for the past 5 years.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all OSHA Citations & Notifications of Penalty (monetary or other) received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all safety citations or violations under any state all received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide the following for the firm listed in Section V (and for each proposed Subcontractor furnishing or performing Work having a value in excess of 10 percent of the total amount of

the Bid) the following (attach additional sheets as necessary):

Workers' compensation Experience Modification Rate (EMR) for the last 5 years:

YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____

Total Recordable Frequency Rate (TRFR) for the last 5 years:

YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____

Total number of man-hours worked for the last 5 Years:

YEAR	_____	TOTAL NUMBER OF	_____
YEAR	_____	TOTAL NUMBER OF	_____
YEAR	_____	TOTAL NUMBER OF	_____
YEAR	_____	TOTAL NUMBER OF	_____
YEAR	_____	TOTAL NUMBER OF	_____
		MAN-HOURS	

Provide Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) Days Away From Work, Days of Restricted Work Activity or Job Transfer (DART) incidence rate for the particular industry or type of Work to be performed by Contractor and each of Contractor's proposed Subcontractors and Suppliers) for the last 5 years:

YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____

13. EQUIPMENT:

MAJOR EQUIPMENT:

List on **Schedule C** all pieces of major equipment available for use on Owner's Project.

14. SUBCONTRACTORS

MAJOR SUBCONTRACTORS:

List on **Schedule D** all “Major Subcontractors” planned for use on the Project.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HEREWITH, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: _____

BY: _____

TITLE: _____

DATED: _____

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE

ME THIS _____ DAY OF _____, 20____

NOTARY PUBLIC - STATE OF _____

MY COMMISSION EXPIRES: _____

REQUIRED ATTACHMENTS

1. Schedule A (Current Experience).
2. Schedule B (Previous Experience).
3. Schedule C (Major Equipment).
4. Audited balance sheet for each of the last 3 years for firm named in Section 1.
5. Evidence of authority for individuals listed in Section 7 to bind organization to an agreement.
6. Resumes of officers and key individuals (including Safety Officer) of firm named in Section 1.
7. Required safety program submittals listed in Section 13.
8. Additional items as pertinent.

SCHEDULE A

CURRENT EXPERIENCE

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE C - LIST OF MAJOR EQUIPMENT AVAILABLE

[illegible]

SCHEDULE D – LIST OF MAJOR SUBCONTRACTORS

(If any of the given "MAJOR SUB-CONTRACTS" will not be used, so indicate by listing "NA" in the respective row under "PROPOSED SUBCONTRACTOR").

MAJOR SUB-CONTRACTS	PROPOSED SUBCONTRACTOR	CITY / STATE
Mechanical Work (HVAC)		
Mechanical Work (Plumbing)		
Electrical Work		
Roofing Work		
Site / Civil		
Dewatering		
Environmental / Groundwater Remediation		
OTHERS (PLEASE SPECIFY)		

**SECTION 00 51 00
NOTICE OF AWARD**

To: _____

Address: _____

Contract: **Big Mountain County Sewer District**

Project: **I&I Mitigation Project**

You are notified that your Bid dated: _____ for the above Contract has been considered. Your lump sum bid, with documentation, has been found to be in the best interest of the District and you are being provided this Notice of Award for a Contract for the construction of the BMCSD I&I Mitigation Project.

The Contract Price of your Contract is _____ **(in words)**,
\$ _____ **(in figures)**.

You must comply with the following conditions precedent **within 14 days** of the date you receive this Notice of Award.

1. Deliver to the OWNER 2 copies of the fully executed counterparts of the Contract Documents.
2. Deliver required certificates of insurance, as described in the contract documents.
3. Deliver Bond Documents.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your Cost Quotation in default, to annul this Notice of Award.

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

DATED this _____ day of _____, 2022.

BIG MOUNTAIN COUNTY SEWER DISTRICT

BY: _____

TITLE: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged this ____ day of _____, 2022.

Contractor

BY:

Name

Title

Copy to ENGINEER

END OF SECTION 00 51 00

SECTION 00 52 00
AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT

THIS AGREEMENT is by and between **Big Mountain County Sewer District** (“Owner”) and _____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.1 Contractor shall complete all Work as specified or indicated in the Contract Documents for the ***Infiltration & Inflow (I&I) Mitigation Project***. The Work is generally described as follows:

BASE BID:

- Cured-In-Place (CIP) lining 14 sanitary sewer manholes;
- Replacing one sanitary sewer manhole;
- Raising/rebuilding 17 sanitary sewer manhole chimney sections;
- Raising/re-sealing 7 sanitary sewer manhole casting/lids;
- Spot repair 8" sewer at 1 location;
- Abandon one manhole;
- Abandon one manhole inlet.

ALTERNATE B

- Cured-In-Place (CIP) lining 4 sanitary sewer manholes;
- One new sanitary sewer manhole;
- Raising/rebuilding 7 sanitary sewer manhole chimney sections;
- Raising/re-sealing 1 sanitary sewer manhole casting/lid;

ALTERNATE C

- Cured-In-Place (CIP) lining 1 sanitary sewer manhole;
- Spot repair 8" sewer at 2 locations

WORKSCOPE FOR BASE BID & ALL ALTERNATES INCLUDES:

All appurtenant work: Bypass pumping; dewatering; traffic control; asphalt and surface restoration; etc.

ARTICLE 2 – THE PROJECT

2.1 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Big Mountain County Sewer District I&I Mitigation Project.**

ARTICLE 3 – ENGINEER

- 3.1 The Project has been designed by:
Anderson-Montgomery Consulting Engineers, Inc.
- 3.2 The Owner has retained Anderson-Montgomery Consulting Engineers, Inc. (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.1 *Time of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract. The Total Contract Time allowed for this Project will be as follows:
1. **BASE BID: 40 consecutive** calendar days from the date of the Notice to Proceed to the date of Substantial Completion;
 2. **ALTERNATE B: an additional 12 consecutive** calendar days;
 3. **ALTERNATE C: an additional 8 consecutive** calendar days;

4.2 *Contract Times: Dates*

- A. The Work will be substantially completed on or before _____, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before _____.

4.3 *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 times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. 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 the Owner up to **\$1,000.00** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A 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 Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner up to **\$750.00** for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Substantial Completion and

final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.1 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:

1. Mobilization _____
2. Lump Sum for General Construction _____
3. Equipment Procurement Bid Amount _____
4. Total Bid Amount (Sum of 1-3) _____

ARTICLE 6 – PAYMENT PROCEDURES

6.1 *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.

6.2 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 15th 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. **95** percent of Work completed (with the balance being retainage; and
- b. **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 Contract Documents**, Owner shall pay an amount sufficient to increase total payments to Contractor to **97.5** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **200** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.3 *Final Payment*

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

Price as recommended by Engineer as provided in said Paragraph 15.06.

6.4 *Gross Receipts Withholding Requirements*

- A. Pursuant to Section 15-50-206(2)(3), MCA, the Owner is required to withhold one percent (1%) of all payments due the Contractor and is required to transmit such moneys to the Montana Department of Revenue as part of the public contractor's license fee. In like fashion, the Contractor is required to withhold one percent (1%) from payments to subcontractors.

ARTICLE 7 – INTEREST

- 7.1 All amounts not paid when due shall bear interest at the **maximum rate allowed by law at the place of the Project.**

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.1 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (3) reports and drawings related to other work scheduled in the general vicinity of the project during the planned construction period.
 - E. 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 Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
 - F. 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.

- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. 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.

ARTICLE 9 – CONTRACT DOCUMENTS

9.1 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement Performance bond
 - 2. Payment bond
 - 3. General Conditions Supplementary Conditions
 - 4. Specifications:
 - a. Work Plan (See Section 01 11 00)
 - b. As listed in the table of contents of the Project Manual.
 - c. Montana Public Works Standard Specifications (Current Edition)
 - 5. Construction Drawings consisting of the Drawings listed on the Index Sheet in Appendix A, each bearing the following general title: **Big Mountain County Sewer District I&I Mitigation Project** are not attached, but included by reference.
 - 6. Addenda
 - 7. Exhibits to this Agreement
 - a. Funding Agency Special Provisions for Montana Public Facility Projects
 - 8. 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.
- B. The documents listed in Paragraph 9.1.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.1 *Terms*

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

10.2 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, 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 Documents.

10.3 *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.

10.4 *Severability*

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

10.5 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of 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.

10.6 *Other Provisions*

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

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

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

OWNER:

BIG MOUNTAIN COUNTY SEWER DISTRICT

By: _____
Print Name: Jennifer Sato
Title: District Board President

Attest: _____

Print Name: _____
Title: _____

Address for giving notices:

Big Mountain County Sewer District
P.O. Box 1252
Whitefish, MT 59937

CONTRACTOR:

By: _____
Title: _____

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

Attest: _____

Print Name: _____
Title: _____

Address for giving notices:

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

**SECTION 00 55 00
NOTICE TO PROCEED**

Owner: **Big Mountain County Sewer District** Owner's Contract No.:

Contractor:

Contractor's Project No.:

Engineer: **Anderson Montgomery Consulting
Engineers**

Engineer's Project No.:

Project: **I&I Mitigation Project**

Contract Name:

Effective Date of Contract:

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on

_____, 2022. (see Paragraph 4.01 of the General
Conditions)

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is

_____, and the date of readiness for final payment is _____.

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

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

Recommended:

Accepted:

Accepted:

Engineer (Authorized Signature)

Owner (Authorized Signature)

Contractor (Authorized Signature)

(Date)

(Date)

(Date)

SECTION 00 61 10
PERFORMANCE BOND

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

SURETY *(name and address of*

OWNER : **Big Mountain County Sewer District**
P.O. Box 1252
Whitefish, MT 59937

CONSTRUCTION CONTRACT

Effective Date of the
Agreement: Amount:
Description *(name and location):*

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*
Amount:
Modifications to this Bond Form: None See Paragraph 16

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

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

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

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

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

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

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

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

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

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not

constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

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

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

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

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the

Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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

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

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

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

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

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

payments made to or on behalf of the Contractor under the Construction Contract.

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

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

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

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

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

16. Modifications to this Bond are as follows:

**SECTION 00 61 13
PAYMENT BOND**

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

SURETY *(name and address of*

OWNER : Big Mountain County Sewer District, Whitefish, MT 59937

CONSTRUCTION CONTRACT

Effective Date of the
Agreement: Amount:
Description *(name and location):*

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*
Amount:
Modifications to this Bid Form: None See Paragraph 18

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

CONTRACTOR AS PRINCIPAL

SURETY

(seal)
Contractor's Name and Corporate Seal

(seal)
Surety's Name and Corporate Seal

By: _____
Signature

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

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

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

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

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond shall arise after the following:

5.1 Claimants who do not have a direct contract with the Contractor,

5.1.1 have furnished a written notice of non-payment to the Contractor, stating with

substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).

5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to

satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction

performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the

Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of

(1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom

the labor was done, or materials or equipment furnished;

3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

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

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

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

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

18. Modifications to this Bond are as follows:

	Contractor's Application for Payment No:	
	Application Period:	Application Date:
To (Owners):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contact No:	Contractor's Project No:	Engineer's Project No:

Application For Payment

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY		
CHANGE ORDERS		

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor Signature

By:

Date:

1. ORIGINAL CONTRACT PRICE.....

\$

2. Net change by Change Orders.....

\$

3. Current Contract Price (Line 1 ± 2).....

\$

4. TOTAL COMPLETED AND STORED TO DATE

(Column F total on Progress Estimates).....

\$

5. RETAINAGE:

a. 95% X Work Completed.....

\$

b. 95% X Stored Material.....

\$

c. Total Retainage (Line 5.a + Line 5.b).....

\$

6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c).....

\$

7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application).....

\$

8. AMOUNT DUE THIS APPLICATION.....

\$

9. BALANCE TO FINISH, PLUS RETAINAGE

(Column G total on Progress Estimates + Line 5.c above).....

\$

Payment of:

\$

(Line 8 or other - attach explanation of the other amount)

is recommended by:

(Engineer)

(Date)

Payment of:

\$

(Line 8 or other - attach explanation of the other amount)

is approved by:

(Owner)

(Date)

Approved by:

Funding or Financing Entity (if applicable)

(Date)

Progress Estimate - Lump Sum Work

Contractor's Application

[illegible]

Stored Material Summary

Contractor's Application

[illegible]

**SECTION 00 63 49
WORK CHANGE DIRECTIVE**

No. _____

Date of Issuance: _____

Effective Date: _____

Project: I&I Mitigation Project	Owner: Big Mountain County Sewer District	Owner's Contract No.:
Contract:	Date of Contract:	
Equipment Seller:	Engineer's Project No.:	

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

Item No.	Description

Attachments (list documents supporting change):

Purpose for Work Change Directive:

- ☐ Authorizations for Work described herein to proceed on the basis of Cost of the Work due to:
- ☐ Non-agreement on pricing of proposed change.
 - ☐ Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

Estimated change in Contract Price and Contract Times:

Contract Price \$ _____ (increase/decrease) Contract Time _____
(increase/decrease) Days

If the change involves an increase, the estimated amounts are not to be exceeded without further authorization.

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Accepted for Equipment Seller by:	Date
Approved by Funding Agency (if applicable):	Date

END OF SECTION 00 63 49

**SECTION 00 63 63
CHANGE ORDER**

Change Order No: _____ Date of Issuance: _____ Effective Date: _____

Project: I&I Mitigation Project	Owner: Big Mountain County Sewer District	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:

Original Contract Price:

\$ _____

[Increase] [Decrease] from previously
approved Change Orders No. ____ to
No. _____:

\$ _____

Contract Price prior to this Change Order:

\$ _____

[Increase] [Decrease] of this Change Order:

CHANGE IN CONTRACT TIMES:

Original Contract Times: ☐ ☐ Working days

☐ ☐ Calendar days Substantial completion (days
or date): _____

Ready for final payment (days or date): _____

[Increase] [Decrease] from previously
approved Change Orders No. to No.:

Substantial completion (days): _____

Ready for final payment (days): _____

Contract Times prior to this Change Order:

Substantial completion (days or date): _____

Ready for final payment (days or date): _____

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): _____
\$ _____ Ready for final payment (days or date): _____

Contract Price incorporating this Change Order: Contract Times with all approved Change Orders:

Substantial completion (days or date): _____
\$ _____ Ready for final payment (days or date): _____

RECOMMENDED:

ACCEPTED:

ACCEPTED:

By: _____ By: _____ By: _____
Engineer (Authorized Signature) Owner (Authorized Signature) Contractor (Authorized Signature)

Date: _____ Date: _____ Date: _____
Approved by Funding Agency (if applicable): _____ Date: _____

SECTION 00 65 16
CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: **Big Mountain County Sewer District**
Contractor:
Engineer: **Anderson Montgomery Consulting Engineers**
Project: **Big Mountain County Sewer District – I&I Mitigation**

Owner's Contract No.:
Contractor's Project No.:
Engineer's Project No.:
Contract Name:

This [preliminary] [final] Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities:

☐ None
☐ As follows

Amendments to

Contractor's responsibilities:

☐ None
☐ As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

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

EXECUTED BY ENGINEER:

RECEIVED:

RECEIVED:

By: _____ By: _____ By: _____

(Authorized signature)

Owner (Authorized Signature)

Contractor (Authorized Signature)

Title: _____ Title: _____ Title: _____

Date: _____ Date: _____ Date: _____

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

**SECTION 00 72 00 STANDARD
GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.1 *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 form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *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, or both; 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, or both; 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; or (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. 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), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree 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 the 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. *Engineer*—The individual or entity named as such in the Agreement.
21. *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.
22. *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. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in

the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *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.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *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.
28. *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.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
30. *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.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *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.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *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.

36. *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.
37. *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 furnished by Owner which are designated for the use of Contractor.
38. *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.
39. *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.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or

attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

- 46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
- 47. *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.
- 48. *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.

1.2 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
 - 1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
 - 1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
 - 1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

- c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide:*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. 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. 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

2.1 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor's Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner's Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.2 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed 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.

2.3 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically 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.

2.4 *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.

2.5 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere

with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.6 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items 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 items, or from those established in applicable transmittal protocols.

3.1 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall 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.

3.2 *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, shall mean 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, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.3 *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 Documents 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 Documents 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 shall 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).

3.4 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer 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 thereunder.
- 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 give written notice to Owner and Contractor 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.

3.5 *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 editions, 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 shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.1 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the 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 sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.2 *Starting the Work*

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

4.3 *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.

4.4 *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 shall 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 shall 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.

4.5 *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 the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- 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. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall 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 utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 - 4. acts of war or terrorism.
- D. 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.
- E. Paragraph 8.03 governs 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.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times 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.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.1 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- 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.

5.2 *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; 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 7.12, 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 at law; 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 shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the

Work Contractor shall remove from the Site 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.

5.3 *Subsurface and Physical Conditions*

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

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); 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 upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.4 *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 either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
2. is of such a nature as to require a change in the Drawings or Specifications; or
3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 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 the necessity of Owner's obtaining 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 above; 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. *Possible Price and Times Adjustments:*
 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, 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 conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
 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; or

- 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 as 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, or both, then any such adjustment shall 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, or both, 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.

5.5 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. 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 in the Contract Documents, or was not shown or indicated 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), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and

conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. 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. *Possible Price and Times Adjustments:*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, 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. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. 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, or both, then any such adjustment shall 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, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.6 *Hazardous Environmental Conditions at Site*

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

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. 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 Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for 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, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, 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.
- 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 or 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.H shall obligate 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 shall obligate 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

6.1 *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 all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, 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 shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. 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.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.2 *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. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. 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, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of 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.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect 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 shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.3 *Contractor's Insurance*

- A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall 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, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

8. 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.
- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *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. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *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 shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be

canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.4 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. 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.

6.5 *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 full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially

generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed 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.

- C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- 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 notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.6 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the

EJCDC® C-700, Standard General Conditions of the Construction Contract.

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Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial 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.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.7 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 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 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.1 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently,

devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

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

7.2 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, 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.

7.3 *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 shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.4 *"Or Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the 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 material or equipment, or items

from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an “or equal” item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- 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 shall result in any change in Contract Price. The Engineer’s denial of an “or-equal” request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an “or-equal” item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.5 Substitutes

- A. Unless the specification or description of an item of material or equipment 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 material or equipment under the circumstances described below. To the extent possible such requests shall 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 material or equipment from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.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 material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall 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 that specified, and
 - 3) be suited to the same use as that 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 that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall 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 shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.6 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity 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 five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. 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, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, 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, Supplier, or other individual or entity, whether initially or as a replacement, shall 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 fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see

to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.7 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.8 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of 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

7.9 *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.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work 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 shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give 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 notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *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.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein,

whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when 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.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor 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).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall 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.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data

sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

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 threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.
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.D.
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. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction 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 shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 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.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 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, shall 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, Sample, or other submittal shall 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.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

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 and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.
- D. 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 shall 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 and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps,

Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications;
or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.1 *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 utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

8.2 *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.

8.3 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner 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, or both. 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 shall 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. When applicable, any such equitable adjustment in Contract Price shall 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 is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

- 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. 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 to 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.
- C. 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 to Contractor.
- D. 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

9.1 *Communications to Contractor*

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

9.2 *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 shall be that of the former Engineer.

9.3 *Furnish Data*

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

9.4 *Pay When Due*

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

9.5 *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.

9.6 *Insurance*

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

9.7 *Change Orders*

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

9.8 *Inspections, Tests, and Approvals*

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

9.9 *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 Documents (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

10.1 *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.

10.2 *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 10.08. 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.

10.3 *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 Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer’s consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.4 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.5 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.6 *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.

10.7 *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.

10.8 *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, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 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 10.08 shall also apply to the Resident Project Representative, if any.

10.9 *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 (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.1 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not 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, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* 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 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
 - 3. *Field Orders:* 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. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.2 *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. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes 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 shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate 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.

11.3 *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.

11.4 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall 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); or
 - 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 11.04.C.2); or 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 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
 - 1. a mutually acceptable fixed fee; or
 - 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

- a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
- b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.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 five 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 shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
- d. no fee shall 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 will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.5 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.6 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.
 1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto,

or after such initial decision. 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. The supporting data shall 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. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.

2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall 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.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *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 that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.7 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 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 11.02, (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 in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.8 *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

12.1 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted 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; and
 - 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.
- 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 shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, 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 shall 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 shall 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 shall 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 shall 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 shall 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 shall 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 shall be incorporated in a Change Order 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

13.1 *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. 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 shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the

performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental

agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as 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 shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 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. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective

Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.2 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 on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.3 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, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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

14.1 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.2 *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 shall 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 shall 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 shall 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.

14.3 *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 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.

14.4 *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 shall 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.

14.5 *Uncovering Work*

- A. Engineer has the authority to require special 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, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.6 *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 shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.7 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 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

15.1 *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 on account of 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. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

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, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 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 on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of 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 that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated 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;
 - l. there are other items entitling 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 shall 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 shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.2 *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 seven days after the time of payment by Owner.

15.3 *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 shall 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 seven 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

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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.

15.4 *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 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 6.05 regarding builder's risk or other property insurance.

15.5 *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.

15.6 *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 7.11), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall 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 disputes that Contractor believes are unsettled; 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 Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall

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. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph

15.07. 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. *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.
- D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.7 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- 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 or appealed under the provisions of Article 17.

15.8 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then 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 other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the

EJCDC® C-700, Standard General Conditions of the Construction Contract.

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Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not 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

16.1 *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, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.2 *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) ten 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) 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 seven 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 shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.3 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; 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 on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.4 *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
(2) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 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, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph 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.

17.1 *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; and

2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising 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; or
 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

18.1 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.2 *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.

18.3 *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.

18.4 *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.

18.5 *No Waiver*

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

18.6 *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 or completion of the Contract or termination of the services of Contractor.

18.7 *Controlling Law*

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

18.8 *Headings*

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

SECTION 00 73 00
SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

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

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

SC-6.2 – Insurance—General Provisions

SC-6.2 Add the following paragraph immediately after Paragraph 6.2.B:

1. With limiting any of the other obligations or liabilities of the Contractor, Contractor shall secure and maintain such insurance from an insurance company (or companies) authorized to write insurance in the State of Montana, with a minimum “A.M. Best Rating” of A-, VI, as will protect the Contractor, the vicarious acts of subcontractors, the Owner and the Engineer and their agents and employees from claims for bodily injury, or property damage which may arise from operations and completed operations under this Agreement. Contractor shall commence work under this Agreement until such insurance has been obtained and certificates of insurance, with binders, or certified copies of the insurance policy shall have been filed with the Owner and the Engineer. All insurance coverage shall remain in effect throughout the life of the Agreement, except that the Contractor shall maintain the Commercial General Liability Policy including project and completed operations coverage for a period of at least one year following the substantial completion date for property damage resulting from occurrences during the Agreement period.

SC-6.3 – Contractor’s Liability Insurance

SC-6.3 Add the following new paragraph immediately after Paragraph 6.3.J:

K. The limits of liability for the insurance required by Paragraph 6.3 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers’ Compensation, and related coverages under Paragraphs 6.3.A.1 and A.2 of the General Conditions:

State:	Statutory
Federal, if applicable (e.g., Longshoreman’s):	Statutory
Employer’s Liability:	\$500,000.00

6.3.C Contractor's Commercial General Liability under Paragraphs 6.03.B and of the General Conditions:

General Aggregate	\$ 3,000,000.00
Products - Completed Operations Aggregate	\$ 3,000,000.00
Personal and Advertising Injury	\$ 1,000,000.00
Each Occurrence (Bodily Injury and Property Damage)	\$ 1,000,000.00

Coverage to include:

- 1) Premises – Operations
- 2) Operations of Independent Contractor.
- 3) Contractual Liability.
- 4) Personal Injury
- 5) Products and Completed Operations
- 6) Broad Form Property Damage will include explosion, collapse, blasting, and underground where applicable.
- 7) Per Project Aggregate Endorsement.

2. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	\$ 500,000.00
Each accident	\$ 1,000,000.00

Property

Damage: Each	\$ 1,000,000.00
[or] Combined Single Limit of	\$ 1,000,000.00

Coverage to include:

- 1) All Owned.
- 2) Hired
- 3) Non-Owned

3. Excess or Umbrella Liability:

Contractor's Liability Insurance under 6.3.B1 through 6.3.B.4 may be satisfied by primary insurance or a combination of primary and excess or umbrella insurance. Primary occurrence limit cannot be less than \$1,000,000.00. Deductible not to exceed \$5,000.00 per occurrence on property damage.

4. Contractor's Pollution Liability:

Each Occurrence	\$ N.A.
General Aggregate	\$ N.A.

☒ **If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract**

5. Additional Insureds: In addition to Owner and Engineer, include as additional insureds all Engineering Subconsultants.

6. Contractor's Professional Liability:

Each Claim	\$1,000,000.00
Annual Aggregate	\$ 3,000,000.00

7. The Contractual Liability coverage required by paragraph 6.03.B.1 through 6.03.B.4 of the General Conditions shall provide coverage for not less than the following amounts:

Each Occurrence:	\$ 1,000,000.00
Aggregate	\$ 3,000,000.00

SC-6.3.I.3 Replace paragraph 6.3.I.3 with the following:

6.3.I.3. Contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 45 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 6.2.C will so provide).

SC-6.5 – Property Insurance

SC-6.5. Delete Paragraph 6.5.A in its entirety and insert the following in its place:

CONTRACTOR shall purchase and maintain property insurance, completed value form, upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. Include the interests of Owner, Contractor, Subcontractors, Engineer, Engineer's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
2. Be written on a Builder's Risk, "all-risk", or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, earth movement, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, flood damage, and such other perils as may be specifically required by the Supplementary Conditions;
3. Include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
4. Cover materials and equipment in transit for incorporation in the Work or stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;
5. Be endorsed to allow occupancy and partial utilization of the Work by OWNER, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
6. Include performance/hot testing and startup;
7. Be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

8. Hold CONTRACTOR responsible for any deductible or self-insured retention;
9. Be purchased and maintained by CONTRACTOR in accordance with this Paragraph SC- 6.5 and shall comply with the requirements of Paragraph 6.5.B of the General Conditions.
The qualifications of the insurance company shall comply with the requirements of paragraph 6.2.B.
10. Extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
11. Allow for the waiver of the insurer's subrogation rights, as set forth below.
12. Provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
13. Not include a co-insurance clause
14. Include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
15. Cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
16. Include by express endorsement coverage of damage to Contractor's equipment.

SC-6.5.A.1 Add the following new subparagraph after subparagraph 6.5.A.1:

- a. In addition to Owner, Contractor, and all Subcontractors, include the Engineer and Engineering Subconsultants as insureds.

SC-6.5.B. Replace Paragraph 6.5.B. with the following language:

All of the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 6.5 will contain a

provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 45 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 6.6.

SC-7.6.A Amend Paragraph 7.6.A by adding the following text to the end of the Paragraph:

The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

SC7.7 B Patent Fees and Royalties Modify Paragraph 7.7 B by replacing the text with the following:

7.7 B 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.

SC-10.3 – Project Representative

SC-10.3 Add the following new paragraphs immediately after Paragraph 10.03.A:

- A. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.
 1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
 2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
 3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
 4. 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 proper execution of the Work.
5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
6. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
8. Review of Work and Rejection of Defective Work:
 - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

9. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
10. Records:
 - a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
 - b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
 - c. Maintain records for use in preparing Project documentation.
11. Reports:
 - a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
 - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
 - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.
12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the

Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

- a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
- b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
- c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

B. The RPR shall 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 Contractor's work.
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. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

SC-15.4 Add the following to the end of Paragraph 15.4.A:

Owner has the right to take possession of or use any completed or substantially

completed portions of the Work at any time, but such taking possession or use will not be deemed an acceptance of any Work not completed in accordance with the Contract Documents. Owner's use of any facilities so identified in the Contract Documents will not be grounds for extension of the contract times or change in the contract price. Owner's use of any facilities not specifically identified in the Contract Documents will be in accordance with conditions agreed to prior to such use, and any extra costs or delays in completion incurred and properly claimed by Contractor will be equitably adjusted with a Change Order. Facilities substantially completed in accordance with the Contract Documents which are occupied or used by Owner prior to substantial completion of the entire work will be done in accordance with General Conditions 15.3. Guarantee periods for accepted or substantially completed work including mechanical and electrical equipment will commence upon the start of continuous use by Owner. All tests and instruction of Owner's personnel must be satisfactorily completed, and Owner shall assume responsibility for and operation of all facilities occupied or used except as may arise through portions of Work not yet completed by Contractor. If the Work has been substantially completed and the Engineer certifies that full completion thereof is materially delayed through no fault of the Contractor, the Owner shall, without terminating the Agreement, make payment of the balance due for the portion of the Work fully completed and accepted.

SC-15.6 Final Payment

SC-15.6.A Add the following Paragraph Immediately after Paragraph 15.6.A

Upon correction of deficiencies and completion of the entire Work, Contractor shall notify Engineer in writing requesting a final inspection. If, in the Opinion of the Engineer, the Contractor has satisfactorily completed the Work, Owner, Agency, Engineer, and Contractor shall execute the Final Inspection and Acceptance.

SC-17.1.B Add the following Paragraph Immediately after Paragraph 17.1.B entitled 17.1.C Dispute Resolution Process - Mediation.

C. Dispute Resolution Process – Mediation: Owner and Contractor agree that they shall first submit any and all unsettled claims, counterclaims, disputes, and other matters in question between them arising out of or relating to this Agreement or the breach thereof ("Disputes") to mediation by a mediator to be agreed upon by the parties, or each party will choose a mediator and those mediators will together choose a mediator for the mediation. Owner and Contractor agree to participate in the mediation process in good faith. The process shall be conducted on a confidential basis, and shall be completed within 120 days. If such mediation is unsuccessful in resolving a Dispute, then (1) the parties may mutually agree to a dispute resolution of their choice, or (2) either party may seek to have the Dispute resolved by a court of competent jurisdiction.

MONTANA
PREVAILING WAGE RATES FOR HEAVY CONSTRUCTION SERVICES 2022

Effective: January 1, 2022

Greg Gianforte, Governor
State of Montana

Laurie Esau, Commissioner
Department of Labor & Industry

To obtain copies of prevailing wage rate schedules, or for information relating to public works projects and payment of prevailing wage rates, visit ERD at erd.dli.mt.gov/labor-standards or contact:

Employment Relations Division
Montana Department of Labor and Industry
P. O. Box 8011
Helena, MT 59620-1503
Phone 406-444-6543

The department welcomes questions, comments, and suggestions from the public. In addition, we'll do our best to provide information in an accessible format, upon request, in compliance with the Americans with Disabilities Act.

MONTANA PREVAILING WAGE REQUIREMENTS

The Commissioner of the Department of Labor and Industry, in accordance with Sections 18-2-401 and 18-2-402 of the Montana Code Annotated (MCA), has determined the standard prevailing rate of wages for the occupations listed in this publication.

The wages specified herein control the prevailing rate of wages for the purposes of Section 18-2-401, et seq., MCA. It is required each employer pay (as a minimum) the rate of wages, including fringe benefits, travel allowance, zone pay and per diem applicable to the district in which the work is being performed as provided in the attached wage determinations.

All Montana Prevailing Wage Rates are available on the internet at erd.dli.mt.gov/labor-standards or by contacting the department at (406) 444-6543.

In addition, this publication provides general information concerning compliance with Montana's Prevailing Wage Law and the payment of prevailing wages. For detailed compliance information relating to public works contracts and payment of prevailing wage rates, please consult the regulations on the internet at erd.dli.mt.gov/labor-standards or contact the department at (406) 444-6543.

LAURIE ESAU
Commissioner
Department of Labor and Industry
State of Montana

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A. Date of Publication January 1 2022

B. Definition of Heavy Construction

The Administrative Rules of Montana (ARM), 24.17.501(4) – (4)(a), states “Heavy construction projects include, but are not limited to, those projects that are not properly classified as either ‘building construction’, or ‘highway construction.’

Heavy construction projects include, but are not limited to, antenna towers, bridges (major bridges designed for commercial navigation), breakwaters, caissons (other than building or highway), canals, channels, channel cut-offs, chemical complexes or facilities (other than buildings), cofferdams, coke ovens, dams, demolition (not incidental to construction), dikes, docks, drainage projects, dredging projects, electrification projects (outdoor), fish hatcheries, flood control projects, industrial incinerators (other than building), irrigation projects, jetties, kilns, land drainage (not incidental to other construction), land leveling (not incidental to other construction), land reclamation, levees, locks and waterways, oil refineries (other than buildings), pipe lines, ponds, pumping stations (prefabricated drop-in units – not buildings), railroad construction, reservoirs, revetments, sewage collection and disposal lines, sewers (sanitary, storm, etc.), shoreline maintenance, ski tows, storage tanks, swimming pools (outdoor), subways (other than buildings), tipples, tunnels, unsheltered piers and wharves, viaducts (other than highway), water mains, waterway construction, water supply lines (not incidental to building), water and sewage treatment plants (other than buildings) and wells.”

C. Definition of Public Works Contract

Section 18-2-401(11)(a), MCA defines “public works contract” as “...a contract for construction services let by the state, county, municipality, school district, or political subdivision or for nonconstruction services let by the state, county, municipality, or political subdivision in which the total cost of the contract is in excess of \$25,000...”.

D. Prevailing Wage Schedule

This publication covers only Heavy Construction occupations and rates in the specific localities mentioned herein. These rates will remain in effect until superseded by a more current publication. Current prevailing wage rate schedules for Building Construction, Highway Construction and Nonconstruction Services occupations can be found on the internet at <https://erd.dli.mt.gov/labor-standards/> or by contacting the department at (406) 444-6543.

E. Rates to Use for Projects

ARM, 24.17.127(1)(c), states “The wage rates applicable to a particular public works project are those in effect at the time the bid specifications are advertised.”

F. Wage Rate Adjustments for Multiyear Contracts

Section 18-2-417, MCA states:

“(1) Any public works contract that by the terms of the original contract calls for more than 30 months to fully perform must include a provision to adjust, as provided in subsection (2), the standard prevailing rate of wages to be paid to the workers performing the contract.

(2) The standard prevailing rate of wages paid to workers under a contract subject to this section must be adjusted 12 months after the date of the award of the public works contract. The amount of the adjustment must be a 3% increase. The adjustment must be made and applied every 12 months for the term of the contract.

(3) Any increase in the standard rate of prevailing wages for workers under this section is the sole responsibility of the contractor and any subcontractors and not the contracting agency.”

G. Fringe Benefits

Section 18-2-412, MCA states:

“(1) To fulfill the obligation...a contractor or subcontractor may:

(a) pay the amount of fringe benefits and the basic hourly rate of pay that is part of the standard prevailing rate of wages directly to the worker or employee in cash;

(b) make an irrevocable contribution to a trustee or a third person pursuant to a fringe benefit fund, plan, or program that meets the requirements of the Employee Retirement Income Security Act of 1974 or that is a bona fide program approved by the U. S. department of labor; or

(c) make payments using any combination of methods set forth in subsections (1)(a) and (1)(b) so that the aggregate of payments and contributions is not less than the standard prevailing rate of wages, including fringe benefits and travel allowances, applicable to the district for the particular type of work being performed.

(2) The fringe benefit fund, plan, or program described in subsection (1)(b) must provide benefits to workers or employees for health care, pensions on retirement or death, life insurance, disability and sickness insurance, or bona fide programs that meet the requirements of the Employee Retirement Income Security Act of 1974 or that are approved by the U. S. department of labor.”

Fringe benefits are paid for all hours worked (straight time and overtime hours). However, fringe benefits are not to be considered a part of the hourly rate of pay for calculating overtime, unless there is a collectively bargained agreement in effect that specifies otherwise.

H. Dispatch City

ARM, 24.17.103(11), defines dispatch city as *“...the courthouse in the city from the following list which is closest to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, Miles City, Missoula and Sidney.”*

I. Zone Pay

Zone pay is not travel pay. ARM, 24.17.103(24), defines zone pay as *“...an amount added to the base pay; the combined sum then becomes the new base wage rate to be paid for all hours worked on the project. Zone pay must be determined by measuring the road miles one way over the shortest practical maintained route from the dispatch city to the center of the job.”* See section H above for a list of dispatch cities.

J. Computing Travel Benefits

ARM, 24.17.103(22), states *“ ‘Travel pay,’ also referred to as ‘travel allowance,’ is and must be paid for travel both to and from the job site, except those with special provisions listed under the classification. The rate is determined by measuring the road miles one direction over the shortest practical maintained route from the dispatch city or the employee's home, whichever is closer, to the center of the job.”* See section H above for a list of dispatch cities.

K. Per Diem

ARM, 24.17.103(18), states *“ ‘Per diem’ typically covers costs associated with board and lodging expenses. Per diem is paid when an employee is required to work at a location outside the daily commuting distance and is required to stay at that location overnight or longer.”*

L. Apprentices

Wage rates for apprentices registered in approved federal or state apprenticeship programs are contained in those programs. Additionally, Section 18-2-416(2), MCA states, *“...The full amount of any applicable fringe benefits must be paid to the apprentice while the apprentice is working on the public works contract.”* Apprentices not registered in approved federal or state apprenticeship programs will be paid the appropriate journey level prevailing wage rate when working on a public works contract.

M. Posting Notice of Prevailing Wages

Section 18-2-406, MCA, provides that contractors, subcontractors, and employers who are “...performing work or providing construction services under public works contracts, as provided in this part, shall post in a prominent and accessible site on the project or staging area, not later than the first day of work and continuing for the entire duration of the project, a legible statement of all wages and fringe benefits to be paid to the employees.”

N. Employment Preference

Sections 18-2-403 and 18-2-409, MCA require contractors to give preference to the employment of bona fide Montana residents in the performance of work on public works contracts.

O. Projects of a Mixed Nature

Section 18-2-418, MCA states:

“(1) The contracting agency shall determine, based on the preponderance of labor hours to be worked, whether the public works construction services project is classified as a highway construction project, a heavy construction project, or a building construction project.

(2) Once the project has been classified, employees in each trade classification who are working on that project must be paid at the rate for that project classification”

P. Occupations Definitions

You can find definitions for these occupations on the following Bureau of Labor Statistics website:

<https://erd.dli.mt.gov/labor-standards/state-prevailing-wage-rates/building-construction-occupations>

Q. Welder Rates

Welders receive the rate prescribed for the craft performing an operation to which welding is incidental.

R. Foreman Rates

Rates are no longer set for foremen. However, if a foreman performs journey level work, the foreman must be paid at least the journey level rate.

S. Proper Classification for Pipefitter and Laborer/Pipelayer Work on Water and Waste Water Treatment Plants The proper classification for the following work is Pipefitter, when it is performed inside a building structure or performed at a location which will later be inside of a building: Joining steel pipe larger than 12 inches in diameter with bolted flange connections that has been pre-fabricated off site and does not require any modification such as cutting, grinding, welding, or other fabrication in order to be installed. All other work previously classified as pipefitter remains in that classification. The proper classification for that work when it is at a location that will always be outside a building is Pipelayer, which is under the Laborer Group 3 classification.

WAGE RATES

BOILERMAKERS

Wage	Benefit
\$34.12	\$31.68

Duties Include:

Construct, assemble, maintain, and repair stationary steam boilers, boiler house auxiliaries, process vessels, pressure vessels and penstocks. Bulk storage tanks and bolted steel tanks.

Travel:

All Districts

0-120 mi. free zone

>120 mi. federal mileage rate/mi.

Special Provision:

Travel is paid only at the beginning and end of the job.

Per Diem:

All Districts

0-70 mi. free zone

>70-120 mi. \$65.00/day

>120 mi. \$80.00/day

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BRICK, BLOCK, AND STONE MASONS

Wage	Benefit
\$35.95	\$18.52

Travel:

0-20 mi. free zone

>20-35 mi. \$30.00/day

>35-55 mi. \$35.00/day

>55 mi. \$78.00/day

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CARPENTERS

Wage	Benefit
\$32.75	\$13.82

Zone Pay:

0-30 mi. free zone

>30-60 mi. base pay + \$4.00/hr.

>60 mi. base pay + \$6.00/hr.

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CEMENT MASONS AND CONCRETE FINISHERS

Wage	Benefit
\$22.85	\$12.85

Duties Include:

Smooth and finish surfaces of poured concrete, such as floors, walks, sidewalks, or curbs. Align forms for sidewalks, curbs, or gutters. Rates for rebar workers can be found under the Ironworkers classification.

Zone Pay:

0-30 mi. free zone

>30-60 mi. base pay + \$2.95/hr.

>60 mi. base pay + \$4.75/hr.

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CONSTRUCTION EQUIPMENT OPERATORS GROUP 1

Wage	Benefit
\$28.21	\$13.65

This group includes but is not limited to:

Air Compressor; Auto Fine Grader; Belt Finishing; Boring Machine (Small) 12 inch and under; Cement Silo; Crane, A-Frame Truck Crane; Crusher Conveyor; DW-10, 15, and 20 Tractor Roller; Farm Tractor; Forklift; Form Grader; Front-End Loader, under 1 cu. yd; Oiler, Heavy Duty Drills; Herman Nelson Heater; Mucking Machine; Oiler, All Except Cranes/Shovels; Pumpman.

Zone Pay:

0-30 mi. free zone

>30-60 mi. base pay + \$3.50/hr.

>60 mi. base pay + \$5.50/hr.

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CONSTRUCTION EQUIPMENT OPERATORS GROUP 2

Wage	Benefit
\$30.04	\$13.65

This group includes but is not limited to:

Air Doctor; Backhoe\Excavator\Shovel, up to and incl. 3 cu. yds; Bit Grinder; Bituminous Paving Travel Plant; Boring Machine, Large; Broom, Self-Propelled; Concrete Travel Batchers; Concrete Float & Spreader; Concrete Bucket Dispatcher; Concrete Finish Machine; Concrete Conveyor; Distributor; Dozer, Rubber-Tired, Push, & Side Boom; Elevating Grader\Gradall; Field Equipment Serviceman; Front-End Loader, 1 cu. yd up to and incl. 5 cu. yds; Grade Setter; Heavy Duty Drills, All Types; Hoist\Tugger, All; Hydralift Forklifts & Similar; Industrial Locomotive; Motor Patrol (except finish); Mountain Skidder; Oiler, Cranes\Shovels; Pavement Breaker, EMSCO; Power Saw, Self-Propelled; Pugmill; Pumpcrete\Grout Machine; Punch Truck; Roller, other than Asphalt; Roller, Sheepsfoot (Self-Propelled); Roller, 25 tons and over; Ross Carrier; Rotomill, under 6 ft; Trenching Machine; Washing /Screening Plant

Zone Pay:

0-30 mi. free zone

>30-60 mi. base pay + \$3.50/hr.

>60 mi. base pay + \$5.50/hr.

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CONSTRUCTION EQUIPMENT OPERATORS GROUP 3

Wage	Benefit
\$29.75	\$13.65

This group includes but is not limited to:

Asphalt Paving Machine; Asphalt Screed; Backhoe\Excavator\Shovel, over 3 cu. yds; Cableway Highline; Concrete Batch Plant; Concrete Curing Machine; Concrete Pump; Cranes, Creter; Cranes, Electric Overhead; Cranes, 24 tons and under; Curb Machine\Slip Form Paver; Finish Dozer; Front-End Loader, over 5 cu. yds; Mechanic\Welder; Pioneer Dozer; Roller Asphalt (Breakdown & Finish); Rotomill, over 6 ft; Scraper, Single, Twin, or Pulling Belly-Dump; YO-YO Cat Haul Truck, Articulating Trucks, Vac Truck.

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.50/hr.
>60 mi. base pay + \$5.50/hr.

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CONSTRUCTION EQUIPMENT OPERATORS GROUP 4

Wage	Benefit
\$30.75	\$13.65

This group includes but is not limited to:

Asphalt\Hot Plant Operator; Cranes, 25 tons up to and incl. 44 tons; Crusher Operator; Finish Motor Patrol; Finish Scraper.

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.50/hr.
>60 mi. base pay + \$5.50/hr.

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CONSTRUCTION EQUIPMENT OPERATORS GROUP 5

Wage	Benefit
\$31.75	\$13.65

This group includes but is not limited to:

Cranes, 45 tons up to and incl. 74 tons.

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.50/hr.
>60 mi. base pay + \$5.50/hr.

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CONSTRUCTION EQUIPMENT OPERATORS GROUP 6

Wage	Benefit
\$32.75	\$13.65

This group includes but is not limited to:

Cranes, 75 tons up to and incl. 149 tons; Cranes, Whirley (All).

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.50/hr.
>60 mi. base pay + \$5.50/hr.

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CONSTRUCTION EQUIPMENT OPERATORS GROUP 7

Wage	Benefit
\$33.75	\$13.65

This group includes but is not limited to:

Cranes, 150 tons up to and incl. 250 tons; Cranes, over 250 tons—add \$1.00 for every 100 tons over 250 tons; Crane, Tower (All); Crane Stiff-Leg or Derrick; Helicopter Hoist.

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.50/hr.
>60 mi. base pay + \$5.50/hr.

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CONSTRUCTION LABORERS GROUP 1/FLAG PERSON FOR TRAFFIC CONTROL

Wage	Benefit
\$23.08	\$11.77

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.05/hr.
>60 mi. base pay + \$4.85/hr.

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CONSTRUCTION LABORERS GROUP 2

Wage	Benefit
\$25.90	\$11.77

This group includes but is not limited to:

General Labor; Asbestos Removal; Burning Bar; Bucket Man; Carpenter Tender; Caisson Worker; Cement Mason Tender; Cement Handler (dry); Chuck Tender; Choker Setter; Concrete Worker; Curb Machine-lay Down; Crusher and Batch Worker; Heater Tender; Fence Erector; Landscape Laborer; Landscaper; Lawn Sprinkler Installer; Pipe Wrapper; Pot Tender; Powderman Tender; Rail and Truck Loaders and Unloaders; Riprapper; Sign Erection; Guardrail and Jersey Rail; Spike Driver; Stake Jumper; Signalman; Tail Hoseman; Tool Checker and Houseman and Traffic Control Worker.

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.05/hr.
>60 mi. base pay + \$4.85/hr.

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CONSTRUCTION LABORERS GROUP 3

Wage	Benefit
\$26.07	\$11.77

This group includes but is not limited to:

Concrete Vibrator; Dumpman (Grademan); Equipment Handler; Geotextile and Liners; High-Pressure Nozzleman; Jackhammer (Pavement Breaker) Non-Riding Rollers; Pipelayer; Posthole Digger (Power); Power Driven Wheelbarrow; Rigger; Sandblaster; Sod Cutter-Power and Tamper.

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.05/hr.
>60 mi. base pay + \$4.85/hr.

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CONSTRUCTION LABORERS GROUP 4

Wage	Benefit
\$26.76	\$11.77

This group includes but is not limited to:

Hod Carrier***; Water Well Laborer; Blaster; Wagon Driller; Asphalt Raker; Cutting Torch; Grade Setter; High-Scaler; Power Saws (Faller & Concrete); Powderman; Rock & Core Drill; Track or Truck Mounted Wagon Drill and Welder incl. Air Arc

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$3.05/hr.
>60 mi. base pay + \$4.85/hr.

***Hod Carriers will receive the same amount of travel and/or subsistence pay as bricklayers when requested to travel.

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DIVERS

	Wage	Benefit
Stand-By	\$44.98	\$17.84
Diving	\$89.96	\$17.84

Depth Pay (Surface Diving)

0-20 ft.	free zone
>20-100 ft.	\$2.00 per ft.
>100-150 ft.	\$3.00 per ft.
>150-220 ft.	\$4.00 per ft.
>220 ft.	\$5.00 per ft.

Diving In Enclosures

0-25 ft.	free zone
>25-300 ft.	\$1.00 per ft.

Zone Pay:

0-30 mi. free zone
>30-60 mi. base pay + \$4.00/hr.
>60 mi. base pay + \$6.00/hr.

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DIVER TENDERS

Wage	Benefit
\$43.98	\$17.84

The tender shall receive 2 hours at the straight time pay rate per shift for dressing and/or undressing a Diver when work is done under hyperbaric conditions.

Zone Pay:
0-30 mi. free zone
>30-60 mi. base pay + \$4.00/hr.
>60 mi. base pay + \$6.00/hr.

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ELECTRICIANS

Wage	Benefit
\$35.59	\$16.39

Travel:
No mileage due when traveling in employer's vehicle.

The following travel allowance is applicable when traveling in employee's vehicle:

0-08 mi. free zone
>08-50 mi. federal mileage rate/mi. in excess of the free zone.
>50 mi. \$60.57/day

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INSULATION WORKERS - MECHANICAL (HEAT AND FROST)

Wage *	Benefit *
\$39.97	\$19.87

Duties Include:

Insulate pipes, ductwork or other mechanical systems.

Travel: *
0-30 mi. free zone
>30-40 mi. \$25.00/day
>40-50 mi. \$35.00/day
>50-60 mi. \$50.00/day
>60 mi. \$60.00/day plus
▪ \$0.56/mi. if transportation is not provided.
▪ \$0.20/mi. if in company vehicle.
>60 mi. \$100.00/day on jobs requiring an overnight stay plus
▪ \$0.56/mi. if transportation is not provided.
▪ \$0.20/mi. if in company vehicle.

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* Amended 3/12/2022

IRONWORKERS - STRUCTURAL STEEL AND REBAR PLACERS

Wage	Benefit
\$29.38	\$27.05

Duties Include:

Structural steel erection; assemble prefabricated metal buildings; cut, bend, tie, and place rebar; energy producing windmill type towers; metal bleacher seating; handrail fabrication and ornamental steel.

Travel:

0-45 mi. free zone
>45-60 mi. \$45.00/day
>60-100 mi. \$70.00/day
>100 mi. \$90.00/day

Special Provision:

When the employer provides transportation, travel will not be paid. However, when an employee is required to travel over 70 miles one way, the employee may elect to receive the travel pay in lieu of the transportation.

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LINE CONSTRUCTION – EQUIPMENT OPERATORS

Wage	Benefit
\$36.00	\$16.92

Duties Include:

All work on substations

Travel:

No Free Zone
\$60.00/day

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LINE CONSTRUCTION – GROUNDMAN

Wage	Benefit
\$29.09	\$16.09

Duties Include:

All work on substations

Travel:

No Free Zone
\$60.00/day

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LINE CONSTRUCTION – LINEMAN

Wage	Benefit
\$48.65	\$18.03

Duties Include:

All work on substations

Travel:

No Free Zone
\$60.00/day

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MILLWRIGHTS

Wage
\$39.68

Benefit
\$14.27

Zone Pay:
0-30 mi. free zone
>30-60 mi. base pay + \$4.00/hr.
>60 mi. base pay + \$6.00/hr.

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PAINTERS

Wage
\$25.00

Benefit
\$0.00

Travel:
No travel or per diem established.

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PILE BUCKS

Wage
\$32.75

Benefit
\$13.82

Duties Include:

Set up crane; set up hammer; weld tips on piles; set leads; insure piles are driven straight with the use of level or plum bob. Give direction to crane operator as to speed, and direction of swing. Cut piles to grade.

Zone Pay:
0-30 mi. free zone
>30-60 mi. base pay + \$4.00/hr.
>60 mi. base pay + \$6.00/hr.

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PLUMBERS, PIPEFITTERS, AND STEAMFITTERS

Wage
\$39.98

Benefit
\$20.26

Duties Include:

Assemble, install, alter, and repair pipe-lines or pipe systems that carry water, steam, air, other liquids or gases. Testing of piping systems, commissioning and retro-commissioning. Workers in this occupation may also install heating and cooling equipment and mechanical control systems.

Travel:
0-70 free zone
>70 mi.
▪ On jobs when employees do not work consecutive days: \$0.55/mi. if employer doesn't provide transportation. Not to exceed two trips.
▪ On jobs when employees work any number of consecutive days: \$105.00/day.

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SPRINKLER FITTERS

Wage	Benefit
\$35.66	\$24.29

Duties Include:

Duties Include but not limited to any and all fire protection systems: Installation, dismantling, inspection, testing, maintenance, repairs, adjustments, and corrections of all fire protection and fire control systems, including both overhead and underground water mains, all piping, fire hydrants, standpipes, air lines, tanks, and pumps used in connection with sprinkler and alarm systems.

Travel All Districts

The following travel allowance is applicable when traveling in employee's vehicle.

0-60 mi. free zone
>60-80 mi. \$19.00/day
>80-100 mi. \$29.00/day
>100 mi. \$105.00/day.

Special Provision

When traveling >100 miles, mileage at \$0.54/mi. + \$8.59 for every 15 miles traveled at beginning and end of job.

The following travel allowance is applicable when traveling in employer's vehicle.

0-100 mi. free zone
>100 mi. \$105.00/day

Special Provision

When traveling >100 miles, \$8.59 for every 15 miles traveled, at beginning and end of job.

Per Diem: All Districts

No per diem is applicable when traveling in employee's vehicle

The following per diem is applicable when traveling in employer's vehicle.

0-100 mi. free zone
>100 mi. \$105.00/day

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TRUCK DRIVERS

Pilot Car Driver	No Rate Established	
	Wage	Benefit
Truck Driver	\$31.28	\$9.37

Truck drivers include but are not limited to:

Combination Truck and Concrete Mixer and Transit Mixer; Dry Batch Trucks; Distributor Driver; Dumpman; Dump Trucks and similar equipment; Dumpster; Flat Trucks; Lumber Carriers; Lowboys; Pickup; Powder Truck Driver; Power Boom; Serviceman; Service Truck/Fuel Truck/Tireperson; Truck Mechanic; Trucks with Power Equipment; Warehouseman, Partsman, Cardex and Warehouse Expeditor; Water Trucks.

Zone Pay:

All Districts

0-30 mi. free zone

>30-60 mi. base pay + \$3.05/hr.

>60 mi. base pay + \$.485/hr.

Special Provision:

Zone pay only applies to the Truck Driver classification. No zone pay was established for Pilot Car Driver.

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"General Decision Number: MT20220070 02/25/2022

Superseded General Decision Number: MT20210070

State: Montana

Construction Type: Heavy

County: Flathead County in Montana.

HEAVY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 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 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

ELEC0768-010 07/01/2021

	Rates	Fringes
ELECTRICIAN.....	\$ 33.22	14.83

ENGI0400-009 05/01/2013		

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
(Zone 1)		
(1) A-frame truck Crane, oiler (except crane).....	\$ 23.47	10.40
(2) Crane Oiler,Bulldozer, Roller (Dirt and Grade Compaction).....	\$ 23.94	10.40
(3) Mechanic, Scraper.....	\$ 24.34	10.40
(4) Cranes, 25 tons - 44 tons.....	\$ 27.00	11.40
(5) Cranes, 45 tons to and incl. 74 tons.....	\$ 28.00	11.40
(6) Cranes, 75 tons to and incl. 149 tons; Cranes, Whirley (All).....	\$ 29.00	11.40
(7) Cranes, 150 tons to including 250 tons (add \$1.00		
for every 100 tons over 250 tons); Crane, Stiff- Leg or		
Derrick; Helicopter Hoist; Crane, Tower (all)...	\$ 30.00	11.40

ZONE DEFINITIONS FOR POWER EQUIPMENT OPERATORS:

The zone hourly rates applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the nearest County Court House of the following listed towns to the center of the job:

BILLINGS, BOZEMAN, BUTTE, GREAT FALLS, HELENA, KALISPELL, MISSOULA

Zone 1: 0 to 30 miles - Base Pay
Zone 2: 30 to 60 miles - Base Pay + \$3.50
Zone 3: Over 60 miles - Base Pay + \$5.50

IRON0014-016 07/05/2021

	Rates	Fringes
IRONWORKER: Reinforcing and Structural.....	\$ 31.99	26.89

SUMT2011-046 02/08/2011		

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 24.30	7.80
CARPENTER, Excludes Form Work....	\$ 21.13	7.00

LABORER: Common or General.....	\$ 17.99	5.90
LABORER: Pipelayer.....	\$ 21.81	4.83
LABORER: Landscape and Irrigation.....	\$ 15.14	1.30
OPERATOR: Backhoe.....	\$ 21.44	8.05
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 21.99	8.55
OPERATOR: Excavator.....	\$ 22.94	9.05
OPERATOR: Grader/Blade.....	\$ 24.69	8.40
OPERATOR: Loader (Front End)....	\$ 24.20	7.84
TRUCK DRIVER: Dump Truck.....	\$ 18.84	5.92

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

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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>.

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) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of 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. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

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

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write 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 the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write 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 by 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

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

SECTION 00 90 00
FUNDING AGENCY SPECIAL PROVISIONS
MONTANA PUBLIC FACILITY PROJECTS

This section supplements Division 0 of the Montana Public Works Standard Specifications, Sixth Edition, dated April, 2010.

Included herein are supplemental general conditions that are required by Montana public facility funding programs or agencies listed in 1.1 below but are not included in the Montana Public Works Standard Specifications, Division 0.

ARTICLE 1. SPECIAL PROVISIONS

1.1 FUNDING AGENCIES

This project is being funded with funds from one or more of the following public facility funding programs or agencies:

- Montana DNRC - Renewable Resource Grant and Loan Program (RRGL)
- Montana Dept. of Commerce – Montana Coal Endowment Program (MCEP)
- ~~United States Department of Agriculture Rural Development (USDA/RD) Community Development Block Grant Program (CDBG)~~
- Water Pollution Control State Revolving Fund Loan Program (SRF) – *Also applicable to American Recovery Plan Act (ARPA) funding made available through Flathead County*

1.1.1 Applicable Funding Agency Special Provisions

In addition to Section 1.2 below, the following sections also apply as indicated:

- ☐ Section 1.3 (Additional USDA/RD Requirements)
- ☐ Section 1.4 (Additional CDBG Requirements)
- ☒ Section 1.5 (Additional SRF Requirements)
- ☒ Exhibit A (Project Sign Detail)
- ☐ Exhibit B (HUD Form 4010)
- ☒ Exhibit C (Federal Labor Standards Provisions)
- ☐ Exhibit D (Reserved)
- ☒ Exhibit E (American Iron and Steel Forms)

1.2 SPECIAL PROVISIONS FOR ALL FUNDING AGENCIES

The following requirements pertain to all of the funding programs or agencies listed in 1.01 above. If project funding sources include any of the programs or agencies listed, the following general requirements must be met in addition to those required in the Montana Public Works Standard Specifications, Division 0:

1.2.1 Reports, Information, and Access to Records

The contractor, at such times and in such form as required by the owner (defined herein as the entity for which the project is being constructed) shall furnish reports pertaining to the work or services undertaken pursuant to this contract, the costs and obligations incurred or to be incurred in connection therewith, and any other matters covered by this contract.

The owner and any federal, state or local governmental agency having a valid interest in this project shall be permitted by the contractor to have full access to and the right to examine pertinent documents of the contractor involving transactions related to this contract during the period of the project and for three (3) years from the date of final payment or until all findings have been resolved to the satisfaction of the funding agencies.

1.2.2 Contractor Eligibility and Certification Regarding Debarment

The contractor certifies that the contractor's firm and the firm's principals are not debarred, suspended, or otherwise ineligible to receive any Montana public works contracts or subcontracts pursuant to 18-2-432 (2), MCA.

For federally funded projects, the contractor certifies that the contractor's firm and the firm's principals are not debarred, suspended, voluntarily excluded, or otherwise ineligible for participation in federally assisted contracts under Executive Order 12549, "Debarment and Suspension" (24 CFR 24.505).

1.2.3 Contractor Registration and Worker's Compensation Requirements

Title 39, Chapter 9, Parts 1 and 2 MCA stipulate contractor registration requirements for the State of Montana. Pursuant to 39-9-201 MCA, each construction contractor must be registered with the Montana Department of Labor and Industry. In accordance with 39-9-102 MCA, "construction contractor" means a person, firm, or corporation that, in the pursuit of an independent business, offers to undertake, undertakes, or submits a bid for construction.

No bid shall be considered that does not carry the bidder's Montana Contractor's Registration Number on the bid form.

Registration forms and additional information may be obtained by contacting the Montana Department of Labor and Industry, 1805 Prospect Ave., P.O. Box 8011, Helena, MT 59604-8011, or by calling 406-444- 7734.

The contractor must provide certification that workers' compensation insurance will be maintained as required by the Montana Workers' Compensation Act (39-71-101 MCA).

1.2.4 Minimum Wage Requirements

Unless superseded by federal law, 18-2-401 MCA and 18-2-402 MCA require that each employer pay, as a minimum, the rate of wages, including fringe benefits and zone pay applicable for the work being performed, as provided in the current Montana Prevailing Wage Requirements as determined by the Montana Department of Labor and Industry.

The current wage determination(s) must be included in the contract documents.

If the SRF Loan Program or ARPA is funding the project in whole or in part, federal and state laws require that each employer pay, as a minimum, prevailing wages for each classification in accordance with the Federal Labor Standards Provisions (Davis-Bacon) (**Exhibit C**) or Montana Prevailing Wage Requirements, whichever is greater.

~~If the CDBG Program is funding the project in whole or in part, HUD Form 4010 Federal Labor Standards Provisions (**Exhibit B**) must be included in the contract documents.~~

1.2.5 Compliance With State and Federal Laws and Regulations

All applicable laws, ordinances, rules and regulations of authorities having jurisdiction over construction of the project shall apply to the contract throughout.

The contractor must comply with all applicable state and federal occupational disease and health and safety laws and regulations.

1.2.6 Project Sign

All projects will have a sign erected at a prominent location near the major portion of the work in plain view of the general public prior to submittal of the first pay estimate. The sign will generally conform to the following:

“The CONTRACTOR, or such contractor as the ENGINEER may designate, when construction begins, shall erect a sign constructed of 4’X8’X $\frac{3}{4}$ ” exterior plywood (A-B) and shall be supported by and bolted to two (2) 4”X4” posts with the bottom of the sign at a point at least two (2) feet above the ground line. The project sign shall be maintained in a good condition until project completion.

The sign will be edged, painted and lettered as shown on **Exhibit A**. The letters shall be approximately three (3) inches in height.

The cost of the sign is incidental to the contract price. The sign shall remain the property of the owner.

A statement indicating all agencies participating in the financing of the project shall be included on the sign. The sign shall be subject to agency approval prior to being erected.

1.2.7 Gross Receipts Withholding Requirements

Pursuant to Section 15-50-206(2)(3), MCA, the owner is required to withhold one percent (1%) of all payments due the contractor and is required to transmit such moneys to the Montana Department of Revenue as part of the public contractor's license fee. In like fashion, the contractor is required to withhold one percent (1%) from payments to subcontractors.

1.2.8 Clean Air and Clean Water Acts, Executive Order 11738 and EPA Regulations:

If this Contract exceeds \$100,000, Contractor shall comply with all applicable standards, orders or requirements issued under Section 306 of the Clean Air Act (42 USC 1857(h)); Section 508 of the Clean Water Act (33 USC 1368); Executive Order 11738; and Environmental Protection Agency Regulations (40 CFR Part 15).

~~1.3 ADDITIONAL SPECIAL PROVISIONS FOR USDA/RD (NA to this Project)~~

~~1.3.1 The following documents shall be attached to and made a condition of the contract documents for any project funded, in whole or in part, by Rural Development:~~

~~If the bid amount exceeds \$10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in paragraph 18.10 of the General Conditions;~~

~~If the bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions (AD-1048); and~~

~~If the bid amount exceeds \$100,000, signed RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grants, and Loans. Refer to paragraph 18.11 of the General Conditions.~~

~~1.3.2 Free and Open Competition~~

~~All procurement transactions will be conducted in a manner that provides maximum free and open competition. Examples of what are considered to be restrictive of competition include but are not limited to: employment preferences to Montana Bidders or Montana Contractors and Montana residents.~~

~~1.3.3 Contractor's Retainage~~

~~No payments will be made that would deplete the retainage nor place in escrow any funds that are required for retainage or invest the retainage for the benefit of the contractor.~~

~~1.4 ADDITIONAL SPECIAL PROVISIONS FOR CDBG (NA to this project)~~

~~1.4.1 Equal Employment Opportunity Provisions~~

~~a. Equal Employment Opportunity (Executive Order 11246). During the performance of this contract, the Contractor agrees as follows:~~

~~(i) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection of~~

~~training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.~~

~~(ii) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.~~

~~(iii) The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the Department's contracting officer advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.~~

~~(iv) The contractor will comply with all of the provision of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.~~

~~(v) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records and accounts by the Department and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.~~

~~(vi) In the event of the contractor's noncompliance with the non-discrimination clauses of this contract or with any of such rules, regulations or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rules, regulations, or order of the Secretary of Labor, or as otherwise provided by law.~~

~~(vii) The contractor will include the provisions of paragraphs 1 through 7 in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that each provision will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Department may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event the contractor becomes involved in or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Department, the contractor may request the United States to enter into such litigation to protect the interest of the United States.~~

~~b. Title VII of the Civil Rights Act of 1964. Provides that no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.~~

~~c. Section 109 of the Housing and Community Development Act of 1974. "No person in the United States shall on the ground of race, color, national origin or sex be excluded from participation in, be~~

~~denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds available under this title. Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975 or with respect to an otherwise qualified handicapped individual as provided in Section 504 of the Rehabilitation Act of 1973 shall also apply to any such program or activity."~~

~~d. Section 3 of the Housing and Community Development Act of 1968. The contractor will ensure that to the greatest extent feasible opportunities for training and employment arising in connection with this CDBG assisted project will be extended to project area residents. Further, the contractor will, to the greatest extent feasible, utilize business concerns located in or substantially owned by residents of the project area, in the award of contracts and purchase of services and supplies.~~

~~e. Minority Business Enterprise. Under the provisions of Executive Order 11246 contractors on federally funded projects are required to take affirmative steps to assure that minority businesses are used when possible as sources of supplies, equipment, construction and services. Additionally, the contractor must document all affirmative steps taken to solicit minority businesses and forward this documentation along with the names of the minority subcontractors and suppliers to the owner upon request.~~

~~f. Nondiscrimination Provision in all Public Contracts Pursuant to Section 49-3-207, MCA, the Contractor certifies that all hiring will be on the basis of merit and qualifications and there will be no discrimination on the basis of race, color, religion, creed, political ideas, sex, age, marital status, physical or mental handicap, or national origin.~~

~~1.4.2 Uniform Federal Accessibility Standards (UFAS)~~

~~All design specifications for the construction of any building shall provide access to the physically handicapped in accordance with the Uniform Federal Accessibility Standards and HUD regulations 24 CFR Part 8, "Nondiscrimination Based on Handicap in Federally Assisted Programs and Activities of HUD".~~

~~1.4.3 Certification of Compliance with Federal Clean Air and Water Acts (Applicable to Federally Assisted Construction Contracts and Related Sub-Contracts Exceeding \$100,000.)~~

~~During the performance of this contract, the contractor and all subcontractors shall comply with the requirements of the Clean Air Act, as amended, 42 USC 1857 et seq., the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR 15, as amended.~~

~~1.4.4 Preconstruction Conference~~

~~After the contract(s) have been awarded, but before the start of construction, a conference will be held for the purpose of discussion requirements on such matters as project supervision, coordination with city or county officials, on-site inspections, progress schedules and reports, payrolls, payments to contractors, contract change orders, insurance, safety and other items pertinent to the project. The contractor shall arrange to have all supervisory personnel connected with the project on hand to meet with representatives of the engineer and owner to discuss any problems anticipated.~~

~~1.4.5 Contract Pricing~~

~~The cost plus a percentage of cost method of contracting shall not be used.~~

1.5 ADDITIONAL SPECIAL PROVISIONS FOR ARPA and SRF

1.5.1 Equal Employment Opportunity and Affirmative Action Requirements on Federally Assisted Construction Contracts

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation in each trade 2.7%
Goals for female participation in each trade 6.9%

These goals are applicable to all the contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number for the subcontractor; employer identification number of the subcontractor, estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed (see form on page 11).

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is the Missoula Economic Area.

This notice shall be included in, and shall be a part of, all solicitations for offers and bids on all federal and federally assisted construction contracts or subcontracts.

EQUAL OPPORTUNITY CLAUSE

The Equal Opportunity Clause published at 41 CFR Part 60-1.4(b) is required to be included in, and is part of, all nonexempt federally assisted construction contracts and subcontracts. The Equal Opportunity Clause shall be considered to be a part of every contract and subcontract required by the regulations in this part to include such a clause, whether or not it is physically incorporated in such contracts.

In addition to the clause described above, all federal contracting officers, all applicants, and all non-construction contractors, as applicable, shall include the specifications set forth in this section in all federal and federally assisted construction contracts in excess of \$10,000 to be performed in geographical areas designated by the Director pursuant to §60-4.6 of this part and in construction subcontracts in excess of \$10,000 necessary in whole or in part to the performance of non-construction Federal contracts and subcontracts covered under the Executive Order.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

- a. "Covered Area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal Social Security number used on the employer's quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- d. "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area, (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs (7)(a) through (p) of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the federal register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off- the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the areas which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under (7)(b) above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female

recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7)(a) through (p). The efforts of a contractor association, joint contractor- union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under (7)(a) through (p) of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-

minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive order if a specific minority group of women is under-utilized).

10. The contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph (7) of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program)

CONTRACTOR'S NAME, ADDRESS & TELEPHONE NUMBER

Return to:
USDOL/ESA/OFC
CP
Denver District Office
1999 Broadway-Suite
1177
P.O. BOX 46550
Denver, CO 80201-6550

CONTRACTOR' EMPLOYER ID NUMBER: _____

**CONTRACT
INFORMATION**

PROJECT AND LOCATION:				
Dollar Amount of Contract	Estimated Start Date	Estimated Completion Date	Contract No.	Geographical Area

NOTIFICATION OF SUBCONTRACTS AWARDED (>\$10,000)

Subcontractors Name, Address, & Phone Number	Employer ID Number of Subcontractor	Estimated \$ Amount of Subcontract	Estimated Start Date	Estimated Completion Date

1.5.2 Guidance for Participation By Disadvantaged Business (DBE) Enterprises In United States Environmental Protection Agency Programs of 40 CFR 33.

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 in the award and administration of contracts awarded under EPA financial assistance agreements. 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.

A. REQUIREMENTS

1. The recipient and prime contractor will exercise good faith efforts to attract and utilize small, minority, and women's business (DBEs) enterprises primarily through outreach, recruitment, and race/gender neutral activities. At a minimum, the recipient and project bidders will follow the six affirmative steps below:

- a. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities including 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 and establish delivery schedules, when the requirements of the work permit, which will encourage participation by DBEs;
- c. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs; including dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation by DBEs;
- d. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually;
- e. Using the services of the Small Business Administration and the Office of Minority Business Enterprise of the U.S. Department of Commerce, as appropriate; and
- f. Require a. through e. to be taken if subcontracts are awarded.

B. FAIR SHARE OBJECTIVE

1. The fair share objective for this project is 2% MBE's and 3% WBE's.

C. DEFINITIONS

1. Minority Business Enterprise (MBE) is a business concern which is:

a. Certified as socially and economically disadvantaged by the Small Business Administration;

(1) Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities.

(2) Economically disadvantaged individuals are those socially disadvantaged individuals whose

ability to compete in the free enterprise system is impaired due to diminished capital and credit opportunities, as compared to others in the same business area who are not socially disadvantaged. In determining the degree of diminished credit and capital opportunities, the Small Business Administration shall consider, but not be limited to, the assets and net worth of such socially disadvantaged individuals. Individuals who certify that they are members of named groups (Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Asian-Indian Americans), are to be considered socially and economically disadvantaged. Economically and socially disadvantaged individuals are deemed to include women.

b. Certified as a minority business enterprise by a State or Federal agency; or

c. An independent business concern which is at least 51 percent owned and controlled by minority group member(s).

(1) A minority group member is an individual who is a citizen of the United States and one of the following:

(a) Black American:

(b) Hispanic American (with origins from Puerto Rico, Mexico, Cuba, South or Central America)

(c) Native American (American Indian, Eskimo, Aleut, native Hawaiian); or

(d) Asian-Pacific American (with origins from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the U.S. Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, Taiwan or the Indian subcontinent).

(2) In order to satisfy the third criteria of the MBE definition, the minority ownership's interest must be real, substantial and continuing. Such interest is characterized by:

(a) Risk of loss/share of profit commensurate with the proportional ownership; and

(b) Receipt of the customary incidents of ownership, such as compensation (i.e. salary and other personnel compensation).

(3) A minority owner must have and exercise control of the business decisions. Characteristics of control include, but are not limited to:

(a) Authority to sign bids and contracts;

(b) Decisions in price negotiations;

(c) Incurring liabilities for the firm;

(d) Final staffing decisions;

(e) Policy-making; and

(f) General company management decisions.

(4) Only those firms performing a useful business function according to custom and practice in the industry are qualified as MBEs. Acting merely as a passive conduit of funds to some other firm where such activity is unnecessary to accomplish the project does not constitute a "useful business

function according to custom and practice in the industry." The purpose of this approach is to discourage the use of MBE "fronts" and limit the creation of an artificial supplier and broker marketplace.

2. Women's Business Enterprise (WBE) is a business which is certified as such by a State or Federal agency, or which meets the following definition:

"A women's business enterprise is an independent business concern which is at least 51 percent owned by a woman or women, who also control and operate it. Determination of whether a business is at least 51 percent owned by a woman or otherwise qualified WBE which is 51 percent owned by a married woman in a community property State will not be disqualified because her husband has a 50 percent interest in her share. Similarly, a business which is 51 percent owned by a married man and 49 percent owned by an unmarried woman will not become a qualified WBE by virtue of his wife's 50 percent interest in his share of the business."

As in the case of a MBE, only United States citizens will be deemed to be WBEs. Similar to the MBE criteria, WBE should meet the criteria cited in subparagraphs C.1.c.(2), (3), and (4).

3. Fair Share or Fair Share Objective A fair share or a fair share objective is an amount of funds reasonably commensurate with the total project funding and the availability of qualified MBEs and WBEs, taking into account experience on EPA-funded projects and other comparable projects in the area. A fair share objective does not constitute an absolute requirement, but a commitment on the part of the bidder to exercise good faith *efforts* as defined in this section to use MBEs and WBEs to achieve the fair share objective.

4. Small Business (SBE). Any business entity, including its affiliates, that is independently owned and operated, and not dominant in its field of operations in which it is bidding on Government contracts, and qualified as a small business under the criteria and size standards set forth in 13 CFR Part 121.

5. Small Business in a Rural Area. A small business in a rural area (SBRA) is a business entity meeting the definition of a small business, and is located and conducts its principal operations in a geographical area (county) listed in the Small Business Administration's Listing of Non-Metropolitan Counties by State.

6. Recipient. A party receiving SRF financial assistance.

7. Project. The work financed through an SRF loan.

8. Bidder. A party seeking to obtain a contract with a recipient through a competitive, advertised, sealed bid process.

9. Offeror. A party seeking to obtain a contract with a recipient through a negotiative procurement process.

10. Prime Contractor. A party that has obtained a contract with a recipient through a competitive, advertised, sealed bid process.

11. Good Faith Efforts. Good faith efforts by a recipient, prime contractor, and/or bidder/offeror means efforts to attract and utilize SBEs, MBEs, and WBEs (DBEs) primarily through outreach, recruitment, and race/gender neutral activities. The following are examples of activities to assist recipients, prime contractors and/or bidders/offerors to comply with good faith efforts.

a. Include qualified SBEs, MBEs, and WBEs on solicitation lists.

(1) Maintain and update a listing of qualified SBEs, MBEs, and WBEs and SBRAs that can be solicited for supplies, construction and/or services.

(2) Provide listings to all interested parties who requested copies of the bidding or proposing documents.

(3) Contact appropriate sources within your geographic area and State to identify qualified MBEs and WBEs for placement on your minority and women's business listings.

(4) Utilize other MBE/WBE listings such as those of the State's Minority Business Office, the Small Business Administration, Minority Business Development Agency, US EPA- Office of Small and Disadvantaged Business Utilization (OSDBU) and the Department of Transportation.

(5) Have the State environmental agency personnel review this solicitation list.

b. Ensure that SBEs, MBEs, and WBEs are solicited.

(1) Conduct meetings, conferences, and follow-ups with SBEs, MBEs, WBEs, and SBRAs, small, minority and/or women's business associations, minority media, etc., to inform these groups of opportunities to provide supplies, services, and construction.

(2) MBE utilization is facilitated if the recipient or prime contractor advertises through the minority media. Such advertisements may include, but are not limited to, contracting and subcontracting opportunities, hiring and employment, or any other matter related to the project.

(3) Conduct pre bid, pre-solicitation, and post-award conferences to ensure that consultants, suppliers, and builders solicit SBEs, MBEs, WBEs, and SBRAs.

(4) Provide bidders and offerors with listings of qualified SBEs, MBEs, WBEs, and SBRAs and establish that a fair share of contracts/procurements should be awarded to these groups.

(5) Advertise in general circulation, trade publications, State agency publications of identified source, minority or women's business focused media, etc., concerning contracting opportunities on your projects. Maintain a list of minority or women's business-focused publications that may be utilized to solicit MBEs or WBEs.

(6) Provide interested SBEs, MBEs, WBEs, or SBRAs with adequate information about plans, specifications, timing and other requirements of the proposed projects.

(7) Provide SBE, SBRA, MBE or WBE trade organizations with succinct summaries of solicitations.

(8) Notify SBEs, MBEs, WBEs, or SBRAs of future procurement opportunities so that they may establish bidding solicitations and procurement plans.

c. Make information on forthcoming opportunities available to DBEs and arrange time frames and establish delivery schedules, where requirements of the work permit, which will encourage participation by SBEs, MBEs, WBEs and SBRAs.

(1) Consider lead times and scheduling requirements often needed by SBE, MBE, WBE or SBRA participation.

(2) Develop realistic delivery schedules which may provide for greater SBE, MBE, WBE or SBRA participation.

(3) Whenever possible, post solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date

d. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs; including dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of SBEs, MBEs, WBEs and SBRA.

(1) Perform an analysis to identify portions of work that can be divided and performed by qualified SBEs, MBEs, WBEs and SBRA.

(2) Scrutinize the elements of the total project to develop economically feasible units of work that are within the bonding range of SBEs, MBEs, WBEs and SBRA.

(3) Analyze bid packages for compliance with the good faith efforts to afford SBEs, MBEs, WBEs and SBRA maximum participation.

(4) Encourage contracting with a consortium of SBEs, MBEs, WBEs, and SBRA when a contract is too large for one of these firms to handle individually

e. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the US Department of Commerce, as appropriate.

(1) Use the services of outreach programs sponsored by the Minority Business Development Agency and/or the Small Business Administration to recruit bona fide firms for placement on SBEs', MBEs', WBEs', or SBRA's bidders lists to assist these firms in the development of bid packaging.

(2) Seek out Minority Business Development Centers (MBDCs) to assist recipients and prime contractors in identifying MBEs for potential work opportunities on this project.

f. If the prime contractor awards subcontracts, require the prime contractor to take the steps in paragraphs a. through e. of this section.

D. ADDITIONAL CONTRACT PROVISIONS

1. The prime contractor must pay its subcontractors for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the owner.

2. The prime contractor must notify the owner in writing prior to any termination of a DBE subcontractor for convenience.

3. If a DBE subcontractor fails to complete work under the subcontract for any reason, the prime contractor must employ the six good faith efforts if soliciting a replacement subcontractor, even if the fair share objectives have already been achieved.

E. REPORTING

1. Bidders/offerors shall demonstrate compliance with "good faith" efforts in order to be deemed responsible.

Efforts could include maintaining phone/mail logs (see attached MBE/WBE Subcontractor Solicitation Sheet), submitting proof of DBE solicitation advertisements, completion of the on-line DBE quote request form located at <https://app.mdt.mt.gov/dbeqt/>, etc.. The owner may specify other methods of demonstrating compliance.

2. Documentation of a “good faith” effort should be submitted with the bid, or within seven (7) calendar days of the bid opening.

MBE/WBE SUBCONTRACTOR SOLICITATION INFORMATION						
Name, Address & Phone No. of Subcontractor Contacted	Date Request for Quote Sent	Description of Work Offered	Date of Phone Follow-up & Person Contacted	Amount of Quote or Reason for Not Quoting*	Quote Accepted? If not, list reason for rejection	Indicate MBE, WBE, or other Subcontractor

* - Use additional sheets if necessary.

The undersigned hereby certifies that the above information is true and correct:

Contractor: _____

By: _____

Signature

Date: _____

Title

1.5.3 Certification Regarding Debarment, Suspension and Other Responsibility Matters

A. INSTRUCTIONS

Under Executive Order 12549, an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program, or a subagreement thereunder for \$25,000 or more. The status of prospective individuals or organizations can be checked at:

<https://www.sam.gov>

A prospective prime contractor must submit a completed certification (see form on the following page) or explanation to the project owner for the project. Each prospective subcontractor must submit a completed certification or explanation to the prime contractor for the project.

B. HOW TO OBTAIN FORMS

Additional forms may be obtained from the State or may be reproduced.

United States Environmental Protection
Agency Washington, DC 20460

**Certification Regarding Debarment, Suspension,
and Other Responsibility Matters**

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

Typed Name & Title of Authorized Representative

Signature of Authorized Representative

Date

_____ I am unable to certify to the above statements. My explanation is attached.

1.5.4 Prohibition against Listed Violated Facilities

A. REQUIREMENTS

(1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Pub. L. 92-604) and section 308 of the Clean Water Act (33 U.S.C. 1251, as amended), respectively, which relate to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this contract.

(2) That no portion of the work required by this prime contract will be performed in a facility listed on the Environmental Protection Agency list of violating facilities on the date when this contract was awarded unless and until the EPA eliminates the name of such facility or facilities from the listing.

(3) To use his best efforts to comply with clean air and clean water standards at the facilities in which the contract is being performed.

(4) To insert the substance of the provisions of this clause, including this paragraph (4), in any nonexempt subcontract.

B. DEFINITIONS

(1) Air Act means the Clean Air Act, as amended (42 U.S.C. 1857 et seq.).

(2) Water Act means the Clean Water Act, as amended (33 U.S.C. 1251 et seq.).

(3) Clean Air Standards means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted under the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110 (d) of the Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under section 111 (c) or section 111(d), or an approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 1857c-7(d)).

(4) Clean Water Standards means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated under the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by a local government to ensure compliance with pretreatment regulations as required by section 307 of Water Act (33 U.S.C. 1317).

(5) Compliance means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency in accordance with the requirements of the Air Act or Water Act and regulations.

(6) Facility means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor, to be used in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are located in one geographical area.

1.5.5 Discovery of Archaeological and other Historical Items

In the event of an archaeological find during any phase of construction, the following procedure will be followed:

- (1) Construction shall be halted, with as little disruption to the archaeological site as possible.
- (2) The Contractor shall notify the Owner who shall contact the State Historical Preservation Officer.
- (3) The State Historical Preservation Officer may decide to have an archaeologist inspect the site and make recommendations about the steps needed to protect the site, before construction is resumed.
- (4) The entire event should be handled as expediently as possible in order to hold the loss in construction time to a minimum while still protecting archaeological finds.

A similar procedure should be followed with regard to more recent historical resources. Should any artifacts, housing sites, etc., be uncovered, the same procedure should be followed as for an archaeological find.

In the event archaeological/historical data are evaluated to meet National Register criteria, the Advisory Council on Historic Preservation may be notified and asked to comment.

1.5.6 Williams-Steiger Occupational Safety and Health Act of 1970

A. AUTHORITY

- (1) The contractor is subject to the provisions of the Williams-Steiger Occupational Safety and Health Act of 1970.
- (2) These construction documents and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the Federal law(s) , including but not limited to the latest amendment of the following:
 - a. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 94-596;
 - b. Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations;
 - c. Part 1926 - Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code

of Federal Regulations.

B. SAFETY AND HEALTH PROGRAM REQUIREMENTS

(1) This project, its prime contractor and its subcontractors, shall at all times be governed by Chapter XVII of Title 29, Code of Federal Regulations, Part 1926 - Safety and Health Regulations for Construction (29 CFR 22801), as amended to date.

(2) To implement the program and to provide safe and healthful working conditions for all persons, general project safety meetings will be conducted at the site at least once each month during the course of construction, by the construction superintendent or his/her designated safety officer. Notice of such meeting shall be issued not less than three (3) days prior, stating the exact time, location, and agenda to be included. Attendance by the owner, architect, general foreman, shop steward(s), and trades, or their designated representatives, witnessed in writing as such, shall be mandatory.

(3) To further implement the program, each trade shall conduct a short gang meeting, not less than once a week, to review project safety requirements mandatory for all persons during the coming week. The gang foreman shall report the agenda and specific items covered to the project superintendent, who shall incorporate these items in his/her daily log or report.

(4) The prime contractor and all subcontractors shall immediately report all accidents, injuries, or health hazards to the owner and architect, or their designated representatives, in writing. This shall not obviate any mandatory reporting under the provisions of the Occupational Safety and Health Act of 1970.

(5) This program shall become a part of the contract documents and the contract between the owner and prime contractor, prime contractor and all subcontractors, as though fully written therein.

1.5.7 Wage Determination

The Contractor and all subcontractors shall pay for all labor employed at no less than the minimum standard prevailing rate of wages for each classification, which shall be the higher of either the Montana Prevailing Wage Rates or the Federal Davis-Bacon Prevailing Wage Rates.

Please refer to EXHIBIT C for Federal Labor Standards Provisions for Federally Assisted Construction Contracts.

If you have a question about complying with the prevailing wage regulations (occupations, payroll forms, payment of fringe benefits, travel or per diem, etc.), you should contact the Labor Standards Bureau Wage and Hour Unit of the Montana Department of Labor and Industry or visit their website: <http://dli.mt.gov/>

1.5.8 Access

1. The recipient must insure that representatives of the Environmental Protection Agency and the State will have access to project records and the project work whenever it is in preparation or

progress and must provide proper facilities for such access and inspection. The recipient must allow the Regional Administrator, the Comptroller General of the United States, the State agency, or any authorized representative, to have access to any books, documents, plans, reports, papers, including records of contractors which are pertinent to the project for the purpose of making audit, examination, excerpts, copies, and transcriptions thereof. The recipient must insure that a party to a subagreement will afford access to such project work, sites, documents, and records.

1.5.9 Construction Site Erosion and Sediment Control Measures

Every effort shall be made by the contractors and subcontractors to prevent and correct problems associated with erosion and runoff processes which could occur during and after project construction. The efforts should be consistent with applicable local ordinances, the EPA Nonpoint Source Pollution Control Guidance and Department of Environmental Quality Stormwater Management Plan.

Wherever appropriate, the contractor's efforts shall reflect the following engineering principles:

1. When appropriate, land grading and excavating should be kept at a minimum to reduce the possibility of creating runoff and erosion problems which require extensive control measures.
2. Whenever possible, topsoil should be removed and stockpiled before grading begins.
3. Land exposure should be minimized in terms of area and time.
4. Exposed areas subject to erosion should be covered as quickly as possible by means of mulching or vegetation.
5. Natural vegetation should be retained whenever feasible.
6. Appropriate structural or agronomic practices to control runoff and sedimentation should be provided during and after construction.
7. Early completion of stabilized drainage systems (temporary and permanent systems) will substantially reduce erosion potential.
8. Roadways and parking lots should be paved or otherwise stabilized as soon as feasible.
9. Clearing and grading should not be started until a firm construction schedule is known and can be effectively coordinated with the grading and clearing activity.

1.5.10 American Iron and Steel (AIS) Requirements

On January 17, 2014, H.R. 3547, "Consolidated Appropriations Act, 2014," (Public Law 113-76, Section 436) was enacted. This law provides appropriations for both the Clean Water State Revolving Fund and the Drinking Water State Revolving Fund for federal fiscal year 2014, while adding an American iron and steel requirement to these already existing programs.

The Act includes a provision for "Use of American Iron and Steel," in Section 436(a)(1). None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the

Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products permanently incorporated in the project are produced in the United States.

The term “iron and steel products” means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, rebar, and construction materials. The iron and steel products used in the project must comply with the American Iron and Steel requirements of Section 436 of the Consolidated Appropriations Act of 2014 (P.L. 113-76) and as further interpreted by applicable EPA guidance (see http://water.epa.gov/grants_funding/aisrequirement.cfm).

AIS CERTIFICATION FORMS – The Contractor must ensure that all qualifying iron and steel components used in the project have met the AIS requirements. To verify AIS compliance, the Contractor must obtain a “Manufacturer Certification” form (or equivalent statement) from the product manufacturer. Upon completion of the project, the Contractor shall provide the Owner with the “Contractor Certification” form and copies of all “Manufacturer Certification” forms and/or statements. The referenced certification forms are located in Exhibit E of Section 00900.

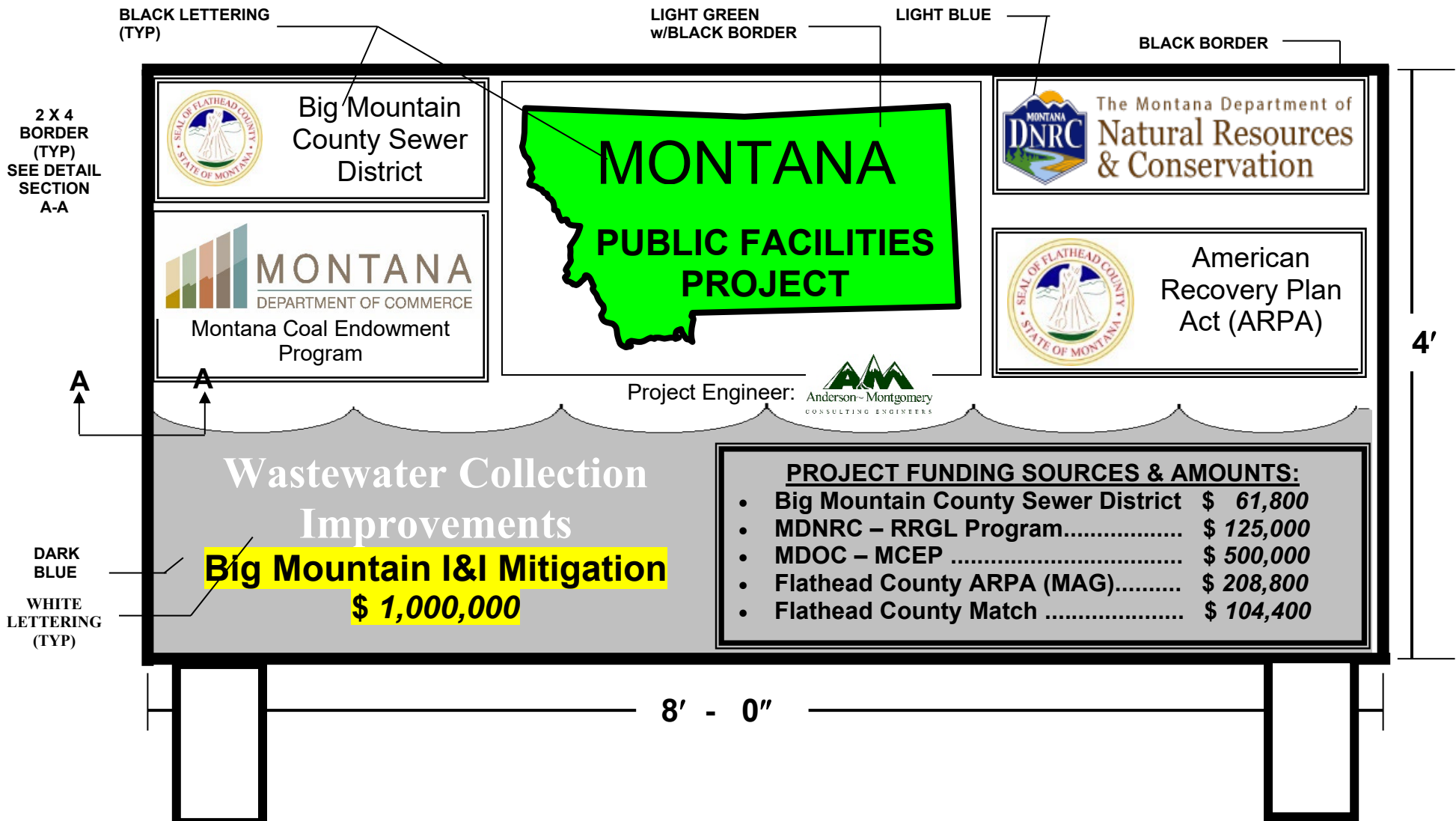
AIS WAIVERS - A waiver from the American Iron and Steel requirements may be issued by the Administrator of the Environmental Protection Agency if it is found that: 1) applying the American Iron and Steel provisions would be inconsistent with the public interest; 2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or 3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent. Waiver requests must be submitted to the state for review and submittal to the EPA.

NATIONAL AIS WAIVERS - The EPA has issued the following national waivers; 1) De Minimis (April 15, 2014); 2) Product Waiver for Pig Iron and Direct Reduced Iron (February 18, 2015); 3) Minor Components in Iron and Steel Products (October 27, 2015); and 4) Final Extension of the Short-Term National Product Waiver for Stainless Steel Nuts and Bolts used in Pipe Couplings, Restraints, Joints, Flanges and Saddles (August 24, 2018).

1.6 EXHIBITS

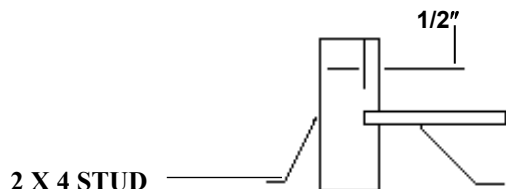
EXHIBIT A (Required for All Projects)

Project Sign Detail



DARK BLUE

WHITE LETTERING (TYP)



DETAIL SECTION A--A

PROVIDE TREATED REDWOOD 4X4 SUPPORTS FOR SIGN (BOTH ENDS) AND KEEP SIGN A PROPER DISTANCE ABOVE PREVAILING GRADE TO PERMIT PUBLIC VIEWING.

PROJECT SIGN

~~EXHIBIT B (Required for CDBG Projects)~~

~~HUD Form 4010 Federal Labor Standards Provisions~~

EXHIBIT C (Required for SRF and ARPA Projects)

Federal Labor Standards Provisions For
Federally Assisted Construction Contracts United
States Department of Labor
CFR Code of Federal Regulations Pertaining to ESA (Federal
Davis-Bacon Wages)

Federal Labor Standards
Provisions For
Federally Assisted Construction
Contracts United States Department of
Labor
CFR Code of Federal Regulations Pertaining to
ESA (Federal Davis-Bacon Wages)

Title 29, Chapter I, Part 5, Subpart A (29 CFR 5.5)

Section Name: Contract provisions and related matters.

(a) The Recipient shall assure that the subrecipient(s) shall insert in full in any contract in excess of

\$2,000 which is entered into for the actual construction, alteration 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 applicable FY appropriation requirements, the following clauses:

(1) Minimum wages. (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), 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 Sec. 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.

(ii)(A) The contracting officer 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 contracting officer shall approve 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 contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer 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 contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt 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 loan or grant recipient shall upon its own action or upon written request of 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 (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency or SRF program) 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 (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). 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 SRF program if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the SRF program. The payrolls submitted 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 weekly transmittals. 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 SRF program if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the SRF program, 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 sponsoring government agency (or the applicant, sponsor, or owner).

(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 Sec.

5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sec.

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 loan or grant recipient 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 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 subcontractor's 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 SRF program may by appropriate instructions require, 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 the contracting agency, 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.

(b) Contract Work Hours and Safety Standards Act. The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(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 Sec. 5.5(a) or 4.6 of part 4 of this title. 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 \$10 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 loan or grant recipient shall upon its own action or upon written request of 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 (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(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 (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause or require the contracting officer to 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 Agency Head shall cause or require the contracting officer to 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 loan or grant recipient and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

<https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=99c9a20e960f56be66f17ae91b52c888&rgn=div5&view=text&node=29:1.1.1.1.6&idno=29>

EXHIBIT D (Required for SRF Projects)

Reserved

EXHIBIT E

American Iron and Steel (AIS) Forms

CONTRACTOR CERTIFICATION

Consolidated Appropriations Act, 2014

USE OF AMERICAN IRON AND STEEL

On January 17, 2014, H.R. 3547, "Consolidated Appropriations Act, 2014," (Public Law 113-76, Section 436) was enacted. This law provides appropriations for both the Clean Water State Revolving Fund and the Drinking Water State Revolving Fund for federal fiscal year 2014, while adding an American iron and steel requirement to these already existing programs.

The Act includes a provision for "Use of American Iron and Steel," in Sec. 436(a)(1). None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products permanently incorporated in the project are produced in the United States.

As the general contractor for the project(s) using revolving loan funds, the undersigned attests that they have performed the necessary oversight to ensure this provision was met on the project(s) being funded.

I, the undersigned authorized representative of _____
do hereby certify that all materials and supplies used on the project(s) have complied with the
above provision of the Consolidated Appropriations Act.

Project Name _____

DEQ Loan Project Number _____

Authorized Signature _____, Date _____

Title _____

Print Name _____

MANUFACTURER CERTIFICATION

Consolidated Appropriations Act, 2014

USE OF AMERICAN IRON AND STEEL

On January 17, 2014, H.R. 3547, "Consolidated Appropriations Act, 2014," (Public Law 113-76, Section 436) was enacted. This law provides appropriations for both the Clean Water State Revolving Fund and the Drinking Water State Revolving Fund for federal fiscal year 2014, while adding an American iron and steel requirement to these already existing programs.

The Act includes a provision to for "Use of American Iron and Steel," in Section 436(a)(1). None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products permanently incorporated in the project are produced in the United States.

This certification applies to the following specific iron and steel products to be incorporated into this project:

Manufacturer Name: _____

Material/Product Description: _____

Location of factory where these products will be manufactured: _____

As a manufacturer for the project(s) using revolving loan funds, the undersigned attests that they have performed the necessary oversight to ensure this provision was met on the project(s) being funded.

I, the undersigned authorized representative of _____
do hereby certify that all qualifying iron and steel products purchased for or used on the
project(s) have complied with the above provision of the Consolidated Appropriations Act.

Project Name _____

DEQ Loan Project Number _____

Authorized Signature _____ Date _____

Title _____,

Print Name _____.

SPECIAL PROVISIONS

SECTION 00 95 10
SPECIAL PROVISIONS

Contents:

- | | |
|---|--|
| 1. Project Description | 21. Site Dewatering |
| 2. Site Inspection and Pre-bid Conference | 22. Sub-Excavation and Stabilization |
| 3. Contract Time, Construction Phasing & Liquidated Damages | 23. Imported Trench Backfill |
| 4. Project Related Contacts | 24. Time of Open Trenches |
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| 6. Soils Information | 26. Plan of Operation |
| 7. Engineering, Inspections, and Testing | 27. Construction Schedule |
| 8. Payments to Contractor | 28. Tracer Tape |
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| 20. Construction Surveys | 40. Time Extension Or Shutdown For Weather |
| | 41. Standard Specifications |
| | 42. Geogrid and Geotextile |
| | 43. Project Sign |
| | 44. Warranty |
| | 45. Hierarchy Of Specification |

1. PROJECT DESCRIPTION

The project will be constructed as one Schedule. Work shall generally include: excavating replacing, sealing, raising and waterproofing specified sewer manhole structures; replacing specified sanitary sewer segments; dewatering; bedding; pipe; fittings; connection to existing sewer mains; testing; backfill; utility conflicts; surface restoration; pavement; fertilizing and seeding.

2. SITE INSPECTION AND PRE-BID CONFERENCE

All Bidders should satisfy themselves as to the construction conditions by personal examination of the site described in this document. Bidders are encouraged to make any investigation necessary to assess the nature of the construction and the difficulties to be encountered. There will be no Pre-Bid Conference for this re-bid. Interested Contractors are instructed to contact the Engineer with any questions.

3. CONTRACT TIME, CONSTRUCTION PHASING & LIQUIDATED DAMAGES

Time is of the essence on this project and schedules must be adhered to. The following tentative schedule of events will be followed, to the extent possible:

- | | |
|-----------------------------------|---|
| a. Initial Advertisement for Bids | June 12, 2022 |
| b. Bid Opening 2:00 P.M. | June 28, 2022 |
| c. Notice of Award | July 7, 2022 |
| d. Pre-Construction Conference | July 12, 2022 |
| e. Notice to Proceed | July 18, 2022 |
| f. Substantial Completion | September 16, 2022 (60-day contract period) |
| g. Ready for Final Payment | August 19, 2022 |

The Total Contract Time for this Project will be **60 consecutive** calendar days (for combined Base Bid and Alternates B & C), as stated in the Agreement. Subject to the provisions of the Contract Documents, the Owner shall be entitled to reimbursement for Contractor-caused expenses incurred by the Owner for unscheduled employment of the Engineer. Liquidated damages for the unscheduled employment of the Engineer and/or Inspector will be assessed against the Contractor necessitated by the following:

- The Contractor working beyond the specified contract time.
- The Contractor working more than 8 hours per day, (or 40 hours per week if four ten hour shifts are worked) or on Saturdays, Sundays and Federal Holidays.
- The Contractor utilizing material, supplies, or equipment that requires the redesign of the project.
- The Contractor destroying or disturbing baselines, benchmarks or reference stakes.

- The failure of the Contractor to maintain acceptable as-built records.
- Retests by the Engineer of tests that have failed.
- Retests by others for tests that require Engineer's presence.
- Repeated review of submittals and shop drawings that have not been approved.
- Additional inspection as a result of unacceptable work.
- Failing to follow design or construction documents.
- Submitting excessive or unreasonable claims requiring Engineer's review.
- Failing to properly document pay requests.

Liquidated damages for the unscheduled employment of the Engineer and/or Inspector shall be determined based on the following hourly rates up to the daily limits identified in the Agreement:

Project Manager	\$150.00/Hour
Project Engineer	\$130.00/Hour
Inspector	\$95.00/Hour
Mileage	\$ 0.60/Mile

See Article 4.3 of the Agreement for details on quantifying liquidated damages. Out of pocket expenses for materials, equipment, supplies, transportation, and subsistence shall be billed at cost plus ten percent. Liquidated damages for unscheduled employment of the Engineer and/or Inspector shall be deducted from monthly progress payments and the final payment as the damages are incurred.

The Contractor shall reimburse the Owner for all costs incurred as a result of the Contractor's failure to complete the work within the time period specified in the Contract unless modified by a Change in Contract Time. The Owner shall have one or more representatives observing the work at all times work is taking place. The Contractor shall reimburse the Owner for the cost of engineers, architects, attorneys, construction field representatives, and other professionals that are incurred due to the Contractor's failure to complete the work within the Contract time period.

4. PROJECT RELATED CONTACTS

Owner: **Big Mountain County Sewer District**

P.O. Box 1252, Whitefish, MT 59937

Jen Sato – District Board President: bigmtsewerdist@gmail.com; (406)249-5669

Leslie Bales – Administrative Manager: bigmtsewerdist@gmail.com; (406)249-5669

Jason Hanchett – Public Works Superintendent: jasonh@skiwhitefish.com; (406)862-1991

Engineer: **Anderson-Montgomery Cons. Eng., Inc.**

1064 N. Warren Street, Helena, Montana 59601

Contact: Paul Montgomery, P.E.; paul@a-mce.com; (406)459-8463

Utilities:

NorthWestern Energy – Distribution Gas Mains

Eric J. Smith, District Engineer

Telephone: 406-751-2219, 406-871-2570 (cell)

Spectrum Communications

1-800-892-4357

Flathead Electric

Stan Pluid

Telephone: 406-751-4461

One Call Locators

Telephone: 811 or (406)424-5555

5. GENERAL CONSTRUCTION REQUIREMENTS

Construction Limits. Work will occur within the established public right-of-way and easements for the Big Mountain Sewer District or Winter Sports Inc., and will not affect private land. Where construction limits, or property lines, are not specifically called out on the Drawings, the limit shall be the closest adjacent property line or easement line, whichever is less.

Areas of Disturbances. Approved areas of disturbance are those areas disturbed by construction activities within the construction limits and along designated or approved access routes. Such areas shall require reclamation and revegetation operations, including grading to the original contours, top soiling with salvaged or imported topsoil, seeding, fertilizing, and mulching as specified herein. Other areas that are disturbed by the Contractor's activities outside of the limits noted above will be considered as site damage or unapproved areas of disturbance subject to Repair and Replacement Quality as specified in the Supplementary Conditions. This includes areas selected by the Contractor outside the defined construction limits for mobilization, offices, equipment, or material storage.

6. SOILS INFORMATION

No geotechnical investigations have been conducted for any of the individual construction

areas throughout the project site. The Bidder/Contractor is encouraged to conduct its own geotechnical studies in order to derive the necessary information upon which to base its bid and determine means and methods for construction. Generalized soil mapping is available through the USDA Natural Resources Conservation Service Web Soil Survey website at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

Note that the Contractor will be responsible for obtaining soil samples and conducting proctor tests in order to establish optimum moisture levels and compaction rates for native materials used in backfill. All required compaction rates shall be verified by the Contractor. Sampling/analysis shall be conducted for each varying classification of soil encountered over the entire jobsite.

7. ENGINEERING, INSPECTIONS, AND TESTING

The Contractor's work will be periodically tested and observed to ensure compliance with the Contract Documents. Complete payment will not be made until the Contractor has demonstrated that the work is complete and has been performed as required. If the Engineer detects a discrepancy between the work and the requirements of the Contract Documents at any time, up to and including final inspection, such work will not be completely paid for until the Contractor has corrected the deficiency.

The Engineer will periodically monitor the construction of work to determine if the work is being performed in accordance with the contract requirements. The Engineer does not have the authority or means to control the Contractor's methods of construction. It is, therefore, the Contractor's responsibility to utilize all methods, equipment, manpower, and other means necessary to assure that the work is installed in compliance with the Drawings and Specifications, and laws and regulations applicable to the work. Any discrepancies noted shall be brought to the Contractor's attention, who shall immediately correct the discrepancy. Failure of the Engineer to detect a discrepancy will not relieve the Contractor of his ultimate responsibility to perform the work as required.

The Contractor shall inspect the work as it is being performed. Any deviation from the Contract requirements shall be immediately corrected. Prior to any scheduled observation by the Engineer, the Contractor shall again inspect the work and certify to the Engineer that he has inspected the work and it meets the requirements of the Contract Documents. **All buried work items shall be inspected by the Engineer prior to backfilling, or may not be considered for payment.**

The work will be subject to review by the Owner, whose findings shall be as valid as those of the Engineer. The results of all such observations shall be directed to the Contractor through the Engineer.

Services Provided by the Contractor. The Contractor shall provide the following services:

- Any field surveys to establish locations, elevations, grades and alignments as stipulated on the Plans.

- Preparation and certification of all required shop drawings and submittals as described in the Supplementary Conditions.
- Tests as required by the Contract Documents which include, but are not limited to, proctors and concrete strength laboratory tests. All tests requiring the services of a laboratory to determine compliance with the Contract Documents shall be performed by an independent commercial testing laboratory acceptable to the Engineer. The laboratory shall be staffed with experienced technicians properly equipped, and fully qualified to perform the tests in accordance with the specified standards.
- The Contractor shall provide an independent laboratory for any tests necessary to determine the compliance of the materials used in the asphalt mix with the Contract Documents.
- Maintenance of project record drawings.
- The Contractor shall arrange for and pay for all tests required by the Contract Documents.
- The Contractor shall provide an independent laboratory to check compaction of subgrade, backfill and base/subbase course using Proctor information supplied by the Contractor. These tests are only to determine if the material is complying with the Contract Documents. It is the responsibility of the Contractor to insure that this level of compaction is constant in all locations. Compaction testing shall test moisture content and compaction as specified in the Contract Documents. Tests shall be taken upon every specified lift for both trenches and roadways/sidewalks at a maximum spacing of 100 feet along the trench or roadway/sidewalk alignment, or as directed by the Engineer.
- The Contractor shall provide an independent laboratory to determine cast-in-place concrete characteristics including: slump; air content and to cast and test cylinders for strength analysis as specified in the Contract Documents. The Contractor is responsible for proper onsite storage, transportation and laboratory strength testing of the cylinders. All on-site concrete testing shall be performed by a certified ACI technician.
- The Contractor shall provide an independent laboratory to perform, at minimum but not limited to, one (1) set of three (3) Marshall “pucks” to establish a job specific target density for the bituminous mix. For each days production, or for each 1,000 tons produced per day, the engineer will mark three random locations upon the mat for the removal of a 4” diameter core to be cut for density determination. A “percent compaction” value will be determined by comparing the average core density values for that day with the job specific target density previously determined by the Marshall “pucks”. The independent laboratory will be required to document the thickness of asphalt material pulled from each core and to further trim each core prior to density testing. Documentation of test results shall be submitted to the engineer as they become available throughout construction activity.
- Contractor shall provide for disinfection and bacteriological testing of all newly

installed water mains. Testing shall include chlorine residual testing as well as coliform testing for completed water mains utilized as a source of potable water.

- The contractor shall perform performance tests for any newly installed equipment as specified within these contract documents.

Testing Services Provided by the Owner. The Owner is not required to perform any testing services during the construction of this project. All required testing shall be the responsibility of the Contractor. The Contractor shall provide an approved independent testing laboratory to perform all necessary testing during construction activities.

The Engineer will observe and record the results of Contractor field tests for unit process performance and pressure and leakage of water, sanitary sewers, manholes, tanks, calibration of equipment and related materials tests. Contractor shall coordinate tests with Engineer and provide all necessary equipment and labor to perform the required tests.

8. PAYMENTS TO CONTRACTOR

8.1 Scope. This section supersedes the sections of the General Conditions pertaining to payments to the Contractor, to be in compliance with MCA 28-2-2103 as amended on October 1, 2003. If an alternate billing, approval, and/or payment cycle is required for this project those provisions are discussed in the "Instructions to Bidders" section of these Contract Documents, and shall supersede this section on Payments to the Contractor.

8.2 Application for Partial and Final Payment. The Contractor shall prepare and submit one Application for Payment on a monthly billing cycle, including Schedule of Values to support the request for payment. At the Preconstruction Conference it will be agreed upon which day of the month this application should be submitted so that it coincides with the Owner's billing approval and payment schedule. After the first partial payment request is submitted the Contractor shall submit their subsequent applications on the same date each month for the duration of the project.

- a. After the Contractor submits their Application for Payment the Owner will have twenty one (21) days to review and approve payment for the entire amount of the request, or the undisputed portion of the request. During this same time period the Engineer will review the payment request and make recommendations to the Owner on the items which the Engineer feels are approved for payment, and which items are in dispute. Items which are in dispute will be documented in writing and provided to the Contractor for correction and resubmission on subsequent payment requests. The undisputed portion will be approved for payment, and will be paid within seven (7) calendar days after approval. Five percent (5%) of all partial payments will be withheld from payment until the completion of the project as discussed below.
- b. The Final Application for Payment, including release of the five percent (5%) retainage, may only be submitted after the Engineer has signed the Certificate of Substantial Completion and all punch list items have been addressed.

- c. The Contractor will complete the Big Mountain County Sewer District Payment Request and Status Report with each Application for Payment.

9. UTILITIES

The exact locations of existing underground utilities that may conflict with the work are not precisely known. It shall be the Contractor's responsibility to contact the owners of the respective utilities and arrange for field location services.

9.1 Notification. The Contractor shall contact, in writing, all public and private utility companies that may have utilities that may be encountered during excavation. The notification shall include the following information:

- The nature of the work that the Contractor will be performing.
- The time, date and location that the Contractor will be performing work that may conflict with the utility.
- The nature of work that the utility will be required to perform such as moving a power pole, supporting a pole or underground cable, etc.
- Requests for field location and identification of utilities.
- A copy of the letter of notification shall be provided to the Engineer. During the course of construction, the Contractor shall keep the utility companies notified of any change in schedule or nature of work that differs from the original notification.

9.2 Identification. All utilities that may conflict with the work shall be the Contractor's responsibility to locate before any excavation is performed. Field markings provided by the utilities shall be preserved by the Contractor until actual excavation commences. All utility locations on the Drawings should be considered approximate and should be verified in the field by the Contractor. The Contractor shall also be responsible for locating all utilities that are not located on the Drawings.

9.3 Public Utilities. Water, sewer, storm drainage, electric, gas and other utilities owned and operated by the public entities shall, unless otherwise specifically requested by the utility owner, be removed, relocated, supported or adjusted as required by the Contractor at the Contractor's expense. All such work shall be in accordance with these Specifications, or the Owner's Standard Specifications or written instructions when the work involved is not covered by these Specifications.

9.4 Other Utilities. Utilities owned and operated by private individuals, railroads, school districts, associations, or other entities not covered in these Special Provisions shall, unless otherwise specifically requested by the utility owner, be removed, relocated, supported or adjusted as required by the Contractor at the Contractor's expense. All work shall be in accordance with the utility owner's directions, or by methods recognized as being the standard of the industry when directions are not given by the owner of the utility.

9.5 Damage to Utilities and Private Property. The Contractor shall protect all utilities and

private property and shall be solely responsible for any damage resulting from his construction activities. The Contractor shall hold the Owner and Engineer harmless from all actions resulting from his failure to properly protect utilities and private property. All damage to utilities shall be repaired at the Contractor's expense to the full satisfaction of the owner of the damaged utility or property. The Contractor shall provide the Owner with a letter from the owner of the damaged utility or property stating that it has been repaired to the utility owner's full satisfaction.

9.6 Water Mains and Services. All water mains and services exposed during construction shall be adequately supported and protected from freezing at all times. Sections of water mains shall not be valved off without first giving the Owner sufficient notification and receiving authorization from the Engineer. Unless otherwise permitted in writing by the Owner, water mains and services shall not be shut off for more than 4 hours. All recipients of water service shall be notified in advance of any interruption of service.

Whenever a water main or service is damaged as a result of the Contractor's operations, the Contractor shall take immediate steps to repair the damage and disinfect all water mains and services contaminated as a result of the damage.

Existing water services from the mains to private property which interferes with trenching operations may be cut and replaced at the Contractor's option and expense provided the requirements for notification, length of interruption, and disinfection specified above are adhered to.

9.7 Maintenance of Flows. Adequate provisions shall be made for maintaining the flow of sewers, drains, and watercourses encountered during construction. Culverts, ditches, fences, crosswalks, and structures which are disturbed by this construction shall be satisfactorily restored to their original condition upon completion of the work. No additional payment shall be made for this work. All costs shall be merged with related bid items.

9.8 Structures. The Contractor shall exercise every precaution to prevent damage to existing buildings or structures in the vicinity of his work. In the event of such damages, he shall repair them to the satisfaction of the owner of the damaged structure at no cost to the Owner.

9.9 Overhead Utilities. The Contractor shall use extreme caution to avoid a conflict, contact, or damage to overhead utilities, such as power lines, streetlights, telephone lines, television lines, poles, or other appurtenances during the course of construction of this project.

9.10 Buried Gas Lines. The Contractor shall provide some means of overhead support for buried gas lines exposed during trenching to prevent rupture in case of trench caving.

9.11 Pavement Removal. Where trench excavation or structure excavation requires the removal of curb and gutter, concrete sidewalks, or asphaltic or concrete pavement, the pavement or concrete shall be cut in a straight line parallel to the edge of the excavation by use of a spade-bitted air hammer, concrete saw, colter wheel, or similar approved equipment to obtain a straight, square clean break. Pavement cuts shall be 2 feet wider than the actual trench opening.

9.12 Survey Markers and Monuments. The Contractor shall use every care and precaution to protect and not disturb any survey marker or monuments, such as those that might be located at lot or block corners, property pins, intersection of street monuments or addition line demarcation. Such protection shall include markings with flagged high lath and close supervision. No monuments shall be disturbed without prior approval of the Engineer. Any survey marker or monument disturbed by the Contractor during the construction of the project shall be replaced at no cost to the Owner by a licensed land surveyor.

9.13 Temporary Utilities. The Contractor shall provide all temporary electrical, lighting, telephone, heating, cooling, ventilating, water, sanitary, fire protection, and other utilities and services necessary for the performance of the work. All fees, charges, and other costs associated therewith shall be paid for by the Contractor. Limited electrical service may be available from the wastewater plant for the Contractor's utilization.

10. STORED MATERIALS

Contractor shall use an approved storage area for materials and offices which should be available on site. Materials and/or equipment purchased by the Contractor may be paid for on a monthly basis providing invoices for said materials and equipment are presented to the Engineer, such materials have been approved through the submittal process and are adequately stored, protected and insured.

11. NOTICES

It will be the responsibility of the Contractor to notify the following individuals for the following items:

- Owner and emergency services of service outages in writing a minimum of 24 hours in advance.
- ***Contractor shall notify all property owners and occupants affected by pending construction activities no less than 48-hours prior to mobilizing to each particular work site. Notification shall consist of placing a door-hanger on each residence within 150' of the work site, that states the location, timeframe and nature of the work as well as contact information for the Contractor's project supervisor.***
- Contractor to place "NO PARKING" signs as needed to ensure vehicles are not in the way of construction progress.
- Notify all affected parties of water, sewer, or electrical outages in writing 24 hours in advance.
- Notify Owner, Engineer, and all landowners, 72 hours in advance, of when paving operations will occur.
- The Contractor shall maintain functional traffic through worksite to the extent that residents are not prevented from accessing their properties.

12. DRAWINGS

The Engineer has located, to the best of his knowledge, all major objects that may influence construction and has indicated them on the Drawings for bidding purposes only. Because of scale, possible additions, subsurface uncertainties, etc., the Contractor shall be responsible for verifying in the field the exact locations of objects that may influence his construction operations. The Engineer and Owner shall in no way be held responsible for objects not located exactly as shown on the Drawings or for objects installed subsequent to preparation of the Drawings.

13. FEES AND PERMITS

The Contractor will be responsible for obtaining and paying for all permits required by Local, State or Federal jurisdictions. Specifically, the Contractor shall obtain the following types of permits or provide documentation that they are not applicable:

- Stormwater Discharge Associated with Construction Permit – Montana DEQ
- Ground Water Discharge Associated with Construction Permit – Montana DEQ Building
- Electrical and Mechanical Permits – Building Codes Bureau, Montana Department of Commerce
- Electrical Permit
- Building Permits

14. SUPERVISOR, TELEPHONE AND PROJECT SITE FACILITIES

At all times during construction the Contractor shall provide a telephone at the project site. In addition, if the phone is not manned, a system must be utilized to deliver messages to the project superintendent within 15 minutes of a phone call. The superintendent in charge of all operations must be on-site during all construction activities. The superintendent in charge of all operations must be qualified to do such work and shall be the same person throughout the project. Substitutions for superintendents can be made with the Owner and Engineers approval. The City reserves the right to stop construction if the Contractor's Project Superintendent is absent from the site during construction activity. Additional Contract Time will not be allowed due to such stop work orders.

The Contractor shall maintain a suitable office at the site which shall serve as headquarters for his superintendent. All communications, drawings, instructions, and other articles will be delivered to the Contractor's field office or to the Contractor's main office as appropriate. Communications delivered to either location shall be deemed to have been delivered to the Contractor. The Contractor shall maintain copies of record drawings, specifications, shop drawings, submittals, and all communications pertinent to the performance of the work at the field office and available for use at all times.

On-site toilet facilities for employees of Contractor and Subcontractors shall be provided and maintained in a sanitary condition. A bulletin board will be maintained on the jobsite for posting wage rates, labor standards and other information to be made available to the contractors employees.

15. CONSTRUCTION WATER

The Contractor shall secure permission and comply with any usage provisions from the Big Mountain Water Company (BMWC) for the acquisition of construction water. Contractor shall coordinate with BMWC and shall install and utilize a City-supplied backflow preventer and meter. The meter shall be utilized to track water usage by the Contractor. ***The Contractor is responsible for any costs associated with the acquisition of construction water from BMWC.***

BMWC Contact information:

Big Mountain Water Company
Amanda West, Accountant
PO Box 1400
Whitefish, MT 59937
ph: 406-862-1946
amandaw@skiwhitefish.com

16. DISPOSAL OF USED WATER

Disposal of used water shall be the responsibility of the Contractor. Discharges to the surface are subject to permit and regulatory requirements. Discharge of chlorinated water is the responsibility of the Contractor. Discharge to sewer or storm drains must be coordinated with and approved in advance by the Owner. It will be the responsibility of the Contractor to arrange for legal disposal of all groundwater (contaminated or otherwise) during execution of the Work.

17. WATER POLLUTION, EROSION AND SEDIMENT CONTROL

The Contractor shall obtain all required permits and comply with all laws and regulations of the Montana Department of Environmental Quality and with all other federal, state, and local laws and regulations controlling pollution to the environment. The contractor shall apply for these permits as soon as possible after the contract is awarded. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

Particular care will be required to prevent trench spoils from entering streams or watercourses. Similar care shall be used if removal is required for spoils already in the stream channel. Under no circumstances will equipment be allowed to operate in flowing stream channels, with the exception of booms or buckets extended into the channel to retrieve existing spoils or place riprap at the water line. Machinery wheels or tracks may not enter the channel below water line. Sediment control provisions shall be used whenever work is conducted adjacent to drainages or watercourses to control silt in runoff. Adequate silt barriers or sediment traps shall be used to

comply with permit conditions and statutory requirements for all streamside work, both during and after work hours. Measures used may include staked straw bales, sediment ponds, and/or staked silt fence (Mirafi “Enviro-Fence, or equal). Sediment controls shall be considered incidental to the Work, and no separate payment will be allowed. The Contractor will be solely responsible for the selection and implementation of sediment control measures to assure permit and statutory compliance. **An Erosion Control Plan outlining measures to be taken to control erosion and runoff must be submitted by the Contractor to the Engineer and the Owner for review and approval** prior to any work activities in proximity to any surface waters – including ephemeral/intermittant streams. Scheduling of work tasks must be included in the Plan outlining work procedures, waste disposal practices, earthwork procedures and other activities.

18. MATERIALS SALVAGE

All manhole frames/lids removed from existing structures are to be salvaged for the Owner. Such items shall be carefully recovered and delivered to the location directed by the Owner. All other materials removed on the project shall be legally disposed of by the Contractor. Disposal costs shall be part of contract unit prices.

19. PROTECTION OF ADJACENT IMPROVEMENTS & LANDSCAPING

Retain, protect and restore all adjacent improvements impacted by construction. This includes: asphalt; concrete; subgrade materials; gravel surfaces; *cultivated* trees, shrubs and lawn; landscaping stones; retaining walls; drainage improvements; mailboxes; reflector posts; signs, and; irrigation system components. If there is any question about whether a specific site feature must be restored, Contractor shall coordinate with the Engineer & Owner to resolve the matter prior to its removal. Failure to identify and resolve any restoration issue will be the Contractor’s responsibility to fully compensate or restore to pre-construction condition or better, at the Owner’s discretion.

20. CONSTRUCTION SURVEYS

The Contractor will be responsible for all layout and construction staking utilizing the Engineer’s existing control and coordinate data for street, sidewalks, monuments, manholes, and any other construction which requires surveying. Dimensions and elevations indicated in layout of work shall be verified by the Contractor. Discrepancies between Drawings, Specifications, and existing conditions shall be referred to the Engineer for adjustment before work is performed.

Existing Engineer Control: The Engineer has set survey control (horizontal and vertical) for use in the design and ultimately the construction of these improvements. A listing of the coordinates and vertical elevation for each of these control points is included in the Plans.

Several of the Engineer’s control points may have been disturbed or accidentally removed before contractor layout begins. The Contractor will be responsible for verifying the accuracy of

all control points and laying out all critical project points with the remaining control points. The Contractor will be responsible for preserving and protecting the survey control until proper referencing by the Contractor has been completed. Any survey control obliterated, removed, or otherwise lost during construction will be replaced at the Contractor's expense. Any claims relating to survey location or construction staking accuracy must be supported by original control point data and verified in the field to the satisfaction of the Engineer.

The Engineer shall provide the following staking consisting of stakes or hubs:

Vertical Control – Vertical control will be provided by the existing survey monument benchmarks and control points throughout the site as shown on the Plans.

Piping - Horizontal control will be provided in the form of centerline of stationing as shown on the project drawings. Stakes shall be provided no more frequently than 200' intervals, at structures, manholes, buildings and branch fittings on piping.

The Contractor will provide all additional staking and offsets necessary for vertical and horizontal control such that the project may be completed in accordance with the plans and specifications.

The Contractor shall not order structures or tapping equipment until the field verification of the size and invert elevations is complete and furnished to the Engineer for verification.

The Contractor will utilize the services of a **Professional Land Surveyor**, currently licensed in the State of Montana, for the construction staking for this project.

The Contractor will field verify the vertical elevation of all system manholes. The Contractor will not order manholes until the field verification of rim elevations and also exploratory excavations where specified, are complete and furnished to the Engineer for verification.

Contractor shall be aware of property pins. Damage to these pins will require replacement of such by a registered land surveyor at no cost to the owner.

The Contractor is responsible for the location and elevation of all the construction contemplated by the Contract Documents.

Prior to commencing work, the Contractor shall carefully compare and check all drawings, each with the other that in any way affects the location or elevation of the work to be executed, and should any discrepancy be found, he shall immediately report the same to the Engineer for verification and adjustment. Any duplication of work made necessary by failure or neglect on his part to comply with this function shall be done at the contractor's expense.

21. SITE DEWATERING

Certain functions of the work to be performed may require draining, pumping and dewatering operations necessary to complete the work as specified and as indicated on the drawings. It is the intent of these specifications that such draining, pumping and dewatering operations shall be the obligation of the Contractor. The Contractor shall provide all necessary piping, as required

to remove all surface water, groundwater, leakage, and water from excavations. **No separate pay item is designated for dewatering.** This work will be considered incidental to other bid items. Adequate dewatering is defined as the work required to lower the natural groundwater 12” or more below the bottom of excavation in order to get a structurally stable subgrade. If the existing subgrade material is courser rock and is naturally stable, the 12” depth will not be required. Laying and installing pipe in water will not be allowed.

The presence of groundwater can be anticipated. The Bidder/Contractor shall undertake all necessary investigations to determine for himself the conditions and extent of groundwater that is likely to be encountered and shall account for adequate dewatering when preparing the bid and constructing the improvements.

Stabilization – Prior to any embankment/backfill work, subgrades shall be firm, dense, and thoroughly compacted and consolidated and shall be sufficiently stable for equipment or manpower to work. Soil material that has been removed because it is too wet to permit compaction may be stockpiled and removed or spread and allowed to dry. Processing of saturated material will not be directly paid for. If the Contractor chooses to import material in lieu of processing wet materials, Contractor will assume responsibility and expense to do such. Authorization for payable import stabilization will only be per direction of Engineer.

Any discharge of water during pumping and dewatering operations will be subject to approval of the Montana State Department of Environmental Quality. The Contractor shall be responsible for obtaining any necessary discharge permits as well as any damages caused to surrounding structures, land and physical features in the area. Contractor will restore any ground that had been eroded to its natural state. The Contractor shall submit a plan for dewatering to the Engineer.

22. SUB-EXCAVATION AND STABILIZATION

Over-excavation shall be only as specifically authorized by the Engineer. Stabilization bedding and backfill will be imported and payable as specified in the Bid Form or as negotiated. Sub-excavation and stabilization, when required and approved by the Engineer, will be paid at the negotiated contract unit price.

23. IMPORTED TRENCH BACKFILL

Native material is preferable to imported backfill for new pipe installation when the native material is suitable. However, use of on-site excavated soil must be approved by the Project Engineer prior to its placement. Blocky or platy clay, saturated or near saturated soils, will not be permitted for use as backfill material. The Contractor shall provide the Engineer with a Proctor (moisture/density relationship) for the backfill material.

If native material is found unsuitable for trench backfill, the Contractor shall provide Imported Trench Backfill. Imported Trench Backfill will be paid by the cubic yard at the contract unit price or negotiated change order price and wherever possible, shall be subject to a pay limit based on measured dimensions.

Import material meeting the backfill specifications ONLY when directed by Engineer.

24. TIME OF OPEN TRENCHES

The Contractor shall conduct his work so that trenches will remain open for a minimum possible time. No trench excavation shall begin until proper compaction equipment is at the site where excavation is to take place. Open trench shall be barricaded in a manner sufficient to insure public safety.

25. CONTINUOUS WASTEWATER COLLECTION

The Contractor will be required to perform all construction activities so that wastewater collection will be un-interrupted. No bypasses of raw or partially-treated sewage will be allowed and the Contractor will be required to conduct its construction operations without affecting the performance of the existing collection system.

Bypass pumping and/or temporary bypass piping will be required to maintain collection system operation. The costs for any bypass pumping will be incidental to the cost of the project. The Contractor shall develop and submit a Bypass Pumping Plan of Operation (BPPO) that provides for reliable and redundant bypass pumping to avoid any unpermitted discharges of pollutants to adjacent land or surface waters. The BPPO will include information on: pump capacity; head vs. discharge curves; control and alarm systems; backup operations and emergency response. All bypass pumping must be noise attenuated due to the proximity to occupied residences. The BPPO will be submitted by the Contractor for review and approval by the Engineer and Owner at least 30-days prior to expected implementation of the plan. Bypass pumping and construction work should be scheduled (to the greatest extent possible) during periods where high flow events are not anticipated, generally in later summer and fall.

26. PLAN OF OPERATION

The contractor shall submit a logical and well-developed Plan of Operation as a condition of receiving the Notice to Proceed. This Plan will describe the schedule, means/methods and contingency procedures by which each manhole or sewer segment will be taken out of service to allow for construction of work components constructed under this project.

The Plan of Operation will be reviewed and approved by the Engineer. The Plan will be reviewed and updated every 30 days or as required. The Plan of Operation and the Project Schedule shall be maintained for consistency and accuracy.

27. CONSTRUCTION SCHEDULE

Contractor shall submit a Construction Schedule to the Owner with the signed Agreement or at the preconstruction conference. The Schedule shall be in horizontal bar chart form and shall indicate each significant construction activity. The beginning of each work week as well as all significant construction milestones shall be indicated by a solid vertical line. The Contractor's construction schedule(s) shall be updated no less frequently than weekly and the Owner & Engineer shall be notified immediately of any issues that may prevent the project from being

completed within the designated contract time. Time is of the essence in this project and it is incumbent upon the Contractor to schedule the work activities to allow for adequate procurement, installation, curing, testing and inspection time within the contract time.

28. TRACER TAPE

All non-metallic sewer pipe shall be installed with continuous tracer tape installed 12 to 18 inches under the final ground surface. No breaks or splices will be allowed. In addition to tracer tape, install 14-gauge coated copper wire, taped to the top of pipe, and thermite welded to valve body on all water mains. The cost of tracer tape and locator wire shall be part of the overall lump sum and schedule of values.

29. SECURITY

The Contractor shall provide all security measures necessary to assure the protection of his equipment, materials in storage, completed work, and the project in general. This may require the Contractor to hire or employ outside services to guard materials or completed work. All security measures are the Contractors responsibility.

30. CLEANUP

Cleanup for each item of work shall be fully completed and accepted before the item is considered final. If the Contractor fails to perform cleanup within a timely manner the Owner reserves the right to shut down construction activities.

31. DUST CONTROL

The Contractor will be responsible for maintaining the construction zone and all haul routes to meet the Whitefish/Flathead County regulations for air emission control. Contractor will maintain the access road including watering as deemed necessary and ordered by the Engineer. In addition, any open excavations, stockpile areas or fills producing excessive amounts of dust shall be watered to control dust to a reasonable level, as determined by the Engineer.

32. PAVING RESTORATION & SCHEDULE

Any paving disturbed during the course of conduction the Work shall be restored to an equal or better condition than the existing pavement. All pavement disturbed in State Route 486 (Big Mountain Road) shall be rebuilt in accordance with MDT Specifications and shall be in accordance with a base course and asphalt section referenced in the project Drawings.

Paving for this Project must be completed within Contract Time unless, in the estimation of the Engineer, weather conditions preclude the placement of asphalt.

33. BRUSH AND TREE REMOVAL

The Contractor shall only remove trees and brush as necessary to complete the work and as

specified by the Engineer. The Contractor shall be responsible for the sawing and safely removing trees and bush, removal of all stumps and roots, sawing and removing all limbs. All brush and tree removal shall be completed while providing protection to remaining vegetation, existing utilities and properties adjacent to removal locations and final cleanup upon removal completion.

34. WAGE RATES

Montana State wage rates as determined by the Montana Department of Labor and Federal Davis-Bacon wage rates shall prevail on all work. The appropriate wage rates are included and shall be applied to this project. The Contractor shall submit weekly payroll reports to the Engineer within seven days following completion of the work week. All required postings and sample forms will be supplied to the Contractor at the Preconstruction Conference.

35. CONTRACTOR EXPERIENCE & PERFORMANCE REQUIREMENTS

Form C-451 Qualifications Statement (00 45 13) is to be submitted with the Bid will be used to assess a potential Contractors qualifications.

36. PREQUALIFYING EQUIPMENT AND MATERIALS

Manufacturer's requests for substitutes ("or equals") for the manhole improvement materials shall be provided to and received by the Engineer at least fifteen (15) days prior to the bid opening date. The Engineer will either accept or reject the substitutions within 7 days of receipt of the request for substitution. It will be the Manufacturers responsibility to provide sufficient documentation that the substituted equipment is equal or superior to the specified materials and that the substituted materials will conform with the objectives and constraints of the overall project. Any significant redesign work that would be required to incorporate the substituted materials may be cause for rejection. All redesign work will be at the expense of the manufacturer.

37. TRAFFIC CONTROL

The Contractor shall adhere to all traffic control requirements (if applicable) as set forth by the Manual of Uniform Traffic Control Devices for Streets and Highways (MUTCD). Cost for traffic control shall be included in each individual bid item and no separate payment for traffic control will be allowed.

The Contractor shall submit a detailed Traffic Control Plan (TCP) after Notice of Award and shall make any necessary modifications thereto in order to secure an approved TCP and Encroachment Permit from the Montana Department of Transportation at least one week prior to issuance of Notice to Proceed.

38. VERIFICATION OF INVERT ELEVATIONS

Invert elevations for a number of existing pipes and structures must be verified in order to implement the required manhole replacements. The contractor must perform necessary surveying and exploratory excavation to verify location/depth of existing utilities that are impacted by the proposed improvements.

39. PETROLEUM CONTAMINATED SOILS

While not evident from any direct observations or history of the existing work site, there is a possibility of the Contractor(s) encountering petroleum-contaminated soils within excavations. If this occurs during construction, the Contractor will cease work in this area until a time and materials change order for the extra work can be agreed upon by the Contractor, Owner, Engineer and the Montana DEQ Underground Storage Tank Program or other required entity. The Contractor will proceed with other elements of the project until the change order is processed at no additional cost to the Owner.

40. TIME EXTENSION OR SHUTDOWN FOR WEATHER

While not anticipated for this project a shutdown due to inclement weather may be requested by the Contractor during the winter months. The Contractor shall indicate the number of calendar days being requested in the formal shutdown request. This initial request may be extended during the shutdown period as long as such extension is justifiable and requested at least 30 days prior to the date the original extension was to elapse. The Owner reserves the right to approve or disapprove any shutdown or extension requests. As a condition of approval of a shutdown, the Contractor shall: provide for maintenance of flows; close all open excavations; provide for maintaining traffic; provide for protection of public property at the work site, and; provide for worker and public safety with proper barriers, barricades, warning signs and notices. The Contractor will not be allowed to perform any work during the shutdown period unless prior approval is granted by the Owner.

Time Extension for Abnormal Weather Conditions – The Contractor may request extension of contract time for abnormal weather conditions which will be generally defined as conditions of extreme or unusual weather for a given region, elevation, or season, as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered Abnormal Weather Conditions. It will be incumbent on the Contractor to demonstrate that Abnormal Weather impacted work progress.

41. STANDARD SPECIFICATIONS

The Montana Public Works Standard Specifications and Drawings, 6th Edition, April 2010, including Appendices, are included in these project documents by reference.

42. GEOGRID AND GEOTEXTILE

The requirements for geogrid and geotextiles are outlined in the project drawings and specifications, identifying the use of the materials where existing soils are removed and

structural backfill placed. Generally, the geogrid is placed in the first lift of structural fill. Suitable geogrids include Tensar BX1200, Mirafi BXG12, US Fabrics Basegrid 33 or approved equal. A nonwoven geotextile is used to separate resident soils from the structural fill and materials such as Mirafi 140NL, US Fabrics US90NW or Propex Geotex 351 are deemed acceptable. These nonwoven materials shall be used beneath the crushed base course on paved road sections.

43. PROJECT SIGN

The Contractor shall construct and install a project sign in accordance with the Funding Agency Special Provisions (Section 00 90 00). The Contractor shall submit a proposed sign design in accordance with this Section. The temporary sign shall also acknowledge the Department of Natural Resources and Conservation (DNRC), Montana Coal Endowment Program (MCEP), Flathead County's American Recovery Plan Act (ARPA) Minimum Allocation Grant and match. The applicable dollar amounts for the sign will be provided by the Engineer. The Engineer will review Contractor's submittal and make any comments or corrections at that time. The location of signs shall be determined by the Engineer in the field. No separate payment will be made for this work. The cost of furnishing and installing the signs shall be included in the lump sum costs of the project.

44. WARRANTY

Unless specified otherwise, the Contractor shall warranty the project for one (1) year against defective materials and defective workmanship according to the General Conditions. The project shall not be accepted as substantially complete until ALL project segments are substantially complete. Only one (1) notice of substantial completion will be issued for this project. The warranty period will begin upon date of the notice of substantial completion. The one year warranty will not supersede any project components that may have a longer warranty period.

An eleven (11) month project inspection will be held with the Contractor, Owner, Engineer and Funding Agencies being invited to attend. At the inspection, warranty items will be defined for correction according to the General Conditions.

45. HIERACHY OF SPECIFICATION

In the event that any provision of one Contract Document conflicts with the provision of another Contract Document, the provision in that Contract Document first listed below shall govern, except as otherwise specifically stated:

- Agreement
- Addenda to Contract Documents
- Performance and Labor & Materials Bonds
- Bid Proposal

- Bid Security
- Special Provisions
- Invitation to Bid
- Instructions to Bidders
- Drawings
- Technical Specifications
- Supplementary Conditions
- General Conditions

Whenever notes, specifications, dimensions, details, or schedules in the Specifications or Drawings, or between the Specifications and Drawings, or between Change Order or Work Change Directive drawings and Contract Drawings conflict, the Contractor shall furnish the higher performance or higher quality requirement determined by the Engineer.

END OF SECTION 00 95 10

TECHNICAL SPECIFICATIONS

DIVISION 1

GENERAL REQUIREMENTS

**SECTION 01 11 00
SUMMARY OF WORK**

PART 1 - GENERAL

1.01 PROJECT

- A. Project Name: Sewer Collection System I&I Mitigation Project.
- B. Owner's Name: Big Mountain County Sewer District.
- C. Project Team:
Anderson-Montgomery Consulting Engineers, Inc.
1064 N. Warren St.
Helena, MT 59601
- D. The Project consists of the following major project elements to be conducted at the project site at Big Mountain and along Big Mountain Road (State 486), Montana:

BASE BID:

- Cured-In-Place (CIP) lining 14 sanitary sewer manholes;
- Replacing one sanitary sewer manhole;
- Raising/rebuilding 17 sanitary sewer manhole chimney sections;
- Raising/re-sealing 7 sanitary sewer manhole casting/lids;
- Spot repair 8" sewer at 1 location;
- Abandon one manhole;
- Abandon one manhole inlet.

ALTERNATE B

- Cured-In-Place (CIP) lining 4 sanitary sewer manholes;
- One new sanitary sewer manhole;
- Raising/rebuilding 7 sanitary sewer manhole chimney sections;
- Raising/re-sealing 1 sanitary sewer manhole casting/lid;

ALTERNATE C

- Cured-In-Place (CIP) lining 1 sanitary sewer manhole;
- Spot repair 8" sewer at 2 locations

WORKSCOPE FOR BASE BID & ALL ALTERNATES INCLUDES:

- All appurtenant work: Bypass pumping; dewatering; traffic control; asphalt and surface restoration; etc.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in this Document.

1.03 WORK BY OWNER

- A. The Owner will remove all miscellaneous items that represent obstacles to construction and facilitate access to all the infrastructure that is included in the contract work scope.

1.04 CONTRACTOR USE OF SITE AND PREMISES

- A. The Contractor shall conduct operations and take all necessary precautions to protect staff from exposure to dangers associated with the Work. Coordination and cooperation with the District's public works staff is of the utmost importance.
- B. Contractor shall provide secure access to and from designated work area as required by law and per the requirements of the Owner:
 - 1. Emergency Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 - 2. Do not obstruct roadways, sidewalks, or other public ways without permit and adequate traffic control.
- C. Existing building spaces may not be used for storage unless specifically authorized by the Owner.
- D. Time Restrictions:
 - 1. Limit conduct of especially noisy and dusty exterior work to the hours of 7 am to 7 pm.
- E. Utility Outages and Shutdown:
 - 1. Interruption of any utility services must be coordinated through the District's Maintenance Supervisor (Jason Hanchett – 406-862-1991). This coordination is to allow the reasonable use of the existing facilities at all times during normal working hours and interfere minimally with the Owner's operational activities.
 - 2. Do not disrupt or shut down utility services without 7 days notice to the District and authorities having jurisdiction.
 - 3. Prevent accidental disruption of utility services to other facilities.

1.05 WORK SEQUENCE

- 1. It will be necessary to conduct the demolition and construction work in a manner that minimizes disruption to the existing wastewater collection system capacity.
- 2. The Contractor will closely coordinate with the Owner and Engineer before conducting any work that impacts existing facilities or overall capacity of the existing wastewater collection system.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION 01 11 00

SECTION 01 12 16 WORK SEQUENCE

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes:
 - 1. General Work Sequence.

1.02 GENERAL WORK SEQUENCE

- A. There is no emergency or other offline storage available at this site for temporary bypass operations. All work will need to be done while maintaining operation of the existing sewage collection facilities.
- B. Coordinate construction schedule and operation with Owner and Engineer. Accommodate Owner occupancy requirements.
- C. Contractor shall submit a detailed Plan of Operation estimating all dates when interruption, temporary or bypass, will occur. Dates shall be updated as construction progresses. Special Provision 26 of these Contract Documents describes the Plan.
- D. Contractor shall stay within time restraints for certain construction tasks as identified in the Contract Documents.
- E. Contractor shall provide Owner and Engineer full access to new and existing facilities for the duration of the project.

PART 2 - PART 2 PRODUCTS (Not Used)

PART 3 - PART 3 EXECUTION (Not Used)

END OF SECTION 01 12 16

SECTION 01 20 00 REQUIRED FORMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Procedures and forms for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Change procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

1.02 SCHEDULE OF VALUES

- A. Form to be used: Schedule of Values for Contract Payment – follow instructions in Section 01 29 00 Part 1.03
- B. Forms filled out by hand will not be accepted.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section.
- D. Revise schedule to list approved Change Orders, with each Application For Payment.

1.03 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Form to be used: Application for Payment (Section 00 62 76).
- B. Forms filled out by hand will not be accepted.
- C. Execute certification by signature of authorized officer.
- D. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed.
- E. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- F. Submit electronic copy of each Application for Payment.

1.04 MODIFICATION PROCEDURES

- A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.
- B. For minor changes in the work not involving adjustment in the Contract Sum or Contract Time, the Engineer will issue instructions directly to Contractor by written order. The Contractor shall carry out such written orders promptly.
- C. For required changes, Engineer will issue a document signed by Owner instructing

Contractor to proceed with the change, for subsequent inclusion in a Change Order.

1. Form to be used: Work Change Directive (Section 00 63 49)
 2. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
 3. Promptly execute the change.
- D. For changes for which advance pricing is desired, Engineer will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within seven (7) days.
- E. Contractor may propose a change by submitting a request for change to Engineer, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation.
- F. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
- G. Form to be used: Change Orders (Section 00 63 63)
1. Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
 2. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
 3. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- 1.05 APPLICATION FOR SUBSTANTIAL COMPLETION
- A. Form to be used: Certificate of Substantial Completion (Section 00 65 16)
 - B. Substantial Completion is the stage in the progress of the work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can utilize the work for its intended use.
 - C. Substantial Completion establishes the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities and damage to the Work and insurance.
- 1.06 APPLICATION FOR FINAL PAYMENT
- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
 - B. Application for Final Payment will not be considered until the following have been accomplished:

1. All closeout procedures specified in Section 01 77 00.
2. Contractor's Affidavit of Completion, Payment of Debts and Claims, and Release of Liens.
3. Consent of Surety Company to Final Payment.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION 01 20 00

SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including general and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for administrative requirements.
 - 2. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.03 VARIATIONS IN WORK

- A. Engineer will issue a Field Order authorizing variations in Work, not involving adjustment of the Contract Sum or the Contract Time.

1.04 PROPOSAL REQUESTS

- A. Owner-initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in the Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicated applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

1.05 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, the Engineer will issue a Change Order for signatures of Owner and Contractor.
- B. Change Order Form shall be in accordance with Section 00 63 63 of these Specifications

1.06 WORK CHANGE DIRECTIVE

- A. Work Change Directive: Engineer may issue a Work Change Directive on EJCDC Document C-940 form – see Section 00 63 49 of these specifications. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. Work change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- C. Documentation: The Contractor shall maintain detailed records on a time and material basis for work required by the Work Change Directive.
- D. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 27 00 MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and Special Provisions of the Contract, including general and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

This Section specifies administrative and procedural requirements for measurement and payment.

1.03 DEFINITIONS

Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.04 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
- B. Measurement and Payment: The Measurement and Payment sections do not necessarily name all incidental items required to complete the work. The cost of all such incidentals shall be included in the various related items of work. All estimated quantities stipulated in the Bid Forms or other Contract Documents are approximate and are to be used only as a basis for estimating the probable cost of the work and for the purpose of comparing the proposals submitted for the work. It is understood and agreed that the actual amounts of work performed and materials furnished under unit price items may differ from such estimated quantities and the payment for such work and materials shall be based on the actual amount of work done and materials furnished in each case.
- C. If actual amount of work performed and materials furnished under unit price items is different than the estimated amount in the Bid Form, the Contractor shall supply to the Engineer, the necessary information to determine the actual quantity of work performed. Significant discrepancies between actual and estimated quantities for unit price items will be handled in accordance with Articles 10 and 11 of the General Conditions.
- D. List of Bid Items: A list of unit Bid Items is included at the end of this Section.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 LIST OF BID ITEMS – BASE BID SCHEDULE

A. Bid Items 102: Mobilization/Bonding/Insurance

1. Description: This item shall cover the costs of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidental to the project site; for the establishment of all facilities necessary for the work on the project; for the costs of obtaining the required permits, bonds, and insurance; and for all other work and operations which must be performed, or cost incurred prior to beginning work on the various items on the project. THIS ITEM SHALL NOT EXCEED 10% OF THE BASE BID AMOUNT.
2. Unit of Measurement: Lump Sum
3. Measurement: When the percentage of the original contract amount for each unit shown below is earned, the percentage of the Contract Lump Sum price for MOBILIZATION shown will be paid.

<u>Percentage of Original Contract Amount In-Place</u>	<u>Percentage of Lump Sum Price for Mobilization Earned</u>
5	25
10	50
25	60
65	75
90	90
100	100

4. Payment: Payment for MOBILIZATION will be made on the percentage of the contract unit price bid per lump sum as indicated in the Bid Form.

B. Bid Items 104: MH A1 – Raise & CIP Lining

1. Description: This item consists of interior cured-in-place manhole lining, new composite riser rings and new casting/lid and raising the casting elevation of MH A1 in accordance with Sheet 13 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.

5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- C. Bid Items 106: MH A1B – Raise & CIP Lining
1. Description: This item consists of interior cured-in-place manhole lining, new composite riser rings and raising the casting elevation of MH A1B in accordance with Sheet 14 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- D. Bid Items 108: MH A1-1.1 – Raise & CIP Lining
1. Description: This item consists of interior cured-in-place manhole lining, new composite riser rings and raising the casting elevation of MH A1-1.1 in accordance with Sheet 15 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- E. Bid Items 110: MH A1-1.3 – Raise & CIP Lining
1. Description: This item consists of interior cured-in-place manhole lining, new composite riser rings and new casting/lid and raising the casting elevation of MH A1-1.3 in accordance with Sheet 16 of the Project Drawings.

2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- F. Bid Item 112: MH A1-1.4 – CIP Lining
1. Description: This item consists of interior cured-in-place manhole lining for MH A1-1.4 in accordance with Sheet 17 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- G. Bid Items 114: MH A2-1.5 – Raise & Chimney Seal
1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH A2-1.5 with accordance with Sheet 18 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum

4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- H. Bid Item 116: MH A2-4A – Chimney Seal
1. Description: This item consists of a new chimney/seal for MH A2-4A in accordance with Sheet 22 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- I. Bid Items 118: MH A3-5 – CIP Lining
1. Description: This item consists of interior cured-in-place manhole lining for MH A3-5 in accordance with Sheet 27 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- J. Bid Item 120: MH A3-5.1 – CIP Lining
1. Description: This item consists of interior cured-in-place manhole lining for MH A3-5.1 in accordance with Sheet 28 of the Project Drawings.

2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

K. Bid Item 122: MH A3-5.3 – Raise & CIP Lining

1. Description: This item consists of interior cured-in-place manhole lining, new composite riser rings and new casting/lid and raising the casting elevation of MH A3-5.3 in accordance with Sheet 29 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

L. Bid Item 124: MH A3-5.6 - Raise & Chimney Seal

1. Description: This item consists of chimney seal and raising the casting elevation of MH A3-5.6 with accordance with Sheet 30 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.

3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement per lump sum as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- M. Bid Items 126: MH A4.5 – Abandon/Seal Inlet
1. Description: This item consists of locating, terminating and abandoning the 8" diameter sewermain entering MH A4.5 (from the Un-Named MH) in accordance with Sheet 12 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate; adequately excavate, dewater (if necessary); sever, plug and seal the sewermain 5' NW of the manhole, sealing the penetration in MH A4.5 and grouting in the unused segment of manhole channel in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- N. Bid Item 128: Cedar Lot MH – Abandon
1. Description: This item consists of abandoning in place the Un-Named manhole shown on Sheet 12 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, excavate, dewater (if necessary); remove/salvage the lid/casting; remove/dispose of existing manhole cone section; fill remaining barrel section with sand; backfill area with native material; sever and remove outlet sewer 5' from manhole; fill 2' of remaining outlet sewer with concrete and cap in accordance with the plan drawings and specifications.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement per lump sum as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- O. Bid Item 130: MH A4B - CIP Lining
1. Description: This item consists of interior cured-in-place manhole lining for MH A4B in accordance with Sheet 31 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-

impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.

3. Unit of Measurement: Lump Sum
4. Measurement: Measurement per lump sum as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

P. Bid Item 132: MH S1-1 – Raise & CIP Lining

1. Description: This item consists of interior cured-in-place manhole lining, new composite riser rings and new casting/lid and raising the casting elevation of MH S1-1 in accordance with Sheet 33 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

Q. Bid Item 134: MH 7 – CIP Lining

1. Description: This item consists of interior cured-in-place manhole lining for MH 7 in accordance with Sheet 35 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.

5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- R. Bid Item 136: MH 8 - Replace
1. Description: This item consists of replacing MH 8 in accordance with Sheet 36 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, excavate, dewater (if necessary); remove/dispose of existing manhole; install, bed, test, connect inlets/outlet, and backfill the new manhole and inlet/outlet piping in accordance with the plan drawings and specifications. This bid item also includes: all bypass pumping required to install the new manhole and all necessary pavement restoration.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement per lump sum as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- S. Bid Item 138: MH 9 – Raise, CIP Lining & Chimney Seal
1. Description This item consists of interior cured-in-place manhole lining, chimney seal and raising the casting elevation of MH 9 in accordance with Sheet 37 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- T. Bid Item 140: MH 11 – Raise & Chimney Seal
1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 11 in accordance with Sheet 38 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan

drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.

3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

U. Bid Item 142: MH 16 – CIP Lining & Chimney Seal

1. Description This item consists of interior cured-in-place manhole lining, and chimney seal for MH16 in accordance with Sheet 39 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

V. Bid Item 144: MH 21 – Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 21 in accordance with sheet 40 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement per lump sum as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

W. Bid Item 146: MH 22 – Raise, CIP Lining & Chimney Seal

1. Description This item consists of interior cured-in-place manhole lining, chimney seal and raising the casting elevation of MH 22 in accordance with sheet 41 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), salvaged or new casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

X. Bid Item 148: MH 26A - Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 26A in accordance with Sheet 42 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement per lump sum as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

Y. Bid Item 150: MH 27 - Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 27 in accordance with Sheet 43 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for),

salvaged or new casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.

3. Unit of Measurement: Lump Sum
4. Measurement: Measurement per lump sum as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

Z. Bid Item 152: MH 30 – Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 30 in accordance with Sheet 44 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

AA. Bid Item 154: MH 30A – Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 30A in accordance with Sheet 45 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.

BB. Bid Item 156: MH 31 - Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 31 in accordance with Sheet 46 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement per lump sum as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form

CC. Bid Item 158: MH 32 - Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 32 in accordance with Sheet 47 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement per lump sum as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

DD. Bid Item 160: MH 32A – Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 32A in accordance with Sheet 48 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications;

surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.

3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

EE. Bid Item 162: MH 33 – Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 33 in accordance with Sheet 49 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), *salvaged or new* casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work. Unit of Measurement: Lump Sum
3. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
4. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

FF. Bid Item 164: MH 33A – Raise & Chimney Seal

1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH 33A in accordance with Sheet 50 of the Project Drawings
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate; adequately excavate, dewater (if necessary); exterior and interior pressure wash; set all-thread anchors; prep/install joint/penetration wrap primer and tape, composite riser rings, new casting/lid, external chimney seal; test; backfill the rehabilitated manhole in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.

GG. Bid Item 166: Spot Repair A3-1A to A3-1B

1. Description: This item consists of spot repair for the sewermain between MH A3-1A and A3-1B in accordance with Sheet 11 of the Project Drawings.

2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); coordination with Engineer on condition assessment of the spot repair location; determination of the repair method; all necessary materials and equipment required to implement a permanent repair in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

3.02 LIST OF BID ITEMS – ALTERNATE B

A. Bid Items 202: Mobilization/Bonding/Insurance

1. Description: This item shall cover the costs of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidental to the project site; for the establishment of all facilities necessary for the work on the project; for the costs of obtaining the required permits, bonds, and insurance; and for all other work and operations which must be performed, or cost incurred prior to beginning work on the various items on the project. THIS ITEM SHALL NOT EXCEED 10% OF THE BASE BID AMOUNT.
2. Unit of Measurement: Lump Sum
3. Measurement: When the percentage of the original contract amount for each unit shown below is earned, the percentage of the Contract Lump Sum price for MOBILIZATION shown will be paid.

<u>Percentage of Original Contract Amount In-Place</u>	<u>Percentage of Lump Sum Price for Mobilization Earned</u>
5	25
10	50
25	60
65	75
90	90
100	100

4. Payment: Payment for MOBILIZATION will be made on the percentage of the contract unit price bid per lump sum as indicated in the Bid Form.

B. Bid Item 204: MH A2-2 – Raise, CIP Lining & Chimney Seal

1. Description This item consists of interior cured-in-place manhole lining, chimney seal and raising the casting elevation of MH A2-2 in accordance with sheet 19 of the Project Drawings.

2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), salvaged or new casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- C. Bid Item 206: MH A2-2.1 – Raise, CIP Lining & Chimney Seal
1. Description This item consists of interior cured-in-place manhole lining, chimney seal and raising the casting elevation of MH A2-2.1 in accordance with sheet 20 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), salvaged or new casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- D. Bid Item 208: MH A2-2.4 – Raise & Chimney Seal
1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH A2-2.4 in accordance with Sheet 21 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate; adequately excavate, dewater (if necessary); exterior and interior pressure wash; set all-thread anchors; prep/install joint/penetration wrap primer and tape, composite riser rings, new casting/lid, external chimney seal; test; backfill the rehabilitated manhole in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.

3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- E. Bid Item 210: MH A3-2.3 – Raise, CIP Lining & Chimney Seal
1. Description This item consists of interior cured-in-place manhole lining, chimney seal and raising the casting elevation of MH A3-2.3 in accordance with sheet 25 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), salvaged or new casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- F. Bid Item 212: MH A3-1A – Raise & Chimney Seal
1. Description: This item consists of new composite riser rings and new casting/lid, chimney seal and raising the casting elevation of MH A3-1A in accordance with Sheet 24 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate; adequately excavate, dewater (if necessary); exterior and interior pressure wash; set all-thread anchors; prep/install joint/penetration wrap primer and tape, composite riser rings, new casting/lid, external chimney seal; test; backfill the rehabilitated manhole in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- G. Bid Item 214: MH A3-3 – Raise, CIP Lining & Chimney Seal

1. Description This item consists of interior cured-in-place manhole lining, chimney seal and raising the casting elevation of MH A3-3 in accordance with sheet 26 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); prep/install epoxy-impregnated manhole liner, composite riser rings (if called for), salvaged or new casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

H. Bid Item 216: MH A4.6 – Chimney Seal

1. Description: This item consists of a new chimney seal for MH A4.6 in accordance with Sheet 32 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); interior pressure wash; set all-thread anchors (if called for); Vylon chimney section and concrete collar (if called for); composite riser rings (if called for), salvaged or new casting/lid; test; backfill in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work. Unit of Measurement: Lump Sum
3. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
4. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

I. Bid Item 218: MH A4.5-1 – New Manhole

1. Description: This item consists of a new manhole for MH A4.5-1 as shown on Sheet 12 and detailed on Sheet D1 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); setting base/barrel and cone sections; joint sealing; all penetrations and PSX boots; set all-thread anchors; composite riser rings, new casting/lid, test; backfill the rehabilitated manhole in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.

3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

J. Bid Item 220: MH 1B – Raise

1. Description: This item consists of raising the casting elevation for MH 1B in accordance with Sheet 34 of the Project Drawings.
2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, set all-thread anchors; composite riser rings, new or salvaged casting/lid, test; backfill the manhole in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

3.03 LIST OF BID ITEMS – ALTERNATE C

A. Bid Items 302: Mobilization/Bonding/Insurance

1. Description: This item shall cover the costs of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidental to the project site; for the establishment of all facilities necessary for the work on the project; for the costs of obtaining the required permits, bonds, and insurance; and for all other work and operations which must be performed, or cost incurred prior to beginning work on the various items on the project. THIS ITEM SHALL NOT EXCEED 10% OF THE BASE BID AMOUNT.
2. Unit of Measurement: Lump Sum
3. Measurement: When the percentage of the original contract amount for each unit shown below is earned, the percentage of the Contract Lump Sum price for MOBILIZATION shown will be paid.

<u>Percentage of Original Contract Amount In-Place</u>	<u>Percentage of Lump Sum Price for Mobilization Earned</u>
5	25
10	50
25	60
65	75
90	90
100	100

4. Payment: Payment for MOBILIZATON will be made on the percentage of the contract unit price bid per lump sum as indicated in the Bid Form.
- B. Bid Item 304: MH A3-1 – CIP Lining & Chimney Seal
1. Description: This item consists of interior cured-in-place manhole lining, new composite riser rings and new casting/lid and chimney seal MHA3-1 in accordance with Sheet 23 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate; adequately excavate, dewater (if necessary); exterior and interior pressure wash; set all-thread anchors; prep/install joint/penetration wrap primer and tape, composite riser rings, new casting/lid, external chimney seal; test; backfill the rehabilitated manhole in accordance with the plan drawings and specifications. This bid item also includes: public notifications; all necessary exploratory excavation; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- C. Bid Item 306: Spot Repair A3-1 to A3-1A
1. Description: This item consists of spot repairs for MH A3-1 to A3-1A in accordance with Sheet 10 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); coordination with Engineer on condition assessment of the spot repair location; determination of the repair method; all necessary materials and equipment required to implement a permanent repair in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.
 3. Unit of Measurement: Lump Sum
 4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
 5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.
- D. Bid Item 308: Spot Repair between MH A4.5 and New MH A4.5-1
1. Description: This item consists of spot repair of the 8" sewermain at approximate STA 1+56 between MH A4.5 and New MH A4.5-1 in accordance with Sheet 12 of the Project Drawings.
 2. Work required shall include furnishing all equipment, materials and labor necessary to: locate, adequately excavate, dewater (if necessary); coordination

with Engineer on condition assessment of the spot repair location; determination of the repair method; all necessary materials and equipment required to implement a permanent repair in accordance with the plan drawings and specifications. This bid item also includes: public notifications; surveying; all bypass pumping; traffic control; surface/pavement/landscape restoration and all appurtenant work.

3. Unit of Measurement: Lump Sum
4. Measurement: Measurement shall be per lump sum for the plan and implementation as indicated in the Bid Form.
5. Payment: Payment shall be made at the contract unit price bid per lump sum as specified in the Bid Form.

END OF SECTION 01 27 00

SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Format and Preparation of Applications.
2. Schedule of Values
3. Submittal Procedures.
4. Substantiating Data.

B. Related Sections include:

1. Section 00 52 00 – Agreement.
2. Section 00 72 00 – General Conditions.
3. Section 01 26 00 – Contract Modification Procedures.
4. Section 01 33 00 – Submittal Procedures.
5. Section 01 77 00 – Closeout Procedures.

1.02 FORMAT AND PREPARATION OF APPLICATIONS

A. Utilize: Engineers Joint Contract Document Committee (EJCDC) Application for Payment Form (C-620, 2013 or 2018 Edition).

B. Preparation

1. Present required information in typewritten form.
2. Execute certification by signature of authorized officer.
3. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
4. List each authorized Change Order as an extension on Continuation Sheet, listing Change Order number and dollar amount as for an original item of Work.
5. Prepare Application for Final Payment as specified in Section 01 77 00.

1.03 SCHEDULE OF VALUES

A. Submit:

1. Typed schedule of values in format similar to EJCDC Application for Payment (C-620, 2013 or 2018 Edition) within 15 days after date of Owner-Contractor Agreement.
2. See Article 2.03.A.3 of the General Conditions.

B. Format:

1. Utilize the Table of Contents within Contract Documents.
 2. Identify line items corresponding with number and title of Specification Section.
 3. Provide sufficient information regarding means of measurement of quantities or progress completed for verification by Engineer.
- C. Identify site mobilization including bonds and insurance separately. Payment for mobilization will be based on the percentage of the original contract amount in place as described in the following schedule:

<u>Percentage of Original Contract Amount In-Place</u>	<u>Percentage of Lump Sum Price for Mobilization Earned</u>
5	20
10	50
25	60
65	75
90	90
100	100

- D. Payment: Payment for MOBILIZATION will be made on the percentage of the contract unit price bid per lump sum as indicated in the Bid Form.
1. Include within each line item a direct proportional amount of Contractor's overhead and profit.
- E. Revise Schedule of Values to list approved Change Orders, and submit with each Application for Payment.

1.04 PROGRESS PAYMENTS

- A. See 15.01 of the General conditions (S.C.)

1.05 SUBMITTAL PROCEDURES

- A. Submittals

1. Five (5) copies of each Application for Payment.
2. Updated construction schedule with each Application for Payment.
3. Payment Periods: As stipulated in the Agreement.
4. Submit with transmittal letter as specified for Submittals in Section 01 33 00.
5. Administrative actions which must precede or coincide with submittal of final application for payment include:
 - a. Submit lien waivers, warranties and bonds, and project record documents with final application for payment.
 - b. Completion of all work not included in substantial completion as defined in General and Supplementary Conditions.
 - c. Completion of project closeout procedures as indicated in Section 01 77 00.

- d. Removal of temporary facilities and services.
- e. Removal of surplus materials, rubbish, or similar elements.
- f. Final cleaning.
- g. Transmittal of project construction record documents to Owner and Engineer.
- h. Consent of surety for final payment.

1.06 SUBSTANTIATING DATA

- A. When Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one (1) copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.
- C. Provide copies of invoice(s) for payment of materials stored on-site. Payment will not be made for materials that are not stored on-site or within a bonded warehouse that has been approved by Engineer and Owner.
- D. Contractor shall supply substantiating information in compliance with federal and state requirements for monthly utilization reports and weekly prevailing wage and labor rates for laborers on-site.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this section.

1.02 SUMMARY

- A. This Section specifies administrative provisions for coordination construction operations on Project including, but not limited to, the following:
 - 1. Preconstruction Conference.
 - 2. General project coordination procedures.
 - 3. Conservation.
 - 4. Coordination Drawings.
 - 5. Administrative and supervisory personnel.
 - 6. Project meetings.
- B. Related Sections include the following:
 - 1. Section 01 70 00 - Execution Requirements - for procedure for coordinating general installation and field-engineering service, including establishment of benchmarks and control points.
 - 2. Section 01 77 00 - Closeout Procedures- for coordinating Contract Closeout.
 - 3. Section 01 32 00 - Construction Progress Documentation - for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.03 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different specification divisions and sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and

list of attendees at meetings.

1. Prepare similar memoranda for Owner, Engineer and separate contractors if coordination of their work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of Contractor's Construction Schedule.
 2. Installation and removal of temporary facilities and controls.
 3. Delivery and processing of submittals.
 4. Progress meetings.
 5. Preconstruction conferences.
 6. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water and minerals.
 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.
 - a. All materials salvaged in the project shall become the property of the Owner unless otherwise specified. Material identified as salvage shall be delivered by the Contractor to a suitable storage location as directed by the Engineer.

1.04 SUBMITTALS

- A. Staff Names: At the preconstruction conference submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office and mobile telephone numbers by which Contractor's representatives can be reached immediately. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
 1. Post copies of the contact list in temporary field office and by each temporary telephone.

1.05 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1.06 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is

required, of date and time of each meeting. Notify Owner and Engineer of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Engineer, within three days of the meeting.
- B. Preconstruction Conference: Engineer and Owner will schedule a preconstruction conference at the Project site or other convenient location. The meeting shall be conducted by the Engineer who shall review work responsibilities and personnel assignments.
1. Attendees: Authorized representatives of Owner, Engineer, and their consultants; Contractor and his superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Contractor shall bring a written, detailed construction schedule to the preconstruction conference.
 3. Agenda: The Owner, Engineer and Contractor shall discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Subcontractor list.
 - f. Testing Responsibilities.
 - g. Traffic Control.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Preparation of Record Documents.
 - m. Use of the premises.
 - n. Responsibility for temporary facilities and controls.
 - o. Office, work, and storage areas.
 - p. Delivery and storage of materials and equipment.
 - q. Security.
 - r. Progress and restoration.
 - s. Working hours.
 - t. Specific TSEP, SRF, EPA and DNRC requirements.
 - u. Specific County regulations.
 - v. Montana DEQ requirements.
 - w. Coordination with private landowners.

- C. Progress Meetings: Conduct progress meetings at regular intervals. Coordinate dates of

meetings with preparation of payment requests.

1. Attendees: In addition to representatives of the Owner and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meetings. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - i. Interface requirements.
 - ii. Sequence of operations.
 - iii. Maintenance of collection capacity.
 - iv. Status of submittals.
 - v. Deliveries.
 - vi. Off-site fabrications.
 - vii. Access.
 - viii. Site utilization.
 - ix. Temporary facilities and controls.
 - x. Work hours.
 - xi. Hazards and risks.
 - xii. Progress, restoration and cleanup.
 - xiii. Quality and work standards.
 - xiv. Change Orders.
 - xv. Documentation of information for payment requests.
3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - a. Schedule Updating: Revise Contractor's construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including, but not limited to, the following:
 - 1. Preliminary Construction Schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Submittals Schedule.
 - 4. Daily construction reports.
- B. Related Sections include the following:
 - 1. Division 1 Section 01 29 00 - Payment Procedures - for submitting the Schedule of Values.
 - 2. Division 1 Section 01 31 00 - Project Management & Coordination - for submitting and distributing meeting and conference minutes.
 - 3. Division 1 Section 01 33 00 – Submittals - for submitting schedules and reports.
 - 4. Division 1 Section 01 40 00 - Quality Requirements - for submitting a schedule of tests and inspections.
 - 5. Division 1 Section 01 77 00 – Closeout Procedures - for submitting digital photographic documentation as part of the Project Record Documents at Project closeout.

1.03 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned start and finish times.
 - 2. Predecessor activity is an activity that must be completed before a given activity can be started.
- B. Event: The starting or ending point of an activity.

- C. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- D. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- E. Milestone: A key or critical point in time for reference or measurement.
- F. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.04 SUBMITTALS

- A. Qualification Data: For firms and persons specified in Section 01 40 00 – Quality Requirements - to demonstrate their capabilities and experience. Include lists of completed project names and addresses, names and address of Engineers and Owners, and other information specified.
- B. Preliminary Construction Schedule: Submit two printed copies: one a single sheet of reproducible media, and one print.
- C. Contractor's Construction Schedule: Submit two printed copies of initial schedule, one reproducible print and one a blue- or black-line print, large enough to show entire schedule for entire construction period.
- D. Daily Construction Reports: Submit two copies at monthly intervals.

1.05 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.01 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an earlier or later completion date. Contract time can only be authorized through the formal Change Order process. See Section 01 26 00 and Standard General Conditions Article 9.07.
 - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrications, and delivery.
 - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittals" in schedule. Coordinate submittal review times in contractor's Construction Schedule with Submittals Schedule.
 - 4. Startup and Testing Time: Include time for startup and testing.
 - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Engineer's administrative procedures necessary for certification of Substantial Completion.
- B. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
- C. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final completion.
- D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

2.02 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule at the preconstruction conference.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for construction.

2.03 REPORTS

- A. Daily Construction Reports: Engineer's Resident Project Representative (RPR) and the Contractor Quality Control (CQC) representative shall prepare **daily** construction reports recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.

3. Approximate count of personnel at Project site.
4. High and low temperatures and general weather conditions.
5. Accidents.
6. Meetings and significant decisions.
7. Developing disputes.
8. Unusual events.
9. Stoppages, delays, shortages, and losses.
10. Meter readings and similar recordings.
11. Emergency procedures.
12. Orders and requests of authorities having jurisdiction.
13. Change Orders received and implemented.
14. Work Change Directives received.
15. Services connected and disconnected.
16. Equipment or system tests and startups.
17. Partial Completions and occupancies.
18. Substantial Completion authorized.

PART 3 - EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE UPDATING

- A. At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, order, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate actual completion percentage for each activity.

3.02 CONTRACTOR'S CONSTRUCTION SCHEDULE DISTRIBUTION

- A. Distribute copies of approved schedule to Engineer, Owner, separate testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 1. Post copies in temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

SECTION 01 33 00 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting shop drawings, Product Data, and other miscellaneous submittals.

1.03 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.

1.04 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Engineer for Seller's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, deliver, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Section 01 32 00 - Construction Progress Documentation - for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Direct Transmittal from Prime Seller: Engineer will not accept submittals from anyone but the Prime Seller – authorized by the Contractor's official signature.
- E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
 - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with Engineer's review of

subsequent submittals. Engineer will advise Seller when a submittal being processed must be delayed to permit coordination with subsequent submittals. Engineer will advise Seller when a submittal being processed must be delayed for coordination.

2. Allow 15 days for processing each resubmittal.
 3. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit review and processing.
- F. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Prime Contractor's (Sellers's) review and approval markings and action taken by Engineer. ***Engineer will only review submittals that are approved and verified compliant (or specifically noted otherwise) by the Prime Contractor. The Engineer has the prerogative of rejecting any submittal that has not been reviewed/verified by the Prime.***
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name and address of Seller.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Unique identifier, including revision number.
 - i. Number and title of appropriate Specification Section.
- G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- H. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
- I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will discard submittals received from sources other than Seller.
1. On an attached separate sheet, prepared on Seller's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittal, and deviations from requirement of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
 2. Include Seller's certification stating that information submitted complies with requirements of the Contract Documents.

3. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Submittal and transmittal distribution record.
 - i. Remarks.
 - j. Signature of transmitter.
- J. Distribution: Furnish copies of submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

PART 2 - PRODUCTS

2.01 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 1. Number of Copies: Submit four (4) hard copies and one electronic copy (bearing the Contractor's legal signature) of each action submittal, unless otherwise indicated. Engineer will return two hard copies. Contractor will mark up and retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.

- i. Mill reports.
 - j. Standard product operation and maintenance manuals.
 - k. Compliance with recognized trade association standards.
 - l. Compliance with recognized testing agency standards.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
 - 2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 - 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 inches by 11 inches but no larger than 30 by 40 inches.
- D. Coordination Drawings: Comply with requirements in Section 01 31 00 - Project Management and Coordination.
- E. Contractor's Construction Schedule: Comply with requirements in Section 01 32 00 - Construction Progress Documentation for Construction Manager's action.
- F. Submittals Schedule: Comply with requirements in Section 01 32 00 - Construction Progress Documentation."
- G. Application for Payment: Comply with requirements in Section 01 29 00 - Payment Procedures.
- H. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specifications Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

2.02 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specifications Sections.
 1. Number of Copies: submit two (2) hard copies and one electronic copy of each informational submittal, unless otherwise indicated. Engineer will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements in 01 40 00 – Quality Requirements.
- B. Contractor's Construction Schedule: Comply with requirements in Section 01 32 00 - Construction Progress Documentation.
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Engineers and Owners, and other information specified.
- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- I. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

- J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product.
- K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- M. Maintenance Data: Prepare written and graphic instructions and procedure for operation and normal maintenance of products and equipment. Comply with requirements in Section 01 77 00 - Closeout Procedures.
- N. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculation. Include page numbers.
- O. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guideline, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.
 - 2. Required substrate tolerance.
 - 3. Sequence of installation or erection.
 - 4. Required installation tolerance.
 - 5. Required adjustments.
 - 6. Recommendations for cleaning and protection.
- P. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- Q. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance and bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amount of deductibles, if any, and term of the coverage.
- R. Material Safety Data Sheets: Submit information directly to Owner. If submitted to Engineer, Engineer will not review this information but will return it with not action taken.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Seller's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Seller's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicated action taken, as follows:
 1. No Exceptions Noted.
 2. Exceptions Noted
 3. Returned for Correction.
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 01 33 00

SECTION 01 40 00 QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor and/or Equipment Supplier of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Documents requirements.
 - 3. Requirements for Contractor/Supplier to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
 - 1. Section 01 32 00 - Construction Progress Documentation - for developing a schedule of required tests and inspections.
 - 2. Section 00 95 10 SP7 – regarding inspections and testing

1.03 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Engineer.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.04 SUBMITTALS

- A. Qualification Data: For testing agencies specified in Section 01 40 00 - Quality Requirements - to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Ambient conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and re-inspecting.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

- D. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. **Testing Agency Qualifications:** An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in those types of tests and inspections to be performed.
- F. **Preconstruction Testing:** Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - 2. **Testing Agency Responsibilities:** Submit a certified written report of each test, inspection and similar quality-assurance service to Engineer, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.06 QUALITY CONTROL

- A. **Contractor Responsibilities:** All necessary quality-control testing shall be arranged, conducted and paid for by the Contractor unless otherwise indicated. The costs of all testing shall be included in the Contractor's work scope and bid.
 - 1. The Contractor shall:
 - a. Provide to the Owner a list of qualified testing agencies from which a mutually-satisfactory agency will be cooperatively selected
 - b. Engage a qualified testing agency to perform these quality-control services.
 - i. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.
 - c. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 - d. Submit a certified written report, in duplicate, of each quality-control service.
 - e. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
 - 2. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

3. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
 4. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- B. Owner Responsibilities: Owner shall consider the list of qualified testing agencies provided by the Contractor and act in good faith to cooperatively select a testing agency.
1. Costs for retesting and re-inspecting construction that the Contractor's testing agency has determined to be compliant, provided that the Owner's re-testing confirms compliance.
- C. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
 5. Do not perform any duties of Contractor.
- D. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field-curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.
- E. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 01 60 00 PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project: product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include, but are not limited to, the following:
 - 1. Section 01 77 00 - Closeout Procedures - for submitting warranties for contract closeout.
 - 2. Section 00 95 10 SP36 regarding "or equal" determinations for materials and equipment.

1.03 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specifications: Where a specific manufacturer's product is named including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

- D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorse by manufacturer to Owner.
- E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- F. Reference herein to the name "Contractor" will be considered the same as the name "seller".

1.04 SUBMITTALS

- A. Substitution Request: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination of information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - i. Cost information, including a proposal of change, if any, in the Contract Sum.
 - j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.

- k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 - 2. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Engineer will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Change Order.
 - b. Use product specified if Engineer cannot make a decision on use of a proposed substitution within time allocated.
- B. Basis-of-Design Product Specifications Submittal: Comply with requirements in Division 1 Section "Submittal Procedures" Show compliance with requirements.
- C. Contractor will be responsible for any project redesign and/or construction costs that may become necessary as a result of the product substitution.

1.05 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 5. Store products to allow for inspection and measurement of quantity or counting of units.
 - 6. Store materials in a manner that will not endanger Project structure.
 - 7. Store products that are subject to damage by the elements, under cover in a watertight enclosure above ground, with ventilation adequate to prevent condensation.

8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
9. Protect stored products from damage.

1.07 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 1. Refer to Section 00 95 10 SP44 for specific content requirements and particular requirements for submitting all warranties.
- C. Submittal Time: Comply with requirements in Section 01 33 00 – Submittal Procedure and Section 01 77 00 - Closeout Procedures.

PART 2 - PRODUCTS

2.01 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
 1. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 - a. Substitutions may be considered unless otherwise indicated.
 2. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.

2.02 PRODUCT SUBSTITUTIONS

- A. Timing: Engineer will consider requests for substitution if received within 30 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Engineer.
- B. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
 - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducing additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - 2. Requested substitution does not require extensive revisions to the Contract Documents.
 - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 4. Substitution request is fully documented and properly submitted.
 - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 7. Requested substitution is compatible with other portions of the Work.
 - 8. Requested substitution has been coordinated with other portions of the Work.
 - 9. Requested substitution provides specified warranty.

2.03 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
 - 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents;
 - 2. That it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 3. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 4. Evidence that proposed product provides specified warranty.

5. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
6. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 70 00 EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.
- B. Related Sections include, but are not limited to, the following:
 - 1. Section 01 31 00 - Project Management and Coordination - for procedures for coordinating field engineering with other construction activities.
 - 2. Section 01 33 00 - Submittal Procedures - for submitting surveys.
 - 3. Section 01 77 00 - Closeout Procedures for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.03 SUBMITTALS

- A. Qualification Data: Land surveyors must demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Engineers and Owners, and other information specified.

1.04 QUALITY ASSURANCE

- A. Land Surveyor Qualifications; A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services is necessary for all required legal surveys.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

3.02 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Engineer not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Engineer's written permission.
- C. Field Measurements: Take field measurements as required to locate and execute the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- D. Space Requirements: Verify space requirements and dimensions of items shown on Drawings.
- E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.03 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities in the surveying discipline.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

3.04 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide

temporary reference points sufficient to locate the Work.

3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.05 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produces harmful noise levels.
- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
- G. Hazardous Materials: Use products, cleaners and installation materials that are not considered hazardous.

3.06 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of material lawfully.
 1. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

- E. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortars, oils, putty, and similar materials.
 - 1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original Condition.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.07 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualifications requirements in Division 1 Section "Quality Requirements."

3.08 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

3.09 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction.
 - 1. Repair includes replacing defective parts, refinishing damaged surfaces, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

END OF SECTION 01 70 00

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Closeout Procedures.
 - 2. Substantial Completion
 - 3. Final Completion
 - 4. Certificate of Occupancy
 - 5. Final Cleaning.
 - 6. Project Record Documents.
 - 7. Spare parts and Maintenance Products.
 - 8. Warranties and Bonds.
 - 9. Maintenance Service.
- B. Related Sections include:
 - 1. Section 01 31 00 – Project Management & Coordination.

1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
- B. Provide submittals to Engineer that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- D. Owner will occupy all portions of the Project.

1.03 SUBSTANTIAL COMPLETION

- A. Prior to substantial completion Contractor shall review Contract Documents for items which are not complete or need to yet be completed including submittal of all manuals, and testing reports. Contractor shall make a list of incomplete work, a value of the incomplete work, and reasons why work is incomplete. Contractor shall complete all items required to be completed as part of substantial completion.
- B. Contractor shall provide a written notice to Engineer that the work, or specific portions of the work, is substantially complete and ready for review. If there are any items remaining to be corrected or completed Contractor shall submit a list of these items along with the notice of substantial completion. Along with the list of items the Contractor should provide a

written explanation of why these items are not considered necessary for substantial completion.

- C. Upon receipt of Contractor's notice of substantial completion, Engineer will proceed with inspection for substantial completion.
- D. Following the substantial completion inspection by the Engineer and Engineer's subconsultants, Engineer will either prepare certificate of substantial completion, or notify the Contractor in writing that substantial completion has not been met, listing the various reasons.
- E. Contractor shall promptly complete the items required to meet substantial completion and submit a second notice of substantial completion to the Engineer.
- F. Engineer will review the work a second time to determine the status of substantial completion.
- G. When Engineer considers the project to be substantially complete, Engineer will prepare the preliminary certificate of substantial completion along with a substantial completion punch list of items to be completed prior to final payment. Engineer will deliver preliminary certificate and punch list to Owner and consider any objections by the Owner as provided in the Conditions of the Contract.
- H. Upon agreement by Owner and Engineer of substantial completion and punch list items, Engineer will execute and deliver to the Contractor and Owner a final certificate of substantial completion along with substantial completion punch list of items to be completed prior to final payment.
- I. A maximum of two (2) reviews of substantially complete work will be completed by Engineer and Engineer's subconsultants for any one portion of work under the Contract. Should a third or subsequent reviews be necessary the following requirements will be met:
 - 1. Owner will compensate Engineer for additional reviews.
 - 2. Owner will deduct the amount of compensation paid to the Engineer for additional reviews from the payment to the Contractor.
 - 3. Compensation shall be at Engineer's standard hourly rates plus actual cost of reimbursables.

1.04 FINAL COMPLETION

- A. Following substantial completion Contractor shall complete remaining work and items to be corrected as part of substantial completion punch list as well as final cleaning and transferring site to Owner.
- B. When Contractor considers that all work is complete, Contractor shall provide written notice of final completion to Engineer.
- C. Following receipt of final completion certification, Engineer and Engineer's subconsultants shall review the work to verify that the requirements for final completion have been met.
- D. Upon review of work for final completion Engineer will either request the Contractor to make closeout submittals or will notify Contractor that the work is not complete with a list

of incomplete or defective work.

- E. Contractor shall promptly take steps to correct all listed deficiencies and incomplete work before sending a second written notice of final completion certification to Engineer.
- F. If final completion was not met following first review, Engineer will review work a second time to determine if the requirements for final completion have been met.
- G. A maximum of two (2) reviews of final complete work will be completed by Engineer and Engineer's subconsultants for any one portion of work under the Contract. Should a third or subsequent review be necessary the following requirements will be met:
 - 1. Owner will compensate Engineer for additional reviews.
 - 2. Owner will deduct the amount of compensation paid to the Engineer for additional reviews from the payment to the Contractor.
 - 3. Compensation shall be at Engineer's standard hourly rates plus actual cost of reimbursables.
- H. When Engineer considers all work to be complete in accordance with the Contract Documents, Engineer shall request the Contractor to make closeout submittals.

1.05 CERTIFICATE OF OCCUPANCY

- A. In accordance with State Building Codes, when WORK is complete and ready for occupancy, CONTRACTOR shall contact local building official and request a final building code review for the purposes of obtaining a Certificate of Occupancy *if applicable*.
- B. CONTRACTOR shall, in accordance with Supplementary Conditions submit copy of Certificate of Occupancy with final Application for Payment.

1.06 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains, and foreign substances, polish transparent and glossy surfaces, mop all floors.
- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- D. Replace filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.07 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.

2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications to the Contract.
 5. Reviewed Shop Drawings, Product Data, and Samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling current and future reference by Owner and Engineer.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
1. Manufacturer's name and product model and number.
 2. Product substitutions or alternates utilized.
 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to finish first floor datum.
 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 3. Provide GPS survey during construction for horizontal and vertical locations of all underground piping and utilities at fittings, valves, building connections, pull boxes, junction boxes, manholes, and other appurtenances.
 4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 5. Field changes of dimension and detail.
 6. Details not on original Contract drawings.
- G. Submit documents to Engineer with claim for final Application for Payment.
- 1.08 SPARE PARTS AND MAINTENANCE PRODUCTS
- A. Provide spare parts, maintenance, and extra Products in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.
- 1.09 WARRANTIES AND BONDS
- A. Provide duplicate notarized copies.
- B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in D size three ring binders with durable plastic

cover.

- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance.

1.10 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components during the warranty period.
- B. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- D. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.

1.11 FINAL ADJUSTMENT OF ACCOUNTS

- A. Contractor shall submit a final statement of accounting to Engineer. Statement shall reflect all adjustments to the contract sum and include the following:
 - 1. Original contract sum.
 - 2. Additions and deductions resulting from:
 - a. All previous change orders
 - b. Allowances
 - c. Unit prices
 - d. Deductions for uncorrected work
 - e. Penalties and bonuses
 - f. Deductions for liquidated damages
 - g. Deductions for multiple reviews
 - h. Other adjustments
 - 3. Total contract sum as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.
- B. Engineer will prepare a final change order, reflecting approved adjustments to the contract sum which were not previously made by change orders.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 77 00

SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SCOPE

- A. Throughout progress of the work, maintain an accurate record of changes in the Contract Documents, as described below. Upon completion of the work, submit all recorded changes to the Engineer.

1.02 QUALITY ASSURANCE

- A. Delegate the responsibility for maintenance of Record Documents to one person on the Contractor's staff.

1.03 ACCURACY OF RECORDS

- A. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of drawings and other documents where such entry is required to describe the change properly.
- B. Accuracy of records shall be such that future searches for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.
- C. Make entries within 24 hours after receipt of information that the change has occurred or has been observed.

1.04 PRODUCT HANDLING

- A. Protect the job set of Record Documents from deterioration loss and/or damage at all times.
- B. If the recorded data is lost, use means necessary to secure the data to the Engineers satisfaction. Acquisition of required data will be at contractor's expense.
 - 1. Such means shall include, if necessary in the opinion of the Engineer, removal and replacement of concealing materials.
 - 2. In such case, restore work to the requirements outlined in the contract documents.

PART 2 - MATERIALS

2.01 RECORD DOCUMENTS

- A. Job Set: Promptly following receipt of the Engineer's Notice To Proceed, secure from the Engineer at no charge to the Contractor/Equipment Supplier one complete set of all documents.

PART 3 - INSTALLATION/WORKMANSHIP

3.01 MAINTENANCE OF JOB SET

- A. Immediately upon receipt of the job set described above, identify each of the documents with the title, "RECORD DOCUMENTS - JOB SET".
- B. Preservation:
 - 1. Considering the contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set acceptable to the Engineer.
 - 2. Do not use the job set for any purpose except entry of new data and for review by the Engineer.
- C. Making entries on drawings:
 - 1. Using an erasable colored pencil (not ink or indelible pencil), clearly describing the change by graphic line and note as required.
 - 2. Date all entries.
 - 3. Call attention to the entry by a "cloud" drawn around the area or areas affected.
 - 4. In the event of overlapping changes, use different colors for the overlapping changes.
- D. Make entries in the other pertinent documents as approved by the Engineer.
- E. Conversion of schematic layouts:
 - 1. In some cases on the drawings, arrangements of conduits, circuits, piping, ducts, and similar items, are shown schematically and are not intended to portray precise physical layout.
 - 2. Final physical arrangement is determined by the Contractor, subject to the Engineer's approval.
 - 3. However, design of future modifications of the facility may require accurate information as to the final physical layout of items which are shown only schematically on the drawings.
 - 4. Show on the job set of Record Drawings, by dimension accuracy within one inch, the centerline of each run of items as described above.
 - 5. Clearly identify the item by accurate note such as "cast iron drain", "galv. water", and the like.
 - 6. Show, by symbol or note, the vertical location of the item ("under slab", "in ceiling plenum", "exposed", and the like).
 - 7. Make all identification sufficiently descriptive that it may be related reliably to the Specifications.

3.02 FINAL PROJECT RECORD DOCUMENTS

- A. Review and submittal:
 - 1. Submit the completed set of Project Record Documents to the Engineer.

2. Participate in biweekly review meetings.
3. The Engineer will transfer the information from the project record document to the original project documents which will be noted as record drawings.

3.03 CHANGES SUBSEQUENT TO ACCEPTANCE

- A. The Contractor is not responsible for recording changes in the work subsequent to final completion, except for changes resulting from work performed under warranty.

END OF SECTION 01 78 39

DIVISION 3

CONCRETE & GROUT

SECTION 03 05 10
COLD WEATHER CONCRETING PROCEDURES

PART 1 - GENERAL

1.01 DEFINITIONS

- A. Cold weather is defined as a period when for more than 3 successive days the mean daily temperature falls below 40°F or any day when the temperature is expected to fall or falls below freezing.

1.02 SUBMITTALS

- A. The following submittals for construction shall be made in accordance with the project submittal requirements as described in the Supplementary Conditions.
 - 1. Not less than 30 days prior to expected placement of concrete under cold weather conditions, a complete procedure shall be submitted for review covering all aspects of protection of concrete and its ingredients from the detrimental effects of cold weather. Concrete placement during cold weather shall not commence prior to return of the approved procedure.

1.03 PERFORMANCE REQUIREMENTS

- A. Cold weather placement shall comply with ACI 350.5 and ACI 306.1, and this specification section.

1.04 PRODUCT DELIVERY, HANDLING AND STORAGE

- A. The concrete temperature, during placement in cold weather, shall not be less than 55 °F. Temperature measurements of the concrete as delivered to the job site shall confirm this requirement.

PART 2 - MATERIALS

2.01 WATER AND AGGREGATE

- A. Water and aggregate may be preheated for cold weather placement; however, their temperature shall not exceed 150 °F. All methods and equipment for heating of water and aggregate shall be subject to the approval of the Engineer and shall conform to ACI 306.

PART 3 - EXECUTION

3.01 GENERAL

- A. No concrete shall be placed on frozen ground.
- B. The ground, against which concrete is to be poured, must be protected against freezing after its preparation, or the concrete placement shall be delayed until the ground has fully thawed out.

- C. When temperatures are expected to be below 32 °F the night before the concrete is placed, all reinforcing steel, forms and the ground shall be preheated, for a minimum of 12 hours, under a minimum temperature of 50 °F.
- D. When temperatures are expected to be below 32 °F any time before the concrete has reached strength of 1000 psi, the concrete must be adequately protected against frost damage by heating blankets, straw or insulation materials for a minimum of 7 days or until at least 1000 psi concrete strength has been reached. The concrete temperature shall at no time fall below 40 °F based on recording temperature monitors placed at a maximum of 50 feet on centers, each way, and around the circumference of the floor, wall, roof slab and wall-footing. Contractor shall provide heat as required to keep the concrete temperature as specified throughout the entire curing period of 7 days.
- E. Weather prediction made by the nearest NOAA station, and corrected for the local elevation and environmental conditions, may be used to determine whether cold weather protection shall be required. Thermometers will be used by the Engineer and these readings shall determine whether cold weather protection shall be required and whether cold weather protection is adequate.
- F. When combustion type heaters are used to maintain concrete temperatures within an enclosure, the exhaust gases shall be vented from the heater to the outside atmosphere so that the concrete is not exposed to the products of combustion.
- G. There will not be any additional reimbursement made to the Contractor for costs incurred for placing concrete during cold weather.

END OF SECTION 03 05 10

SECTION 03 05 20 HOT WEATHER CONCRETING PROCEDURES

PART 1 - GENERAL

1.01 DEFINITIONS

- A. Hot weather is defined as any combination of high air temperature, low relative humidity and wind velocity tending to impair the quality of fresh or hardened concrete or otherwise resulting in abnormal concrete properties. During hot weather, any or all of the methods specified herein for temperature control of concrete shall be used as required to maintain the concrete temperature below the limits specified.

1.02 SUBMITTALS

- A. The following submittals for construction shall be made in accordance with the project submittal requirements as described in the Supplementary Conditions.
 - 1. Not less than 30 days prior to expected placement of concrete under hot weather conditions, a complete procedure shall be submitted for review covering the aspects of protection of concrete and its ingredients from the detrimental effects of hot weather. Concrete placement during hot weather shall not commence prior to the return of the approved procedure.

1.03 PERFORMANCE REQUIREMENTS

- A. Hot weather placement shall comply with ACI 350.5 and ACI 305.1, and this specification section.

1.04 PRODUCT DELIVERY, HANDLING AND STORAGE

- A. Aggregate piles, cement bins and batch plant bins shall be shaded from direct rays of sunlight.
- B. Aggregate piles shall be cooled by wetting and evaporation. Aggregate wetting shall be performed in such a manner that it will not cause wide variations in moisture content impairing slump uniformity.

1.05 GENERAL PRACTICES AND MEASURES

- A. The following list of practices and measures, as described in ACI 305, may be used to reduce or avoid the potential problems of hot weather concreting:
 - 1. Use concrete materials and proportions with satisfactory records in field use under hot weather conditions.
 - 2. Use cool concrete.
 - 3. Use a concrete consistency that permits rapid placement and effective consolidation.
 - 4. Transport, place, consolidate, and finish the concrete with least delay.
 - 5. Plan the job to avoid adverse exposure of the concrete to the environment; schedule placing operations during times of the day or night when weather conditions are

favorable.

6. Protect the concrete against moisture loss at all times during placing and during its curing period.
- B. There will not be any additional reimbursement made to the Contractor for costs incurred for placing concrete in hot weather.

PART 2 - MATERIALS

2.01 BATCHING AND MIXING

- A. Concrete mix water shall be refrigerated or ice shall be added to the mix up to 100 percent of the water requirement. Ice, when introduced into the mixer, shall be in such form that it will be completely melted and dispersed throughout the mix at the completion of the mixing time. The mixing time shall be held to the minimum practicable consistent with producing concrete meeting the specified requirements.
- B. All methods and equipment for cooling of water and aggregate shall be subject to the approval of the Engineer and shall conform to ACI 305.

PART 3 - EXECUTION

3.01 CONCRETE TEMPERATURE

- A. The temperature of concrete, as delivered at the time and location of placement, shall not exceed 100 °F under any conditions. The temperature of concrete as delivered at the time and location of placement under the following combined ambient conditions, except concrete that will be deposited within wall or column forms, shall not exceed the following temperatures:

<u>Relative humidity</u> <u>less than %</u>	<u>Ambient temperature</u> <u>greater than °F</u>	<u>Maximum concrete</u> <u>temperature °F</u>
80	90	100
70	90	95
60	90	90
50	90	85
40	90	80
30	80	75
20	75	70

3.02 DELIVERY

- A. Concrete shall be placed in the Construction within 90 minutes after the completion of mixing.

3.03 PREPARATION FOR PLACING

- A. Elevated forms and reinforcing steel for beams and similar members shall be cooled by fog spraying and evaporation immediately prior to placing concrete. Forms shall be free of standing water when concrete is placed herein.

3.04 PLACING

- A. Concrete shall be placed in shallower layers than under normal weather conditions if necessary to assure coverage of the previous layer while it will respond readily to vibration.

3.05 FINISHING

- A. Fog spray shall be used during finishing operations whenever necessary to avoid surface plastic-shrinkage cracking. Fog spray shall also be used after finishing and before the specified curing is commenced to avoid surface plastic-shrinkage cracking.

3.06 PROTECTION AND CURING

- A. Forms shall be kept covered and continuously moist. Once forms are loosened and during form removal, concrete surfaces shall be protected from drying and shall be kept continuously wet by fog spraying or other approved means.

END OF SECTION 03 05 20

SECTION 03 10 00
CONCRETE FORMING AND ACCESSORIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Form-facing material for cast-in-place concrete.
 - 2. Shoring, bracing, and anchoring.
- B. Related Requirements:
 - 1. Section 32 13 13 "Concrete Paving" for formwork related to concrete pavement and walks.

1.03 DEFINITIONS

- A. Form-Facing Material: Temporary structure or mold for the support of concrete while the concrete is setting and gaining sufficient strength to be self-supporting.
- B. Formwork: The total system of support of freshly placed concrete, including the mold or sheathing that contacts the concrete, as well as supporting members, hardware, and necessary bracing.

1.04 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review the following:
 - a. Special inspection and testing and inspecting agency procedures for field quality control.
 - b. Construction, movement, contraction, and isolation joints
 - c. Forms and form-removal limitations.
 - d. Shoring and reshoring procedures.
 - e. Anchor rod and anchorage device installation tolerances.

1.05 ACTION SUBMITTALS

- A. Product Data: For each of the following:
 - 1. Exposed surface form-facing material.
 - 2. Concealed surface form-facing material.
 - 3. Void forms.

4. Form ties.
 5. Waterstops.
 6. Form-release agent.
- B. Shop Drawings: Prepared by, and signed and sealed by, a qualified professional engineer responsible for their preparation, detailing fabrication, assembly, and support of forms.
1. For exposed vertical concrete walls, indicate dimensions and form tie locations.
 2. Indicate dimension and locations of construction and movement joints required to construct the structure in accordance with ACI 301 and ACI 350.5 when not indicated in Drawings.
 - a. Location of construction joints is subject to approval of the Engineer.
 3. Indicate location of waterstops.
 4. Indicate proposed schedule and sequence of stripping of forms, shoring removal, and reshoring installation and removal.
- 1.06 INFORMATIONAL SUBMITTALS
- A. Qualification Data: For testing and inspection agency.
- B. Waterstops, Joint Fillers, Joint Sealers, Backing Rods, and Bond Breaker:
1. Certified mill certificates showing that the material meets all of the requirements specified here-in. The Engineer, at their option, may take samples of any materials and have them tested by an independent testing laboratory to verify their compliance with these Specifications. All such costs shall be borne by the Owner. If any materials should fail to meet these Specifications, all costs for further testing of the replacement materials shall be borne by the Contractor.
- C. Minutes of preinstallation conference.
- 1.07 QUALITY ASSURANCE
- A. Testing and Inspection Agency Qualifications: An independent agency, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
- 1.08 DELIVERY, STORAGE, AND HANDLING
- A. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.
- 1.09 OBSTRUCTIONS
- A. Contractor shall pay particular attention to removing all obstructions such as concrete, nails, etc., from joints when movements of floor, wall and roof sections can be expected under temperature or other conditions.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Concrete Formwork: Design, engineer, erect, shore, brace, and maintain formwork, shores, and reshores in accordance with ACI 301 and ACI 350.5, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.
 - 1. Design wood panel forms in accordance with APA's "Concrete Forming Design/Construction Guide."
 - 2. Design formwork to limit deflection of form-facing material to 1/240 of center-to-center spacing of supports.
 - 3. Forms for circular structures shall conform to the circular shape of the structure.
 - 4. Do not use earth cuts as forms for vertical or sloping surfaces unless required or permitted in drawings.
 - 5. Formwork shall be essentially watertight and shall prevent loss of mortar from concrete. Seal all joints or gaps with an acceptable material.

2.02 FORM-FACING MATERIALS

- A. As-Cast Surface Form-Facing Material:
 - 1. Provide continuous, true, and smooth concrete surfaces.
 - 2. Furnish in largest practicable sizes to minimize number of joints.
 - 3. Acceptable Materials: As required to comply with Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete, and as follows:
 - a. Plywood, metal, or other approved panel materials.
 - b. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - 1) APA HDO (high-density overlay).
 - 2) APA MDO (medium-density overlay); mill-release agent treated and edge sealed.
 - 3) APA Structural 1 Plyform, B-B or better; mill oiled and edge sealed.
 - 4) APA Plyform Class I, B-B or better; mill oiled and edge sealed.
 - c. Do not use form-facing materials with raised grain, torn surfaces, worn edges, patches, dents, or other defects that will impair the texture of concrete surfaces.
- B. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.
 - 1. Provide lumber dressed on at least two edges and one side for tight fit.

- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class.

- 1. Provide forms with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

2.03 WATERSTOPS

- A. Chemically Resistant Flexible Waterstops: Thermoplastic elastomer rubber waterstops, for embedding in concrete to prevent passage of fluids through joints; resistant to oils, solvents, and chemicals, with factory fabricate corners, intersections, and directional changes.

- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. JP Specialties, Inc.
 - b. Sika Corporation.
 - 2. Profile: Ribbed without center bulb.
 - 3. Dimensions: 6 inches by 3/8 inch thick; nontapered.

- B. Flexible PVC Waterstops: U.S. Army Corps of Engineers CRD-C 572, for embedding in concrete to prevent passage of fluids through joints, with factory fabricate corners, intersections, and directional changes.

- 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Sika Corporation.
 - b. Or approved equal.
 - 2. Profile: As indicated.
 - 3. Dimensions: As indicated; nontapered.

- C. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.

- 1. Products: Subject to compliance with requirements, provide the following:
 - a. Sika Corporation.
 - b. Or approved equal.

2.04 RELATED MATERIALS

- A. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

- B. Chamfer Strips: Smooth wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- C. Rustication Strips: Smooth wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- D. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
 - 2. Form release agent for form liners shall be acceptable to form liner manufacturer.
- E. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that leave no corrodible metal closer than 1-1/2 inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, leave holes at least 1 inch in diameter in concrete surface.
 - 3. Furnish ties with integral water-barrier plates to walls.

PART 3 - EXECUTION

3.01 INSTALLATION OF FORMWORK

- A. Comply with ACI 301 and ACI 350.5.
- B. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 and to comply with the Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete" for as-cast finishes.
- C. Limit concrete surface irregularities as follows:
 - 1. Environmental Surface Finish-1.0 (ESF-1.0): 1 inch
 - a. No formwork facing material is specified
 - b. Patch voids greater than 1-1/2 in. wide or 1/4 in. deep
 - c. Remove projections greater than 1/2 in.
 - d. Tie holes needed to be patched
 - e. Surface tolerance Class C (ACI 117)
 - f. Leave surfaces with the texture imparted by the forms
 - g. Mockup not required
 - 2. Environmental Surface Finish-2.0 (EFS-2.0): 1/4 inch
 - a. Patch voids greater than 3/4 in. wide or 1/4 in.

- b. Remove projections greater than 1/4 in.
 - c. Patch tie holes
 - d. Surface tolerance Class B (ACI 117)
 - e. Mockup not required
- 3. Environmental Surface Finish-3.0 (ESF-3.0): 1/8 inch
 - a. Patch voids greater than 3/4 in. wide or 1/4" deep
 - b. Remove projections greater than 1/8 in.
 - c. Patch tie holes
 - d. Surface tolerance Class A (ACI 117)
 - e. Provide mockup of concrete surface appearance and texture
- D. Construct forms tight enough to prevent loss of concrete mortar.
 - 1. Minimize joints.
 - 2. Exposed Concrete: Symmetrically align joints in forms.
 - a. For ESF 3.0 surfaces, set the facing materials in an orderly and symmetrical arrangement, and keep the number of seams to a practical minimum. Facing materials shall be supported with studs or other backing capable of maintaining deflection with the tolerances specified in Part 1. Fit adjacent panels with tight joints.
 - 3. Taper form ties shall be placed with the larger end on the side of the structure that will be in contact with liquid.
 - a. Seal tie holes in formwork to prevent leakage where ties penetrate the formwork.
- E. Construct removable forms for easy removal without hammering or prying against concrete surfaces.
 - 1. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.
 - 2. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 3. Install keyways, reglets, recesses, and other accessories, for easy removal.
- F. Do not use rust-stained, steel, form-facing material.
- G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.
 - 1. Provide and secure units to support screed strips
 - 2. Use strike-off templates or compacting-type screeds.

- H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible.
 - 1. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar.
 - 2. Locate temporary openings in forms at inconspicuous locations.
- I. Chamfer exterior corners and edges of permanently exposed concrete.
- J. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.
- K. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.
 - 1. Determine sizes and locations from trades providing such items.
 - 2. Obtain written approval of Engineer prior to forming openings not indicated on Drawings.
- L. Construction and Movement Joints:
 - 1. Construct joints true to line with faces perpendicular to surface plane of concrete.
 - 2. Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
 - 3. Place joints perpendicular to main reinforcement.
 - 4. Locate joints for beams and slabs in the middle third of spans, unless indicated otherwise in plans.
 - 5. Locate horizontal joints in walls at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 - 6. Space vertical joints in walls as indicated on Drawings.
- M. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.
 - 1. Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.
 - 2. Close temporary ports and openings with tight-fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.
- N. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- O. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- P. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.02 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.
 - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
 - 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 4. Clean embedded items immediately prior to concrete placement.
 - 5. Fill voids in inserts to prevent entry of concrete.
 - 6. Coat surfaces of aluminum embedments to prevent reaction with the concrete.

3.03 INSTALLATION OF WATERSTOPS

- A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm.
 - 1. Install in longest lengths practicable.
 - 2. Locate waterstops in center of joint unless otherwise indicated on Drawings.
 - 3. Allow clearance between waterstop and reinforcing steel of not less than 2 times the largest concrete aggregate size specified in Section 03 30 00 "Cast-In-Place Concrete."
 - 4. Secure waterstops in correct position at 12 inches on center in such a manner that bending over one way or another is prevented.
 - a. Vertical waterstops shall be anchored back to the reinforcement with wire ties or by other acceptable means.
 - b. At flexible waterstops placed horizontally, the waterstop shall be folded upward along its entire length while concrete is placed and consolidated up to the level of the waterstop, and then the waterstop shall be pressed into the top of of the fresh concrete. Then complete concrete placement and consolidation so as to provide full encasement of the water stop in concrete.
 - 5. Waterstops at vertical joints shall terminate 3 in. below the tops of exposed walls.
 - 6. Field fabricate joints in accordance with manufacturer's instructions using heat welding.
 - a. Miter corners, intersections, and directional changes in waterstops.
 - b. Align center bulbs.

- c. Splices shall be strong enough to develop a pulling force of 75 percent of the strength of the waterstop, and shall be watertight.
 - 7. Clean waterstops immediately prior to placement of concrete.
 - 8. Waterstops with a center bulb shall have the ends of the center bulb plugged with a flexible material, such as foam rubber, to prevent concrete intrusion at ends where the bulb will be exposed to concrete extrusions.
 - 9. Support and protect exposed waterstops during progress of the Work.
 - B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated on Drawings, according to manufacturer's written instructions, by adhesive bonding, mechanically fastening, and firmly pressing into place.
 - 1. Install in longest lengths practicable.
 - 2. Locate waterstops in center of joint unless otherwise indicated on Drawings.
 - 3. Protect exposed waterstops during progress of the Work.
- 3.04 REMOVING AND REUSING FORMS
- A. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70% of its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
 - B. Clean and repair surfaces of forms to be reused in the Work.
 - 1. Split, frayed, delaminated, or otherwise damaged form-facing material are unacceptable for exposed surfaces.
 - 2. Apply new form-release agent.
 - C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.
 - 1. Align and secure joints to avoid offsets.
 - 2. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.
- 3.05 SHORING AND RESHORING INSTALLATION
- A. Comply with ACI 350 and ACI 301 for design, installation, and removal of shoring and reshoring.

1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.06 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
 1. Inspect formwork for shape, location, and dimensions of the concrete member being formed, and for compliance within tolerances specified in ACI 117.
 2. Waterstops:
 - a. It is required that all waterstop field joints shall be subject to rigid inspection, and no such work shall be scheduled or started without having made prior arrangements with the ENGINEER to provide for the required inspections. Not less than 24 hours' notice shall be provided to the ENGINEER for scheduling such inspections. All field joints in waterstops shall be subject to rigid inspection for misalignment, bubbles, inadequate bond, porosity, cracks, offsets, and other defects which would reduce the potential resistance of the material to water pressure at any point. All defective joints shall be replaced with material which shall pass said inspection, and all faulty material shall be removed from the site and disposed of by the CONTRACTOR at its own expense.
 - b. The following waterstop defects represent a partial list of defects which shall be grounds for rejection.
 - 1) Offsets at joints greater than 1/16-inch or 15 percent of material thickness, at any point, whichever is less.
 - 2) Exterior crack at joint, due to incomplete bond, which is deeper than 1/16-inch or 15 percent of material thickness, at any point, whichever is less.
 - 3) Any combination of offset or exterior crack which will result in a net reduction in the cross section of the waterstop in excess of 1/16-inch or 15 percent of material thickness at any point, whichever is less.
 - 4) Misalignment of joint which result in misalignment of the waterstop in excess of 1/2-inch in 10 feet.
 - 5) Porosity in the welded joint as evidenced by visual inspection.
 - 6) Bubbles or inadequate bonding which can be detected with a pen knife test. (If, while prodding the entire joint with the point of a pen

knife, the knife breaks through the outer portion of the weld into a bubble, the joint shall be considered defective.)

3. Waterstop Samples:
 - a. Field samples of fabricated fittings (crosses, tees, etc.) may be selected at random by the ENGINEER at their discretion, for testing by a laboratory at the OWNER'S expense. When tested, they shall have a tensile strength across the joints equal to at least 75 percent of the manufacturer's reported tensile strength of the product. These samples shall be fabricated so that the material and workmanship represent in all respects the fittings to be furnished under this contract.

END OF SECTION 03 10 00

SECTION 03 20 00
CONCRETE REINFORCING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Steel reinforcement bars.
 - 2. Welded-wire reinforcement.
- B. Related Requirements:
 - 1. Section 03 41 00 "Precast Structural Concrete" for reinforcing used in precast structural concrete.
 - 2. Section 32 13 13 "Concrete Paving" for reinforcing related to concrete pavement and walks.

1.03 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review the following:
 - a. Special inspection and testing and inspecting agency procedures for field quality control.
 - b. Construction contraction and isolation joints.
 - c. Steel-reinforcement installation.

1.04 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Each type of steel reinforcement.
 - 2. Bar supports.
 - a. Include a written description of where each bar support will be used.
 - 3. Mechanical splice couplers.
- B. Shop Drawings: Comply with ACI SP-066:
 - 1. Include placing drawings that detail fabrication, bending, and placement.
 - 2. Include bar sizes, lengths, materials, grades, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, location of splices, lengths of lap splices, details of mechanical splice couplers, details of welding splices, tie spacing, hoop spacing, and supports for concrete reinforcement.

- C. Construction Joint Layout: Indicate proposed construction joints required to build the structure where not indicated in Drawings.

- 1. Location of construction joints is subject to approval of the Engineer.

1.05 INFORMATIONAL SUBMITTALS

- A. Welding certificates.

- 1. Reinforcement To Be Welded: Welding procedure specification in accordance with AWS D1.4/D1.4M

- B. Material Certificates:

- 1. Mill test certificates shall be submitted to the Engineer to certify that the reinforcing steel meets the specified requirements. Mill test certificates shall be furnished and paid for by the Contractor.
 - 2. In addition, the Engineer may require that test samples be taken and test certificates be furnished by a reputable material testing laboratory at the Owner's expense.

- C. Material Test Reports: For the following, from a qualified testing agency:

- 1. Steel Reinforcement:
 - a. For reinforcement to be welded, mill test analysis for chemical composition and carbon equivalent of the steel in accordance with ASTM A706/A706M.
 - 2. Mechanical splice couplers.

- D. Minutes of preinstallation conference.

1.06 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.4/D 1.4M.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

- 1. Store reinforcement to avoid contact with earth, oil, or other materials that may decrease bond to concrete.

PART 2 - PRODUCTS

2.01 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed. Grade 40 steel shall be allowed for #3 and smaller bars.
- B. Low-Alloy Steel Reinforcing Bars: ASTM A706/A706M, deformed.
- C. Headed-Steel Reinforcing Bars: ASTM A970/A970M.

- D. Steel Bar Mats: ASTM A184/A184M, fabricated from ASTM A615/A615M, Grade 60 , deformed bars, assembled with clips.
- E. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from as-drawn steel wire into flat sheets.
- F. Deformed-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, flat sheet.

2.02 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A615/A615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place.
 - 1. Manufacture bar supports from stainless steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice" and ACI 315, and as follows:
 - a. Where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic bar supports, or CRSI Class 2 stainless steel bar supports.
 - 1) For plastic protected wire, plastic shall have a thickness of 3/32 inches or greater at points of contact with formwork and the plastic shall extend along the wire at least 1/2 inches from the point of contact in the formwork.
 - 2) For stainless steel protected wire-reinforcement supports, the non-stainless steel portion of the supports shall not extend closer than 3/4 inches from the form surface.
 - b. Precast concrete (adobes) shall, as a minimum, be no less in compressive strength or cement content than the concrete in which it will be cast, and a surface area of not less than 4 square inches. Water absorption and porosity of precast concrete supports shall be equal to or less than water absorption and porosity of concrete being placed. Adobes manufactured from plastic or with low cement contents will not be accepted. Brick, broken concrete masonry units, spalls, rocks or similar materials shall not be used for support of reinforcing steel.
 - c. All-plastic reinforcement supports shall incorporate perforations in plane areas to compensate for the difference in the coefficient of thermal expansion between the plastic and concrete.
- C. Mechanical Splice Couplers: ACI 318 Type 2, same material of reinforcing bar being spliced; tension-compression type.
 - 1. Products: Subject to compliance with requirements, available products by one of the following:

- a. Dayton Superior.
 - b. Or approved equal.
- D. Steel Tie Wire: ASTM A1064/A1064M, annealed steel, not less than 0.0508 inch in diameter.
 - 1. Finish: Plain.

2.03 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice," and in accordance with fabricating tolerances of ACI 117.
- B. Bend reinforcement cold unless heating is approved by the Engineer prior to fabrication.
- C. Minimum inside bend diameters shall conform to the requirements of ACI 350.5 unless otherwise permitted. The beginning of the bend shall not be closer to the concrete surface than the minimum diameter of the bend.
- D. Kinked bars shall not be used.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Protection of In-Place Conditions:
 - 1. Do not cut or puncture vapor retarder.
 - 2. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

3.02 INSTALLATION OF STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.
- B. Accurately position, support, and secure reinforcement against displacement.
 - 1. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
 - 2. The supports shall be of sufficient quantity, strength and stability to maintain the reinforcement in place throughout the concreting operations. Bar supports shall be placed no further than 4 feet apart in each direction.
 - 3. Do not tack weld crossing reinforcing bars.
- C. Preserve clearance between bars of not less than 1 inch, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.
- D. Provide concrete coverage in accordance with ACI 350.

1. Placing tolerances shall not reduce cover requirements except as specified in ACI 117.
 2. No "bury" or "carrier" bars will be allowed unless specifically approved by the Engineer.
- E. Reinforcing Tying:
1. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
 2. There shall be at least three ties in each bar length (this shall not apply to dowel laps or to bars shorter than 4 feet, unless necessary for rigidity).
 3. Slab bars shall be tied at every intersection around the periphery of the slab. Wall bars and slab bar intersections shall be tied at not less than every second intersection, but at not greater than the following maximum spacings:
 - a. Slab Bars: Bars No. 5 and smaller = 30 inches; Bars No. 6 through No. 9 = 48 inches; Bars No. 10 through No. 11 = 60 inches
 - b. Wall Bars: Bars No. 5 and smaller = 24 inches; Bars No. 6 through No. 9 = 30 inches; Bars No. 10 through No. 11 = 48 inches.
- F. Reinforcing partially embedded in concrete shall not be field bent unless indicated on the Drawings.
- G. Splices: Lap splices as indicated on Drawings.
1. Bars indicated to be continuous, and all vertical bars shall be lapped not less than 36 bar diameters at splices, or 24 inches, whichever is greater.
 2. Stagger splices in accordance with ACI 350.
 3. Lapped spliced bars shall be fastened together with steel tie wire.
 4. Unless specified or shown otherwise on the Drawings, the bars at a lap splice shall be in contact with each other.
 5. Unless shown otherwise on the Drawings, where bars are to be lapped spliced at joints in the concrete, all bars shall project from the concrete first placed, a minimum length equal to the lap splice length indicated on the Drawings. All concrete or other deleterious coating shall be removed from dowels and other projecting bars by wire brushing or sandblasting before the bars are embedded in a subsequent concrete placement.
 6. Mechanical Splice Couplers: Install in accordance with manufacturer's instructions.
 - a. Mechanical splices for reinforcement not shown on the Project Drawings shall not be used unless accepted by the Engineer.
 7. Weld reinforcing bars in accordance with AWS D1.4/D 1.4M, where indicated on Drawings.

- H. When there is a delay in depositing concrete, reinforcement shall be re-inspected and cleaned when necessary.
- I. Reinforcement relocation - When necessary to move reinforcement beyond the specified placing tolerances to avoid interference with other reinforcement, conduits, or embedded items, submit the resulting arrangement of reinforcement for acceptance by the Engineer.
- J. Install welded-wire reinforcement in longest practicable lengths.
 - 1. Support welded-wire reinforcement in accordance with CRSI "Manual of Standard Practice."
 - a. For reinforcement less than W4.0 or D4.0, continuous support spacing shall not exceed 12 inches.
 - 2. Lap edges and ends of adjoining sheets at least one wire spacing plus 2 inches for plain wire and 8 inches for deformed wire.
 - 3. Offset laps of adjoining sheet widths to prevent continuous laps in either direction.
 - 4. Lace overlaps with wire.
 - 5. The welded wire fabric shall be bent as shown or required on the Drawings to fit the work. Welded wire fabric shall be rolled or otherwise straightened to make a perfectly flat sheet before placing in the Work.

3.03 JOINTS

- A. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
 - 1. Place joints perpendicular to main reinforcement.
 - 2. Continue reinforcement across construction joints unless otherwise indicated.
 - 3. Do not continue reinforcement through sides of strip placements of floors and slabs.
- B. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length, to prevent concrete bonding to one side of joint.

3.04 INSTALLATION TOLERANCES

- A. Comply with ACI 117.

3.05 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare test reports.
- B. Inspections:
 - 1. Steel-reinforcement placement.

2. Reinforcing support type, spacing, and quantity of reinforcing supports.
3. Steel-reinforcement mechanical splice couplers.
4. Steel-reinforcement welding.

END OF SECTION 03 20 00

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

- 1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

B. Related Requirements:

- 1. Section 03 05 10 "Cold Weather Concreting Procedures" for procedures to protect concrete work during cold weather.
- 2. Section 03 05 20 "Hot Weather Concreting Procedures" for procedures to protect concrete work during hot weather.
- 3. Section 03 10 00 "Concrete Forming and Accessories" for form-facing materials, form liners, and waterstops.
- 4. Section 03 20 00 "Concrete Reinforcing" for steel reinforcing bars and welded-wire reinforcement.
- 5. Section 03 60 00 "Grouting" for cement grout, cement mortar, dry-pack mortar, epoxy grout, non-shrink grout.
- 6. Section 32 11 23 "Aggregate Base Courses" for drainage fill under slabs-on-ground.
- 7. Section 32 13 13 "Concrete Paving" for concrete pavement and walks.
- 8. Section 07 11 00 "Dampproofing".
- 9. Section 07 13 00 "Sheet Waterproofing".

1.03 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.04 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

- a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete Subcontractor.
2. Review the following:
- a. Special inspection and testing and inspecting agency procedures for field quality control.
 - b. Construction joints, control joints, isolation joints, and joint-filler strips.
 - c. Semirigid joint fillers.
 - d. Cold and hot weather concreting procedures.
 - e. Concrete finishes and finishing.
 - f. Curing procedures.
 - g. Forms and form-removal limitations.
 - h. Shoring and reshoring procedures.
 - i. Concrete repair procedures.
 - j. Concrete protection.
 - k. Initial curing and field curing of field test cylinders (ASTM C31/C31M.)
 - l. Protection of field cured field test cylinders.

1.05 ACTION SUBMITTALS

- A. Product Data: For each of the following.
- 1. Portland cement.
 - 2. Fly ash.
 - 3. Slag cement.
 - 4. Silica fume.
 - 5. Aggregates.
 - a. Include types, pit or quarry locations, producers' names, gradations, specific gravities, and evidence of not more than 90 days old demonstrating compliance with Product specification.
 - 6. Admixtures:
 - a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.

7. Bonding agents.
8. Liquid floor treatments.
9. Curing materials.
10. Joint fillers.
11. Repair materials.

B. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.
2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum w/cm.
5. Slump limit.
6. Air content.
7. Nominal maximum aggregate size.
8. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
9. Intended placement method.
10. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - a. Include new field test data verifying adequacy of modified proportions.

C. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:

1. Concrete Class designation.
2. Location within Project.
3. Exposure Class designation.
4. Formed Surface Finish designation and final finish.
5. Final finish for floors.
6. Curing process.
7. Floor treatment if any.

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.

3. Testing agency: Include copies of applicable ACI certificates.
 - B. Material Certificates: For each of the following, signed by manufacturers:
 1. Cementitious materials.
 2. Admixtures.
 3. Curing compounds.
 4. Floor and slab treatments.
 5. Bonding agents.
 6. Adhesives.
 7. Semirigid joint filler.
 8. Joint-filler strips.
 9. Repair materials.
 - C. Material Test Reports: For the following, from a qualified testing agency:
 1. Portland cement.
 2. Fly ash.
 3. Slag cement.
 4. Silica fume.
 5. Aggregates.
 - D. Research Reports:
 1. For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.
 - E. Preconstruction Test Reports: For each mix design.
 - F. Field quality-control reports.
 - G. Minutes of preinstallation conference.
- 1.07 QUALITY ASSURANCE
- A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician.
 1. An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
 2. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

- B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
 - 1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
 - C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329, as documented according to ASTM E548 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.
 - 1. Personnel performing laboratory tests shall be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.
 - D. Field Quality Control Testing Agency Qualifications: An independent agency, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.
- 1.08 PRECONSTRUCTION TESTING
- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.
 - 1. Include the following information in each test report:
 - a. Admixture dosage rates.
 - b. Slump.
 - c. Air content.
 - d. Seven-day compressive strength.
 - e. 28-day compressive strength.
- 1.09 DELIVERY, STORAGE, AND HANDLING
- A. Comply with ASTM C94/C94M and ACI 350.5.

PART 2 - PRODUCTS

2.01 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 350.5 unless modified by requirements in the Contract Documents.

2.02 CONCRETE MATERIALS

- A. Source Limitations:

1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
 2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
 3. Obtain aggregate from single source.
 4. Obtain each type of admixture from single source from single manufacturer.
- B. Cementitious Materials:
1. Portland Cement: ASTM C150/C150M, Type I/II , .
 2. Fly Ash: ASTM C618, Class F.
 3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
 4. Silica Fume: ASTM C1240 amorphous silica.
- C. Normal-Weight Aggregates: ASTM C33/C33M, Class 4S coarse aggregate or better, graded. Provide aggregates from a single source.
1. Alkali-Silica Reaction: Comply with one of the following:
 - a. Expansion Result of Aggregate: Not more than 0.04 percent at one-year when tested in accordance with ASTM C1293.
 - b. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567.
 - c. Alkali Content in Concrete: Not more than 4 lb./cu. yd. for moderately reactive aggregate or 3 lb./cu. yd. for highly reactive aggregate, when tested in accordance with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.
 2. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
 3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Air-Entraining Admixture: ASTM C260/C260M.
- E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride .
1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
 2. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
 3. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 4. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.

- F. Water and Water Used to Make Ice: ASTM C94/C94M, potable

2.03 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Corporation.
 - b. Dayton Superior.
 - c. Euclid Chemical Company (The); an RPM company.
 - d. Sika Corporation.
 - e. W.R. Meadows, Inc.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.
 - 1. Color:
 - a. Ambient Temperature Below 50 deg F: Black.
 - b. Ambient Temperature between 50 deg F and 85 deg F: Any color.
 - c. Ambient Temperature Above 85 deg F: White.
- D. Water: Potable or complying with ASTM C1602/C1602M.
- E. Clear, Solvent-Borne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Corporation; MasterKure CC 250 XS
 - b. Dayton Superior; Cure & Seal 25% J22UV
 - c. Euclid Chemical Company (The); an RPM company; Luster Seal 300
 - d. Laticrete International, Inc.; L&M Lumiseal Plus
 - e. W.R. Meadows, Inc; CS-309-30.
 - f. Lambert Corporation; UV Super Seal
 - g. Approved equal.

2.04 RELATED MATERIALS

- A. Joint Sealers: two-part, self-leveling, uniform, stiff consistency, non-staining, polyurethane elastomeric sealant which cures at ambient temperature, conforming to ASTM C-920 and does not contain solvents.
1. The material shall be of a type that will effectively and permanently seal joints subject to movements in concrete.
 2. The mastic shall tenaciously adhere to primed concrete surfaces, shall remain permanently mastic and shall be NSF approved for use with potable water.
 3. For sloping joints, vertical joints and overhead horizontal joints, only “non-sag” compounds shall be used; all such compounds shall conform to the requirements of ANSI/ASTM C 920 Class 12-1/2
 4. For plane horizontal joints, the self-leveling compounds which meet the requirements of ANSI/ASTM C 920 Class 25. For joints subject to either pedestrian or vehicular traffic, a compound providing non-tracking characteristics, and having a Shore “A” hardness range of 25 to 35, shall be used.
 5. Primer materials, if recommended by the sealant manufacturer, shall conform to the printed recommendations of the sealant manufacturer.
 6. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. PERMAPOL RC-270SL RESERVOIR SEALANT, as manufactured by PRODUCTS RESEARCH & CHEMICAL CORP., Gloucester City, New Jersey (800-257-8454)
 - b. SIKAFLEX/2C POLYURETHANE ELASTOMERIC SEALANT, as manufactured by SIKA CHEMICAL CORP., Santa Fe Springs, CA (213-941-0231)
 - c. SELECT SEAL U-227 RESERVOIR GRADE, as manufactured by SPC, Upland, CA (714-985- 5771)
 - d. Or approved equal.
- B. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber or ASTM D1752, cork or self-expanding cork.
- C. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 in accordance with ASTM D2240.
- D. Backing Rod: Backing rod shall be an extruded closed cell, polyethylene foam rod. The material shall be compatible with the joint sealant material used and shall have a tensile strength of not less than 40 psi and a compression deflection of approximately 25 percent at 8 psi. The rod shall be 1/8-inch larger in diameter than the joint width except that a one-inch diameter rod shall be used for a 3/4-inch wide joint.

- E. Bonding Agent: ASTM C1059/C1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.
- F. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade and class to suit requirements, and as follows:
 - 1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- G. Bond Breaker: Bond breaker shall be SUPER BOND BREAKER WATER BASE as manufactured by Burke Company, San Mateo, California; SELECT EMULSION CURE 309, as distributed by Select Products Co., Upland, CA (clear or white pigmented) or equivalent. Fugitive dye may be used in bondbreakers if recommended by the manufacturer.

2.05 REPAIR MATERIALS

- A. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
 - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
 - 4. Compressive Strength: Not less than 5000 psi at 28 days when tested in accordance with ASTM C109/C109M.

2.06 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 350.5.
 - 1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash or Other Pozzolans: 25 percent by mass.
 - 2. Slag Cement: 50 percent by mass.
 - 3. Silica Fume: 10 percent by mass.
 - 4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.

5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.

C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, and concrete with a w/cm below 0.50.

2.07 CONCRETE MIXTURES

A. Class A: Normal-weight concrete used for all manhole collars:

1. Exposure Class: ACI 318 F1, S0, C2, P1.
2. Minimum Compressive Strength: 3500 psi at 28 days.
3. Maximum w/cm: 0.50.
4. Slump Limit: 8 inches, plus or minus 1 inch for concrete with verified slump of 3 inches plus or minus 1 inch before adding high-range water-reducing admixture or plasticizing admixture at Project site .
5. Air Content:
 - a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size .
6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

B. Class A: Normal-weight concrete used for all manhole barrels/bases/channels:

1. Exposure Class: ACI 318 F2, S3, C2, P1.
2. Minimum Compressive Strength: 3500 psi. at 28 days.
3. Maximum w/cm: 0.50.
4. Slump Limit: 8 inches, plus or minus 1 inch for concrete with verified slump of 3 inches plus or minus 1 inch before adding high-range water-reducing admixture or plasticizing admixture at Project site .
5. Air Content:
 - a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size .
6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

- C. Class F: Controlled Low Strength Material (CLSM) for flowable backfill.
1. Design and produce non-excavatable CLSM in accordance with the following requirements:
 - a. Unconfined compressive strength greater than 150 psi determined by ASTM D4832.
 - b. Air Content between 5% and 30% determined by ASTM D6023.
 - c. Unit weight of 100-130 lbs/cu. ft. determined by ASTM D6023.
 - d. Consistent flow producing a self-leveling product free of segregation determined by ASTM D6103.
 - e. Do not use materials in CLSM with a plasticity index over 4.
 - f. Furnish aggregates in accordance with the following gradation:
 - 1) 3/4-inch sieve: 100 percent passing
 - 2) No. 4 sieve: 65- 100 percent passing
 - 3) No. 30 sieve: 40 - 80 percent passing
 - 4) No. 200 sieve: 10 - 30 percent passing.

D. Class I: Grout used for Grout Shaping of channels, penetrations, etc.

1. Exposure Class: ACI 318 F0, S2, W0, C0.
2. Minimum Compressive Strength: 4000 psi at 28 days.
3. Maximum w/cm: 0.50 .
4. Slump Limit: 4 inches, plus or minus 1 inch.
5. Air Content:
 - a. Exposure Class F0: None required.
6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

2.08 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M, and furnish batch ticket information.
1. 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions:

1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
2. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:
 1. Daily access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
 4. Security and protection for test samples and for testing and inspection equipment at Project site.

3.03 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.
 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.04 JOINTS

- A. Construct joints true to line, with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
 1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Engineer.
 2. Place joints perpendicular to main reinforcement.
 - a. Continue reinforcement across construction joints unless otherwise indicated.
 - b. Do not continue reinforcement through sides of strip placements of floors and slabs.
 3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.

4. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 6. Space vertical joints in walls as indicated on Drawings . Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
 7. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.
- D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
 2. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints:
1. Install dowel bars and support assemblies at joints where indicated on Drawings.
 2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.
- F. Dowel Plates: Install dowel plates at joints where indicated on Drawings.
- 3.05 CONCRETE PLACEMENT
- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.
- B. Notify Engineer and testing and inspection agencies 24 hours prior to commencement of concrete placement.

- C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer in writing, but not to exceed the amount indicated on the concrete delivery ticket.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
 - 1. If a section cannot be placed continuously, provide construction joints as indicated.
 - 2. Deposit concrete to avoid segregation.
 - 3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a layer no deeper than 24 inches, and in a manner to avoid inclined construction joints.
 - 4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 350.5.
 - a. Do not use vibrators to transport concrete inside forms.
 - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
 - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
 - d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Do not place concrete floors and slabs in a checkerboard sequence.
 - 2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 3. Maintain reinforcement in position on chairs during concrete placement.
 - 4. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 5. Level concrete, cut high areas, and fill low areas.
 - 6. Slope surfaces uniformly to drains where required.
 - 7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
 - 8. Do not further disturb slab surfaces before starting finishing operations.

~~3.06 FINISHING FORMED SURFACES~~

~~A. As-Cast Surface Finishes (see Section 03 10 00 - Concrete Forming and Accessories for required finishes):~~

~~1. ACI 350 Environmental Surface Finish ESE-1.0: As-cast concrete texture imparted by form-facing material.~~

~~a. Apply to concrete surfaces not exposed to view for non-fluid-retaining elements.~~

~~2. ACI 350 Environmental Surface Finish ESE-2.0: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.~~

~~a. Locations: Apply to concrete surfaces exposed to view and all fluid-retaining elements.~~

~~B. Related Unformed Surfaces:~~

~~1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces.~~

~~2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.~~

3.07 FINISHING FLOORS AND SLABS

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

~~B. Scratch Finish:~~

~~1. While still plastic, texture concrete surface that has been screeded and bull-floated or darried.~~

~~2. Use stiff brushes, brooms, or rakes to produce a profile depth of 1/4 inch in one direction.~~

~~3. Apply scratch finish to surfaces to receive grout shaping.~~

C. Float Finish – *for all manhole collars:*

1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.

2. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 tolerances for conventional concrete.

3. Apply float finish to surfaces to receive trowel finish and fluid-retaining slabs.

D. Trowel Finish – *for all manhole decks and channels:*

1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
2. Continue troweling passes and restraighthen until surface is free of trowel marks and uniform in texture and appearance.
3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
4. Do not add water to concrete surface.
5. Do not apply hard-troweled finish to concrete, which has a total air content greater than 3 percent.
6. Apply a trowel finish to surfaces exposed to view .
7. Finish surfaces to the following tolerances, in accordance with ASTM E1155, for a randomly trafficked floor surface:
 - a. Slabs on Ground:
 - 1) Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch .
 - b. Suspended Slabs:
 - 1) Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.

~~E. Trowel and Fine Broom Finish: Apply a first trowel finish to surfaces indicated on Drawings. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.~~

- ~~1. Coordinate required final finish with Engineer before application.~~
- ~~2. Comply with flatness and levelness tolerances for trowel finished floor surfaces.~~

~~F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.~~

- ~~1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber bristle broom perpendicular to main traffic route.~~
- ~~2. Coordinate required final finish with Engineer before application.~~

3.08 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

A. Filling In:

1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
3. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 6 inches high unless otherwise indicated on Drawings, and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated on Drawings, or unless required for seismic anchor support.
3. Minimum Compressive Strength: 4000 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
5. Prior to pouring concrete, place and secure anchorage devices.
 - a. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - b. Cast anchor-bolt insert into bases.
 - c. Install anchor bolts to elevations required for proper attachment to supported equipment.
6. Aluminum Inserts and Embeds. All aluminum materials inserted in concrete shall have the contact surface coated with bitumastic.

3.09 CONCRETE CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Comply with ACI 350.5 and ACI 306.1 for cold weather protection during curing.
2. Comply with ACI 350.5 and ACI 305.1 for hot-weather protection during curing.
3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h before and during finishing operations.

B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:

1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
 2. Curing period shall not be less than seven days.
 3. If forms remain during curing period, moist cure after loosening forms.
 4. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
 - a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
 - b. Continuous Sprinkling: Maintain concrete surface continuously wet.
 - c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
 - d. Water-Retention Sheetting Materials: Cover exposed concrete surfaces with sheetting material, taping, or lapping seams.
 - 1) Method by itself is not permitted for fluid-retaining structures.
 - e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions. This method is not permitted for fluid-retaining structures.
 - 1) Recoat areas subject to heavy rainfall within three hours after initial application.
 - 2) Maintain continuity of coating and repair damage during curing period.
- C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:
1. Begin curing immediately after finishing concrete.
 2. Interior Concrete Floors for non- fluid retaining slabs:
 - a. Floors to Receive Penetrating Liquid Floor Treatments: Contractor has option of the following:
 - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - a) Lap edges and ends of absorptive cover not less than 12 inches.
 - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
 - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest

practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.

- a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - b) Cure for not less than seven days.
 - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
 - a) Water.
 - b) Continuous water-fog spray.
- b. Floors to Receive Curing Compound:
 - 1) Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
 - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
 - 3) Maintain continuity of coating, and repair damage during curing period.
 - 4) Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.
- c. Floors to Receive Curing and Sealing Compound:
 - 1) Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller in accordance with manufacturer's written instructions.
 - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
 - 3) Repeat process 24 hours later, and apply a second coat. Maintain continuity of coating, and repair damage during curing period.
3. Slabs for fluid-retaining structures:
 - a. Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - 1) Lap edges and ends of absorptive cover not less than 12 inches.
 - 2) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.

- b. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
 - 1) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - 2) Cure for not less than seven days.
- c. Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
 - 1) Water.
 - 2) Continuous water-fog spray.

3.10 TOLERANCES

- A. Conform to ACI 117.

~~3.11 APPLICATION OF LIQUID FLOOR TREATMENTS~~

- ~~A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment in accordance with manufacturer's written instructions.~~
 - ~~1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.~~
 - ~~2. Do not apply to concrete that is less than 14 days' old.~~
 - ~~3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing.~~
 - ~~4. Rinse with water; remove excess material until surface is dry.~~
 - ~~5. Apply a second coat in a similar manner if surface is rough or porous.~~
- ~~B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller in accordance with manufacturer's written instructions.~~

3.12 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
 - 1. Install cork type joint filler in joints in fluid-retaining elements.
 - 2. Defer joint filling until concrete has aged at least six month(s).
 - 3. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

3.13 JOINT SEALING

- A. Joints, not requiring waterstops or when so indicated on the Drawings, shall be sealed.
- B. Joint sealed areas shall be sandblasted or roughened and blown clean of dust and sand with compressed air before the material may be applied.
- C. Joints shall be primed (if required) and the sealant shall be applied in accordance with the manufacturer's recommendations.

3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete:
 - 1. Repair and patch defective areas when approved by Engineer.
 - 2. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Repair cracks in liquid containing concrete structures with widths greater than 0.010 inches, unless otherwise specified or directed by the Engineer.
- C. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, of stiff consistency using only enough water for handling and placing. Mix the repair mortar and turn the mortar frequently with a trowel without adding water.
- D. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
 - a. Limit cut depth to 3/4 inch.
 - b. Make edges of cuts perpendicular to concrete surface. Do not feather edges.
 - c. Clean, dampen with water plus another 6 inches around the patch area perimeter, and brush-coat holes and voids with bonding agent.
 - d. Fill and compact with patching mortar before bonding agent has dried. Strike off mortar, leaving the patch slightly higher than the surrounding surface to permit initial shrinkage. Leave the patch undisturbed for 1 hour before finishing.
 - e. Keep the patch damp for 7 days.
 - f. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.
 - a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
 - b. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Engineer.

E. Repairing Unformed Surfaces:

1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.
 - a. Correct low and high areas.
 - b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
3. After concrete has cured at least 14 days, correct high areas by grinding.
4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
 - a. Finish repaired areas to blend into adjacent concrete.
5. Correct other low areas scheduled to receive floor coverings with a repair underlayment.
 - a. Prepare, mix, and apply repair underlayment and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - b. Feather edges to match adjacent floor elevations.
6. Correct other low areas scheduled to remain exposed with repair topping.
 - a. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
 - b. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
7. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.

- a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
 - b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
 - c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
 - d. Place, compact, and finish to blend with adjacent finished concrete.
 - e. Cure in same manner as adjacent concrete.
8. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
- a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
 - b. Dampen cleaned concrete surfaces and apply bonding agent.
 - c. Place patching mortar before bonding agent has dried.
 - d. Compact patching mortar and finish to match adjacent concrete.
 - e. Keep patched area continuously moist for at least 72 hours.
- F. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- G. Repair materials and installation not specified above may be used, subject to Engineer's approval.

~~3.15 WATER HOLDING STRUCTURES LEAKAGE TESTING~~

- ~~A. Complete in accordance with ACI 350.1.~~
- ~~B. All concrete structures that are designed to hold or pass water shall be hydraulically tested after curing has completed. All structures shall be prepared for testing by plugging the outlets or providing proper standpipes. The structure shall be filled to the proper operating depth and maintained at that level for (7) days. No leakage will be allowed.~~
- ~~C. All cracks, leaks, and irregularities shall be properly and aesthetically repaired by the contractor at no additional expense to the Owner. All repairs shall be completed to the satisfaction of the Owner.~~

3.16 FIELD QUALITY CONTROL

- A. Special Inspections: Contractor will engage a specialized testing agency to perform concrete QA/QC.
- B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

1. Testing agency shall be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
 2. Testing agency shall immediately report to Engineer, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
 3. Testing agency shall report results of tests and inspections, in writing, to Owner, Engineer, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
 - a. Test reports shall include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
 - 1) Project name.
 - 2) Name of testing agency.
 - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
 - 4) Name of concrete manufacturer.
 - 5) Date and time of inspection, sampling, and field testing.
 - 6) Date and time of concrete placement.
 - 7) Location in Work of concrete represented by samples.
 - 8) Date and time sample was obtained.
 - 9) Truck and batch ticket numbers.
 - 10) Design compressive strength at 28 days.
 - 11) Concrete mixture designation, proportions, and materials.
 - 12) Field test results.
 - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
 - 14) Type of fracture and compressive break strengths at seven days and 28 days.
- C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.
- D. Inspections:
1. Verification of use of required design mixture.
 2. Concrete placement, including conveying and depositing.
 3. Curing procedures and maintenance of curing temperature.
 4. Verification of concrete strength before removal of shores and forms from beams and slabs.
 5. Batch Plant Inspections: On a random basis, as determined by Engineer.

- E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M shall be performed in accordance with the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 20 cu. yd., but less than 45 cu. yd, plus one set for each additional 50 cu. yd. or fraction thereof.
 - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C143/C143M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - b. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete; .
 - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C1064/C1064M:
 - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C31/C31M:
 - a. Cast and laboratory cure two sets of four 6-inch by 12-inch or 4-inch by 8-inch cylinder specimens for each composite sample.
 - b. Cast, initial cure, and field cure two sets of two standard cylinder specimens for each composite sample.
 6. Compressive-Strength Tests: ASTM C39/C39M.
 - a. Test one set of two laboratory-cured specimens at seven days and one set of two specimens at 28 days.
 - b. Test one set of two field-cured specimens at seven days and one set of two specimens at 28 days.
 - c. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified

compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi or less, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.

9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
10. Additional Tests:
 - a. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.
 - b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer.
 - 1) Acceptance criteria for concrete strength shall be in accordance with ACI 350.5 section 1.6.7.3.
11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

3.17 PROTECTION

A. Protect concrete surfaces as follows:

1. Protect from petroleum stains.
2. Diaper hydraulic equipment used over concrete surfaces.
3. Prohibit vehicles from interior concrete slabs.
4. Prohibit use of pipe-cutting machinery over concrete surfaces.
5. Prohibit placement of steel items on concrete surfaces.
6. Prohibit use of acids or acidic detergents over concrete surfaces.
7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 03 30 00

SECTION 03 60 00
GROUT AND REPAIR MORTAR

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. This section includes, but not limited to, the following:
 - 1. Grouting of structural base plates, equipment baseplates and other miscellaneous uses of non-shrinking grout.
 - 2. Epoxy grouting of anchor bolts and reinforcing bars to be installed in hardened concrete.
 - 3. Repair of deteriorated concrete surfaces
- B. Related Sections include, but are not limited to, the following:
 - 1. Division 5 Section "Metal Fabrications & Miscellaneous Metal"
 - 2. Division 3 Section "Reinforcing Steel"
 - 3. Division 3 Section "Structural Concrete"

1.03 SUBMITTALS

- A. The Contractor shall submit manufacturers' information indicating the application, formulation, and installation procedures for each brand and type of grout to be used.

1.04 PRODUCT HANDLING

- A. Delivery of Materials: Materials shall be delivered to the project site in original, new and unopened containers bearing the manufacturer's name and label showing at least the following information:
 - 1. Name of material.
 - 2. Federal specification number, if applicable.
 - 3. Manufacturer's name.
 - 4. Contents by volume for major constituents.
 - 5. Handling instructions.
 - 6. Application instructions.
- B. Storage of Materials: Materials shall be stored to prevent moisture contamination,

damage, and deterioration of grout materials.

- C. Protection: Materials and Work shall be protected before, during and after installation of the grout.

PART 2 - PRODUCTS

2.01 NONSHRINKING GROUT

- A. Nonshrinking Grout shall be: Sika Grout 212; Master Builders "Masterflow 713 Grout"; Savereisen Cement "F-100 Level Fill Grout"; U.S. Grout "Five Star Grout"; or USM "Upcon" or equal.

2.02 EPOXY GROUT

- A. Adhesive: Two-component liquid equal to: Thermal-Chem "Mortar Resin Products M3"; Minwax "Por-Rok Anchoring Cement", or equal.
- B. Aggregate: As recommended by the epoxy grout manufacturer.

2.03 REPAIR MORTAR

- A. The material to be used for repair of the Bar Screen structure shall be two-component, polymer-modified, cementitious, non-sag mortar equal to SikaTop-123 Plus" with FerroGard 901 penetrating corrosion inhibitor.

2.04 QUICK SETTING HYDRAULIC CEMENT

- A. Quick setting hydraulic cement shall be SikaSet Plug, or equal

2.05 WATER

- A. Clean and free of deleterious substances.

PART 3 - EXECUTION

3.01 NONSHRINKING GROUT

- A. General: Nonshrinking grout shall be furnished factory-premixed so only water is added at the project site. Grout shall be mixed in a mechanical mixer. No more water shall be used than is necessary to produce a flowable grout as recommended by the manufacturer.
- B. Preparation: Concrete to receive nonshrinking grout shall be saturated with water for 24 hours prior to grouting.
- C. Placement: Grout shall be placed in strict accordance with the directions of the manufacturer so all spaces and cavities below the top baseplates or against concrete slabs or walls are completely filled without voids. Forms shall be provided where structural components of baseplates or launders will not confine the grout.
- D. Finishing: The grout shall be finished smooth in all locations where the top surface or edge of the grout will be exposed to view after it has reached its initial set. Except where shown to be finished on a slope, the edges of grout shall be cut

off flush at the baseplate, bedplate, member, or piece of equipment.

- E. Curing: Nonshrink grout shall be protected against rapid loss of moisture by covering with wet rags or polyethylene sheets. After edge finishing is complete, the grout shall be wet cured for at least 7 days.

3.02 EPOXY GROUT

- A. General: Components shall be packed separately at the factory and field mixed. All proportioning and mixing of the components shall be in accordance with the manufacturer's recommendations.
- B. Preparation: Where indicated on the Drawings, anchor bolts and reinforcing bars shall be epoxy grouted in holes drilled into hardened concrete. Diameters of holes shall be $\frac{1}{4}$ inch larger than the maximum dimension of the bolt head, and $\frac{1}{2}$ inch larger than the bar diameter. The embedment depth for epoxy-grouted anchor bolts and reinforcing bars shall not be less than ten bolt or bar diameters unless indicated otherwise on the Drawings.
 - 1. Holes shall be prepared for grouting as recommended by the grout manufacturer.
- C. Installation: Anchor bolts and reinforcing bars shall be clean, dry, and free of grease and other foreign matter at the time of installation. The bolts and bars shall be set and positioned and the epoxy grout shall be placed and finished in accordance with the recommendations of the grout manufacturer. Particular care shall be taken to insure that all spaces and cavities are filled with epoxy grout, without voids.

3.03 REPAIR MORTAR

- A. General: Components shall be packed separately at the factory and field mixed. All proportioning and mixing of the components shall be in accordance with the manufacturer's recommendations.
- B. Preparation: Where indicated on the Drawings, the interior and exterior surfaces of the Bar Screen structure shall be cleaned and completely free of deleterious substances. The surfaces shall be free of standing or adhered water and shall be prepared in strict accordance with the manufacturer's requirements before the repair mortar is mixed and applied.
- C. Installation: All surfaces shall be clean, dry, and free of grease and other foreign matter at the time of installation. The mortar shall be placed and finished in accordance with the recommendations of the manufacturer. Particular care shall be taken to insure that all spaces and cavities are filled with repair mortar, without voids.

3.04 QUICK SETTING HYDRAULIC CEMENT

- A. General. Contents shall be packaged at the factory and mixed with water in the field to obtain the desired consistency. Proportioning and mixing shall be in

accordance with the manufacturer's recommendations.

- B. Preparation. The concrete area to receive quick setting hydraulic cement should be thoroughly cleaned and lightly dampened just prior to application.
- C. Installation. The quick setting hydraulic cement shall be placed and finished in accordance with the recommendations of the grout manufacturer. Particular care shall be taken to insure that all spaces and cavities are filled without voids.

3.05 USES OF GROUT

- A. Non-shrink grout shall be used beneath all equipment bases and other locations shown on the Drawings or specified herein. Grouting thicknesses and application shall meet the equipment manufacturer's requirements.
- B. Epoxy grout shall be used at locations shown on the Drawings or specified herein. Repair of rock pockets or surface defects in concrete work approved for repair by the Engineer shall generally be repaired with epoxy grout unless otherwise directed by the Engineer. Anchor bolts approved by the Engineer for installation in concrete shall be set in epoxy grout unless otherwise directed by the Engineer. This grout shall not be used in contact with potable water.
- C. Quick setting hydraulic cement shall be used at locations shown on the Drawings or specified herein. All penetrations/joints in concrete manholes, vaults, or structures where a watertight seal is required shall use this type of grout.

END OF SECTION 03 60 00

DIVISION 7

THERMAL & MOISTURE PROTECTION

SECTION 07 11 00

DAMPPROOFING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This section covers the work necessary to furnish, install and complete all belowgrade dampproofing *for new manhole structures*.

1.02 RELATED SECTIONS

- A. Division 3 – Concrete & Grout

1.03 GENERAL

- A. See the GENERAL CONDITIONS and Division 1, GENERAL REQUIREMENTS, which contain information and requirements that apply to the work specified herein and are mandatory for this project.

1.04 SUBMITTALS

- A. Submittals shall be made in accordance with Section 01 33 00, SUBMITTALS in Division 1, GENERAL REQUIREMENTS.
- B. Submit the following:
 - 1. Manufacturer's Literature: Submit manufacturer's literature, specifications, and application instructions for dampproofing materials.
 - 2. Certificate: Submit manufacturer's certificate of conformance with these Specifications.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The use of a manufacturer's name and catalog number is for the purpose of establishing the standard of quality desired only. Products of other manufacturers will be considered in accordance with the General Conditions.

2.02 DAMPPROOFING

- A. Asphalt compound of brush or spray consistency conforming to Federal Specification SS-A-701 or ASTM D449, Type A; A.C. Horn Dehydratine 4; J & P Petroleum Products Tex-Mastic No. 720; W.R. Meadows, Inc. Spray-Mastic; Sonneborn Hydrocide 700B; or equal.

PART 3 - EXECUTION

3.01 ENVIRONMENTAL REQUIREMENTS

- A. Do not start work until the following environmental requirements are met.
- B. Do not proceed with application of materials when ambient temperature is less than 50° F.

- C. Do not apply dampproofing in rainy conditions or within 3 days after surfaces become wet from rainfall or other moisture.
- D. Do not apply materials when low temperature of 40° F or less is predicted within a period of 24 hours after application.

3.02 INSPECTION

- A. Examine surfaces to receive dampproofing to assure conditions are satisfactory for application of materials.

3.03 SURFACE PREPARATION

- A. Clean surfaces to remove dust, dirt, oil, wax, efflorescence, and other foreign materials, in accordance with dampproofing manufacturer's instructions.
- B. Remove efflorescence by scrubbing surface with muriatic acid and thoroughly rinsing with water.
- C. Allow 3 days drying time following washing down of substrate surfaces.
- D. Fill all cracks, voids, and honeycombs with mortar to provide sound surface for dampproofing.

3.04 APPLICATION

- A. Apply dampproofing with a brush, or with manufacturer-approved low pressure airless spray equipment with a coarse nozzle.
- B. Apply materials at rate and as recommended by the manufacturer and in two coats.
- C. Start application at top of wall and work down surface, keeping a wet edge at all times, forming a continuous, unbroken film, free from pinholes and other surface breaks.
- D. Follow manufacturer's recommendations for surface preparation where waterproof wrap is applied to manhole joints in accordance with Section 33 01 31.

3.05 ADJUST AND CLEAN

- A. Clean spillage and overspray from adjacent surfaces as recommended by manufacturer.

3.06 FIELD QUALITY CONTROL

- A. After dampproofing has dried, spray coat surfaces with water.
- B. Recoat surfaces that show water absorption, as recommended by manufacturer. To prevent blistering, protect surfaces from heat and direct sunlight until dried, then backfill.

3.07 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original sealed containers, clearly marked with manufacturer's name, brand name, and type of material.
- B. Store materials in area where temperatures are not less than 50°F or over 85°F, unless otherwise authorized by manufacturer.

END OF SECTION 07 11 00

DAMPPROOFING

07 11 00-2

DIVISION 31

EARTHWORK

SECTION 31 11 00 CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Protection of features not designated for removal;
 - 2. Site removals;
 - 3. Disposal of waste materials;
 - 4. Salvage of topsoil
- B. Related Sections include:
 - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
 - 2. Division 1 – General Requirement Specification Sections.
 - 3. Division 31 – Earthwork Specification Sections.

1.02 REGULATORY REQUIREMENTS

- A. Conform to applicable codes and regulations for proper disposal of debris.
- B. Conform to applicable codes for worker safety.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Construction Fencing: Construction fencing shall be orange plastic mesh, heavy duty, snow fencing fastened to metal or wood posts.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Verify that existing plant life designated to remain is tagged or identified.
- B. Beginning work of this Section means acceptance of existing conditions.
- C. Identify and furnish an area for storing or placing removed material prior to the commencement of Work in this Section.

3.02 PROTECTION

- A. Locate, identify, and protect utilities that remain from damage.
- B. Protect trees, plant growth, and features designated to remain, as final landscaping.
- C. Protect bench marks, survey control points, and existing structures from damage.
- D. Prevent surface water and subsurface or groundwater from entering excavations, from

ponding on prepared subgrades and from flooding site and surrounding area.

- E. Contractor shall repair or replace, to original condition or better, existing structures and improvements, flora, and landscaping damaged or injured during construction operations. Contractor shall understand the sensitive nature of working on or near developed property and shall endeavor to limit injury or damage both inside the limits of construction and outside the limits of construction.
- F. Protect existing trees and other vegetation indicated to remain from unnecessary cutting, breaking, skinning of roots, skinning and bruising of bark, smothering of trees, by stockpiling construction materials or excavated materials within the drip line, excess foot or vehicular traffic, or parking of vehicles within drip line.
- G. Protect wetlands, rivers, streams, and other waters of the state from all construction activities and contamination by erosion and runoff.
- H. Protect areas that have been finish graded from subsequent construction operations, traffic, and erosion. Remove, provide new, and compact as required, material contaminated by erosion and runoff

3.03 WORK BY OTHERS

- A. Sod in any areas to be disturbed will be removed by others prior to commencement of earthwork activities.

3.04 CLEARING

- A. Clear areas required for access to site and execution of Work.

3.05 GRUBBING

- A. Shall conform to Montana Department of Transportation (MDT) Standard Specifications for Road and Bridge Construction (2014 edition). Section 201.03.1 shall be followed except as specified below and absolutely no burning will be allowed.
 - 1. Grubbing operations may be completed by removal of stump section or by grinding.
 - 2. Remove stumps, logs, roots, and other organic matter located within proposed pavements and structures to the depth indicated:
 - a. Gravel or paved surface: 48" below surface grade.
 - b. Grass areas: 12" below surface grade.
 - c. Other structures or utilities: 36" below existing ground or finish grade, whichever is lower.
- B. Depressions resulting from grubbing operations shall be backfilled in accordance with other sections in Division 31.

3.06 DISPOSAL OF WASTE MATERIALS

- A. Remove all clearing and grubbing debris from the site in accordance with the Contract Documents and all permits and regulations. Burning shall not be allowed on Owner's property.

END OF SECTION 31 11 00

SECTION 31 11 10
**REMOVAL OF EXISTING PAVEMENT, CONCRETE CURB, SIDEWALK,
DRIVEWAY, AND/OR STRUCTURES**

(Reference MPWSS Section 02112)

All applicable portions of MPW Standard Specification Section 02112 shall apply with the following additions, deletions, and/or modifications.

PART 3 - EXECUTION

Delete the last sentence of 3.1.C and add the following:

Edges on all concrete and asphalt shall be straight lines and vertical cuts made with a saw. Concrete shall be cut with a saw to a depth of 4 inches minimum. Section deeper than 4 inches may be broken after cutting. Resulting face shall not be flatter than a 1:1 from vertical. Construction methods will not disturb the remaining concrete slabs.

All slabs to remain shall be replaced, if disturbed, at no cost to the owner.

Exercise care in removal of existing tree roots that conflict with the work. Tree roots shall be removed by saw-cutting the roots to a neat line at the extent of the excavation. Remove only the minimum amount of roots necessary in order to complete the work.

PART 4 - MEASUREMENT AND PAYMENT

DELETE: Entire Section and refer to Section 01 29 00

END OF SECTION 31 11 10

SECTION 31 14 13
SOIL STRIPPING AND STOCKPILING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Protection of features not designated for removal.
2. Topsoil Removal.
3. Stockpiling of Materials.
4. Stockpile Cleanup.
5. Estimated Excess Material Volumes.

B. Related Sections include:

1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
2. Division 1 – General Requirement Specification Sections.
3. Division 31 – Earthwork Specification Sections.

1.02 DESCRIPTION

- A. Limits of construction are shown on the Drawings. Excavation shall not be allowed outside of the limits of construction where shown on the Drawings.
- B. Materials may be temporarily stockpiled on the site within the limits of construction or where shown on the Drawings.
- C. Protect benchmarks and existing structures that are to remain from damage or displacement.

1.03 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as indicated.

1.04 DEFINITIONS

- A. Soil Testing Laboratory: Refers to a professional soils engineering firm with soil sampling and testing services that is independent from the Contractor.
- B. Structures: Existing and new construction, including slabs, buildings, footings, tanks, and other structural elements.
- C. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of weeds, roots, and other deleterious materials.

1.05 SITE CONDITIONS

- A. Data indicated on the subsurface conditions are not intended as representations,

warranties of accuracy, or continuity between soil borings. It shall be expressly understood that Owner and Engineer shall not be responsible for interpretations or conclusions drawn from these reports by the Contractor. The information is made available for the convenience of the Contractor and is in no way, shape, or form considered a part of this Contract.

- B. Contractor shall determine to Contractor's own satisfaction the nature and location of subsurface obstacles and the nature of soil and water conditions which will be encountered during the work.
- C. Contractor may perform additional test borings or other exploratory operations at Contractor's own expense. Contractor shall make arrangements for any additional soils investigation with Owner.
- D. No claim for additional payment will be accepted due to the nature of subsurface conditions in which the work is to be performed.
- E. Do not commence construction of structure foundation until soil test results are confirmed.

1.06 ADDITIONAL PAYMENT

- A. All excavation, removal, and disposal of earth, peat, muck, and other materials; erosion control; sheeting, shoring, and bracing; fill and backfill, placement, compaction, grading, source quality testing; stockpiling; and all other work under this Section shall be considered incidental to the Project and no claim for additional compensation of extra work will be accepted.
- B. No claim for additional payment will be accepted for excavation and fill for all or improvements required for removal of unsuitable material up to three (3) feet below bottom of proposed foundation or one (1) foot below bottom of noted geosynthetically reinforced structural fill or one (1) foot below minimum excavation limit or as noted on the Drawings, whichever results in the greater excavation and fill.
- C. Excavation and fill required for removal of unsuitable material deeper than the above limits will be paid for on a time and materials basis if conditions found in the Geotechnical Report are found to differ from actual conditions experienced on site. No additional payment will be made for conditions reflected in the Geotechnical Report.
- D. No claim for additional payment will be accepted for repairs made to subgrade due to weather related items.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall verify which native materials are suitable for reuse at the site. Provide testing data as required and keep materials separated.
- B. Notify Engineer of any unsuitable materials.

3.02 PROTECTION

- A. Protect all existing structures, trees, plantings, turf, and other facilities which are not scheduled for removal.

3.03 TOPSOIL REMOVAL

- A. All topsoil shall be stripped to full depth and stockpiled separately to be placed on top of finished grading and all disturbed areas not covered by structures or pavement. Remove all heavy growths of grass prior to stripping topsoil.
- B. Separate all debris, large roots, and rocks greater than one (1) inch from the topsoil and remove from the site in accordance with all applicable Federal, State, and Local regulations to Contractor furnished site.
- C. Where trees are to be left standing, stop topsoil stripping a sufficient distance (at least the drip line) from a tree to prevent damage to main root system.

3.04 STOCKPILING OF MATERIALS

- A. Contractor may temporarily stockpile acceptable materials including topsoil, excess excavated, and delivered materials within the limits of construction where shown on the Drawings. Contractor shall obtain approval from Engineer before stockpiling excess materials.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- E. Apply appropriate erosion control measures to stockpile areas.
- F. Avoid stockpiling in location of future levee or berm around the site.
- G. Contractor shall remove all excess stockpiles from the site prior to substantial completion of the project.

3.05 CLEANUP AND DISPOSAL

- A. Remove stockpile; leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.
- B. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property unless Contractor has made arrangements for onsite disposal.

END OF SECTION 31 14 13

SECTION 31 23 33
TRENCHING AND BACKFILLING

(Reference MPWSS Section 02221)

All applicable portions of MPW Standard Specification Section 02221 shall apply with the following additions, deletions, and/or modifications.

PART 3 - EXECUTION

3.05 EXCAVATION STABILITY AND SAFETY

- A. Add the following: Trench shoring shall be conducted in accordance with Section 31 41 00

PART 4 - MEASUREMENT AND PAYMENT

DELETE: Entire Section and refer to Section 01 29 00

END OF SECTION 31 23 33

SECTION 31 41 00 SHORING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Work related to sheeting, shoring, bracing, and excavation support systems needed to accomplish construction of buildings, tanks, facilities, utilities, and piping.

B. Related sections include, but are not limited to:

1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
2. Section 03 30 00 – Cast-in-Place Concrete
3. Division 1 – General Requirement Specification Sections
4. Division 31 – Earthwork Specification Sections.

1.02 SUBMITTALS

A. Shop Drawings and Product Data: Submit, in accordance with Section 01 33 00. In general, include drawings and supporting calculations for shoring for Engineer review and approval.

B. Submittals shall include:

1. Excavation support plan.
2. Movement monitoring plan.
3. Trench excavation plan.
4. Movement measurement and data and reduced results indicating movement trends.
5. Documentation that shoring plan or system has been designed by a registered Professional Engineer if required.

C. Design calculations of bracing and shoring showing member stresses and connections due to imposed loads. Calculations shall be sealed by a qualified professional engineer.

1.03 QUALITY ASSURANCE

A. An OSHA approved competent person shall review the soil classification presented in the Geotechnical Report in the field. Excavations shall comply with the requirements of OSHA 29 CFR, Part 2926, Subpart P, “Excavations and Trenches.” Excavation safety is the responsibility of the Contractor. All excavations greater than 20 feet in depth shall be designed by a registered

Professional Engineer.

- B. Sheeting, shoring, and bracing shall conform to safety requirements of federal, state, and local agencies.
- C. Sheeting, shoring, and bracing shall not affect structural integrity of existing structures, utilities, or Work, and shall allow for sufficient clearances necessary to install associated appurtenances adjacent to new Work.
- D. Sheeting, shoring, and bracing shall not penetrate walls or slabs of new Work unless approved by the Engineer.
- E. Provide surveys to monitor movements of critical facilities.

1.04 REGULATORY REQUIREMENTS

- A. Work outlined in this Section shall conform to OSHA regulations and all applicable codes and regulations for worker safety.

PART 2 - PRODUCTS

2.01 SHEETING, SHORING, AND BRACING

- A. Type, design, detail, and installation of sheeting, shoring, and bracing shall be determined by and be the sole responsibility of the contractor.

PART 3 - EXECUTION

3.01 GENERAL

- A. Design, provide, and maintain shoring, sheeting, and bracing as necessary to support the sides of excavations and to prevent detrimental settlement and lateral movement of existing facilities, adjacent property, and completed Work. Shoring, sheeting, and bracing shall also be provided as necessary to protect workers and the public.
- B. Sheeting, shoring, and bracing shall be installed to prevent solids from entering excavation below or through sheeting.
- C. Open cut excavations are to be evaluated by a registered Engineer and protected against surface water intrusion.

3.02 EXCAVATION SUPPORT PLAN

- A. Prepare an excavation support plan addressing the following topics:
 - 1. Select and install shoring system such that no adverse impact occurs on existing structures, utilities, or facilities.
 - 2. Details of shoring, bracing, sloping, or other provisions for worker protection from hazards of caving ground.
 - 3. Design assumptions and calculations.
 - 4. Methods and sequencing of installing excavation support.

5. Proposed locations of stockpiled excavated material.
6. Minimum lateral distance from the crest of slopes for vehicles and stockpiled excavated materials.
7. Anticipated difficulties and proposed resolutions.

3.03 MOVEMENT MONITORING PLAN

- A. Prepare movement monitoring plan addressing following topics:
 1. Survey control.
 2. Location of monitoring points.
 3. Plots of data trends.
 4. Interval between surveys.
 - a. Interval shall not be less than once per week during performance of work until the permanent structure is complete to the ground level and shall continue weekly for a period of four (4) weeks after completion of the work (or longer if movement persists).

3.04 REMOVAL OF EXCAVATION SUPPORT

- A. Remove excavation support in a manner that will maintain support as excavation is backfilled.
- B. Do not begin to remove excavation support until support can be removed without damage to existing facilities, completed Work, or adjacent property.
- C. Remove excavation support in a manner that does not leave voids in the backfill.

3.05 TRENCHES

- A. Provide trench excavations exceeding four (4) feet in depth with adequate safety systems.
- B. For trench excavation exceeding five (5) feet in depth, provide adequate safety systems meeting requirements of applicable state and local construction safety orders, and federal requirements.

END OF SECTION 31 41 00

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 11 23 AGGREGATE BASE COURSES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes general requirements and procedures for furnishing and installing base and pavement courses, including:
 - 1. Subbase Course.
 - 2. Aggregate Base Course.
- B. Related Sections include, but are not limited to:
 - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
 - 2. Division 1 – General Requirement Specification Sections.
 - 3. Division 31 – Earthwork Specification Sections.
 - 4. Division 32 – Exterior Improvements.

1.02 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO)
- B. American Concrete Institute (ACI)
- C. American Society for Testing Materials (ASTM)
- D. MDT Specifications (latest edition)

1.03 SUBMITTALS

- A. Subbase Course
 - 1. Provide appropriate material source testing for each granular material. Include name location of source, date of testing, and sample gradations. Tests shall not be more than 180 calendar days before date of submittal.
- B. Aggregate Base Course
 - 1. Submit gradation report on sample of aggregate base to be used.

1.04 SEQUENCING AND SCHEDULING

- A. Construct aggregate base only after all of the following have been completed:
 - 1. Subgrade has been corrected for instability problems and successfully passed a rolling test performed by the Contractor and witnessed by the Engineer.
 - 2. Subgrade has been checked for conformance to line and string tolerances (stringline).
- B. Aggregate base to be completed and approved by Engineer prior to placement of bituminous surfaces.

1.05 QUALITY ASSURANCE

- A. Contractor shall establish and maintain the required lines and grades, including crown and cross-slope, for each course during work.
- B. In-place finished thickness will not be acceptable if exceeding following allowable variation from thickness specified herein:
 - 1. Aggregate Base Course: Plus or minus one-half inch.

PART 2 - PRODUCTS

2.01 SUBBASE COURSE

- A. Subbase shall be Type A or B materials as specified in MPWSS 02234 unless otherwise indicated.

2.02 AGGREGATE BASE COURSE

- A. Aggregate Base Course shall be as indicated on the Construction Drawings and as specified in MPWSS 02235.

2.03 AGGREGATE SURFACE COURSE

- A. Aggregate Surface Course shall be as indicated on the Construction Drawings and as specified in MPWSS 02510.

PART 3 - EXECUTION

3.01 AGGREGATE BASE COURSE

- A. Preparation:
 - 1. Verify subsoil has been inspected; gradients and elevations are correct.
 - 2. Prepare the sub-base course.
 - 3. Verify subsoil is compacted to specified density and that subgrade test results have been submitted prior to placing aggregate course.
 - 4. Subgrade to be completed and approved by Engineer prior to installation of the aggregate base course.
 - 5. Verify subgrade is dry.
- B. Construction Requirements; conform to MDT Specifications:
 - 1. Place aggregate in maximum 6-inch layers and compact to specified density. When placing over geotextile fabric, place in minimum 8 inch layers.
 - 2. Level and contour surfaces to elevations and gradients indicated.
 - 3. Compact by mechanical means as specified in Section 01 40 00.
 - 4. Install aggregate base in accordance with Detail Drawings.
 - 5. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

6. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

C. Field Quality Control:

1. The Owner shall have an independent testing laboratory sample the aggregate base materials, determine the moisture/density relationships and gradation, and perform field moisture/density tests at locations determined by Engineer.
2. If, during progress of Work, tests indicate that compacted materials do not meet specified requirements, remove defective Work, replace, and retest. Contractor shall bear all costs associated with repair and retesting of defective Work.

3.02 TOLERANCES

A. Finished Grade:

1. Line and Grade Tolerance: The final aggregate base surface will be checked for conformance to specified tolerances by the “stringline” method prior to approval to pave the surface. Grade shall be ± 0.03 feet of grade.

END OF SECTION 32 11 23

SECTION 32 12 16 ASPHALT PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Bituminous Pavement.

B. Related Work:

1. The General Conditions, Supplementary Conditions, and General Requirements apply to work of this section.
2. Division 1 – General Requirements Specification Sections.
3. Division 31 – Earthwork Specification Sections.

1.02 REFERENCES

A. Reference Standards include:

1. ASTM D946 – Penetration-Graded Asphalt Cement for Use in Pavement Construction.
2. ASTM D1559 – Test of Resistance to Plastic Flow of Bituminous Mixtures. Using Marshall Apparatus.
3. ASTM D2950 – Test for Density of Bituminous Concrete in Place by Nuclear Methods.
4. TAI – (The Asphalt Institute) – MS-2 Mix Design Methods for Asphalt Concrete and Other Hot Mix Types.
5. TAI – (The Asphalt Institute) – MS-3 Asphalt Plant Manual.
6. TAI – (The Asphalt Institute) – MS-8 Asphalt Paving Manual.
7. TAI – (The Asphalt Institute) – MS-19 Basic Asphalt Emulsion Manual.
8. Montana Department of Transportation (MDT) Standard Specifications for Road Construction and Bridge Construction, 2008 Edition.

1.03 SUBMITTALS FOR REVIEW

A. Section 01 33 00 – Submittals: Procedures for submittals.

B. Product Data: Furnish data on aggregates, asphalt cement, bituminous mixtures, and other materials required for the mix in accordance with Section 01 33 00 and 01 40 00 at least 7 days prior to beginning paving operations.

C. Asphalt Mix Formula.

1.04 PERFORMANCE REQUIREMENTS AND QUALITY ASSURANCE

- A. When referenced, perform Work in accordance with the Montana State Highway Department standard Specifications for Road and Bridge Construction, latest edition.
- B. Paving: Designed for H20 classification.
- C. Mixing Plant and Mixing Plant Operations: Conform to the Montana State Highway Department Standard Specifications for Road and Bridge Construction, latest edition, and The Asphalt Institute (TAI) MS-3 Asphalt Plant Manual.
- D. Obtain all materials from same source throughout project unless approved by the Engineer.
- E. Paved surfaces shall be warranted against any materials and/or workmanship defects for a period of twelve months from placement.
- F. The mix design and development of the Job Mix Formula shall be generated by a laboratory accredited by the AASHTO Materials Reference Laboratory (AMRL) at the Contractor's expense.

1.05 REGULATORY AND ENVIRONMENTAL REQUIREMENTS

- A. Do not place asphalt when ambient air temperature (in the shade and away from artificial heat) or base surface temperature is less than 40 ° F. or when surface is wet, dirty, or frozen.
- B. No Work will be permitted in the spring until the frost has disappeared and the subgrade is stable so as to support the equipment without rutting, shoving, pumping, or other displacement.
- C. Conform to applicable code for paving work on public property.
- D. Conform to MPWSS 01570. Minimize interference with traffic.
- E. Conform to the Montana Department of Environmental Quality Clean Air Standards and Storm Runoff Surface Water Standards.
- F. Dispose of all waste material or reject material by approved methods.

1.06 SEQUENCING AND SCHEDULING

- A. Construct aggregate base only after all of the following have been completed:
 - 1. Subgrade has been corrected for instability problems and successfully passed a rolling test performed by the Contractor and witnessed by the Engineer.
 - 2. Subgrade has been checked for conformance to line and string tolerances (stringline).
- B. Aggregate base to be completed and approved by Engineer prior to placement of bituminous surfaces.
- C. The Contractor shall provide a 48 hour notice for scheduling prior to paving operations.
- D. Contractor shall allow aggregate base, asphalt base course, and curb to undergo one freeze thaw cycle before installing surface course. Aggregate base course, asphalt base course, and curb installation shall be required for final completion with surface course of

asphalt required for final completion.

PART 2 - PRODUCTS

2.01 GENERAL

A. Asphalt Cement: Asphalt Cement shall be produced in accordance with Section 818 of the MDT Standard Specification and meeting the following requirements:

1. ASTM 6373 (AASHTO M320) Asphalt Binder have a PG grading of:
2. PG 58-28

B. Aggregate for Mix:

1. MPWSS 02510 in accordance with the Montana State Highway Department Standard Specifications for Road and Bridge Construction, latest edition.

C. Asphalt Paving (Bituminous) Mixture (Base Course) shall have the following properties:

1. The Engineering shall approve the job mix formula submitted by the Contractor. Once the job mix formula is established, all mixtures furnished for the Project shall conform within the following maximum permissible variation:

- | | |
|---|-------------|
| a. Aggregate passing No. 4 and larger sieves..... | + or - 5.0% |
| b. Aggregate passing No. 8 to No. 100 sieves..... | + or - 3.0% |
| c. Aggregate passing No. 200 sieves..... | + or - 2.0% |
| d. Asphalt..... | + or - 0.4% |
| e. Temperature of mixture..... | + or - 20° |

2. The asphalt mixture shall have the following test properties:

- | | |
|---|---------------------|
| a. Marshall Stability..... | 1200 lbs. (minimum) |
| b. Marshall Flow (units of 0.01 in.)..... | 8 to 18 |
| c. Air Voids..... | 3 to 7 percent |

3. Adjustment of the job-mix base course formula may only be made with written approval of the Engineer.

D. Asphalt Paving (Bituminous) Mixture (Wear Course) shall have the following properties:

1. The Engineering shall approve the job mix formula submitted by the Contractor. Once the job mix formula is established, all mixtures furnished for the Project shall conform within the following maximum permissible variation:

- | | |
|---|-------------|
| a. Aggregate passing No. 4 and larger sieves..... | + or - 5.0% |
| b. Aggregate passing No. 8 to No. 100 sieves..... | + or - 3.0% |
| c. Aggregate passing No. 200 sieves..... | + or - 2.0% |
| d. Asphalt..... | + or - 0.4% |

2. The asphalt mixture shall have the following test properties:

- a. Marshall Stability..... 1200 lbs. (minimum)
 - b. Marshall Flow (units of 0.01 in.)..... 8 to 18
 - c. Air Voids..... 3 to 5 percent
3. Adjustment of the job-mix wear course formula may only be made with written approval of the Engineer.

E. Tack Coat:

- 1. SS1H and CSS1H Emulsion meeting the appropriate requirements of ASTM for the specific grade of emulsion and the MDT Standard Specifications. Non-tracking tack products may also be used as approved by the Engineer.
- 2. Water should be clean and free of impurities, either in solution or colloidal suspension. The presence of ions, both positive and negative, must be carefully monitored.
- 3. Storage and handling of the emulsion should be performed in accordance with MS-19.
- 4. All conventional asphalt emulsions shall be diluted with water at a 50:50 ration. Polymer modified and non-tracking emulsions shall not be diluted. Dilution of the emulsion product should be performed at the emulsion terminal or in a tank at the asphalt plant. Emulsion should not be diluted in the distributor at the project site.
- 5. Never allow asphalt emulsion to freeze.
- 6. Use pumps with proper clearances for handling to avoid binding and seizing. Avoid repeated pump cycling or frequent pumping.
- 7. DO NOT mix different classes, grades, or types of emulsified asphalt in storage tanks, transports, or distributors. Make sure tanks are totally clean before changing to another class, grade, or type.
- 8. Always pump from bottom of tank.
- 9. Never overheat asphalt emulsion.

2.02 PAVEMENT MARKING PAINT

- A. Paint shall be J.E. Bauer Company, Traffic Paint; Tnemec, Traffic Paint; Glidden-Durkee, Romark Traffic; PPG, Traffic & Zone Marking Paint; or equal.
- B. ***Provide new paint striping to conform with what existed prior to asphalt removal and replacement.***
- C. Provide colors as selected by the Engineer from the manufacturer's standard color range.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that compacted subgrade is dry, stable, compacted to specified density, at proper temperature, and to proper elevations and grade slopes. Do not begin asphalt-paving

construction without Engineer's authorization.

- B. Each course shall be compacted and hardened to such a degree that it will not be displaced or otherwise damaged before another course may be placed thereon.

3.02 PREPARATION

- A. Notify Engineer and Owner at least 72 hours in advance of temporary disruptions of traffic along route of construction.
- B. Saw cut and tack all joints between new and existing pavement.
- C. For asphalt overlay sections, mill a one (1) foot strip along all edges of the overlay area.
- D. The Contractor shall review the proposed paving sequence with the Engineer prior to placement of bituminous course.
- E. All surfaces shall be checked and approved by the Engineer prior to paving.
- F. Existing courses must be dry prior to and during placement of any bituminous pavements.
- G. Wearing course shall not be placed when the air temperature in the shade and away from artificial heat, is 50°F or less, unless otherwise approved by the Engineer.
- H. Pavement shall not be installed on frozen or thawing ground.

3.03 TACK COAT

- A. All equipment shall conform to MDT Standard Specifications for Road and Bridge Construction, latest edition, Section 151.
 - 1. Tack distributor shall be designed, equipped, maintained, and operated so that tack material is applied at the specified rate per square yard with uniform pressure over the required width application.
 - 2. The distributor shall be equipped with an onboard computer that determines the relationship between the distributor travel speed and pump speed to ensure a consistent application rate.
 - 3. An accurate and calibrated thermometer with a range covering the specified application temperature for tack material shall be mounted at approximately center height of the tank with the stem extending into the tack material.
 - 4. The distributor shall have a full circulating system with a spray bar, adjustable laterally and vertically. The spray bar shall be maintained at a constant height above the pavement under variable load conditions.
 - 5. Ensure that all nozzles are of the same size and type to ensure uniform application of emulsion.
 - 6. Ensure that all nozzles are at the same angle to ensure uniform application of emulsion.
 - 7. The distributor shall be checked and calibrated. A certificate of the calibration shall be posted in the driver's compartment stating that the distributing system is in good

working condition and when used with the charts and instructions furnished by the manufacturer will give the required results. The certificate shall bear the date of calibration and signature of the calibrating agency.

- B. Always maintain proper distributor spray bar height and spray nozzle angle for proper coverage.
- C. Always maintain proper distributor speed.
- D. Always sweep and clean surfaces to be tack coated.
- E. Never apply more tack coating than can be covered by the same day's operation.
- F. Never apply tack coating when ambient air temperature is consistently below 40° F or when surface is wet.
- G. Never over-spread tack coating. If "fat spots" develop, spread out excess oil by pneumatic tire rolling before placing pavement.
- H. Always allow enough time for tack coat to "break" before placing pavement.
- I. Apply tack coat as directed in Section 401 of the MDT Standard Specifications for Road and Bridge Construction, latest edition and NAPA's Best Practices for Emulsion Tack Coats. Hand spray wands and crack-sealing buckets are not acceptable methods of applying tack coat emulsion except on the vertical face of an adjoining lift of pavement.
- J. Apply bituminous tack coat to existing bituminous pavement and to the surface of each lift or course constructed, other than the final course. Apply in a uniform rate with no missed areas permitted. Application rates shall be approved by the Engineer prior to commencing Work.
- K. The bituminous tack coat shall be applied at a uniform rate of not less than:
 - 1. 0.10 gallons per square yard, for undiluted asphalt emulsion (as supplied from the emulsion terminal); application rate shall be adjusted if necessary to attain bond between courses.
 - 2. 0.20 gallons per square yard, for diluted asphalt emulsion (with water added at the terminal or plant emulsion tank).
- L. The temperature of emulsion shall be between 70 and 160 ° F at the time of application.
- M. Apply immediately prior to the placement of the next bituminous course or lift. Do not allow public traffic on tack coated areas. The tack coat shall be applied in a manner that offers the least inconvenience to traveling public.
- N. Apply the tack coat on the same day as the proposed surfacing is to be performed. Where emulsified asphalt is specified, dilute one part of water to one part of emulsion and apply the mixture at two times the undiluted rate of application. Allow water to evaporate completely before beginning paving operations. At request of Contractor, Engineer may approve a change in the dilution ratio of the water- emulsion mixture. Sampling and testing of the emulsion product will be performed at the discretion of the Engineer.

3.04 ASPHALT PAVEMENT CONSTRUCTION

- A. All mixtures shall be spread and finished with a self-propelled, bituminous paver, to the required section, leaving the mixture uniformly dense, smooth, and free from irregularities.
- B. The speed of the bituminous paver shall be controlled to place the mixture uniformly and continuously without tearing or gouging. The speed shall not exceed the Manufacturer's recommendation, and shall be coordinated with the output of the plant to provide for a smooth, continuous operation, minimizing starting and stopping.
- C. Perform test strip compaction in field under observation of Engineer to determine the percentage of the asphalt mixture's maximum density achievable. If, in the Engineer's opinion, Contractor is unable to achieve the specified density corresponding with 95 percent of the maximum Marshall density (ASTM D1559), Contractor shall achieve an asphalt compaction equaling or exceeding that obtained in the test strip.
- D. Compact pavement by rolling to specified density as follows:
 - 1. Compaction shall consist of initial or breakdown rolling, intermediate rolling, and final or finish rolling with rollers meeting all requirements of MDT Standards Specifications and which are approved by the Engineer.
 - 2. Breakdown rolling shall consist of one or more complete coverages with a rubber tired roller.
 - 3. Breakdown rolling shall be followed by intermediate rolling with either a rubber tired roller or a vibratory steel roller and shall be continued until the surface is tightly bound and shows no displacement under the roller.
 - 4. Intermediate rolling shall be completed before the mat temperature falls below 185° F.
 - 5. Final rolling shall be performed with a steel roller and shall continue until roller marks are eliminated. Contractor may be required to modify rolling sequence to best suit the construction conditions.
 - 6. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
 - 7. Compaction shall be a minimum of 92% of the daily theoretical maximum density (ASTM D-2041).
- E. Uniformly blend pavement surface into elevations at curbs, valve box castings, and other critical points of contact. Place pavement so that the pavement is 1/4" higher than the edge of the structure after the pavement has been compacted.
- F. Do not allow drainage to be impeded or casting covers to become difficult to remove.
- G. All transverse and longitudinal joints, high or low areas, and surface irregularities, shall be leveled, filled, or raked prior to compaction. Any loose material dropped on previously compacted lanes shall be removed immediately.
- H. Ensure joints made during paving operations are straight, clean, vertical, and free of

broken or loose material. Joints shall be tacked and constructed with adequate bond on abutting surfaces. Vertical construction joints in successive courses shall be placed so that joints do not fall on the same vertical plane.

- I. Rolling shall begin at the edges and proceed parallel to the road centerline, each trip overlapping the previous roller pass. On paving an echelon or abutting a previously placed lane, the longitudinal joint should be rolled first followed by the regular rolling procedure. Rolling shall begin at the low elevation and progress to the high elevation by overlapping of longitudinal passes, paralleling the centerline. Displacement resulting from reversing the direction of a roller or from other causes shall be corrected immediately.
- J. The sequence of rolling operations and the selection of type and number of rollers shall be commensurate with production, and shall be adequate to obtain the specified density before the mat temperature falls below 185° F.
- K. Install all bituminous pavement 3-inches and greater in thickness in a minimum of two lifts. Maximum thickness of a base course lift shall be 3-inches.
- L. Ensure surface of completed asphalt pavement is true to lines, profiles, and elevations indicated and matches existing grade.
- M. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.
- N. The surfaces of previously placed layers shall be swept and a tack coat applied before spreading the next layer.
- O. The overall thickness shown on the Drawings shall be the minimum finished, in- place, compacted thickness of bituminous pavement.
- P. Protect newly paved surfaces from traffic and mechanical injury until surface has cooled to 140°F.
- Q. Any low or high defective areas shall be corrected immediately. Corrective Work shall include patching, cutting out the surface and replacing with fresh, hot bituminous mixture, or by milling the surface.
- R. Clean up paving area.
- S. Ensure manhole covers are clean of all asphalt material and tack coat and returned to the condition they were prior to asphalt paving activities.

3.05 PAVEMENT MARKINGS

- A. Remove all dirt, oil, grease, and other foreign material from areas of pavement to be marked. Contractor is responsible for all preparation and layout.
- B. Apply paint only on thoroughly dry surfaces when atmospheric temperature is above 40 °F and when weather is favorable.
- C. Apply respective markings in colors as indicated and sizes and dimensions as indicated, or match existing colors and markings.

- D. Contractor shall replace and/or restore all pavement markings after temporary patching or Work has removed such markings.
- E. Contractor shall maintain pavement markings as required during all phases of construction.
- F. Apply painted permanent pavement markings with a maximum coverage rate of 100 square feet per gallon with a 0.015 inch minimum film thickness on bituminous and concrete paved areas, and 0.020 inch minimum film thickness on seal coated areas.
- G. Apply paint with atomizing spray type striping machine. Markings shall have clear- cut edges, true and smooth alignment, and uniform thickness. Do not permit traffic on pavement until markings are thoroughly dry. Other pavement markings shall be painted with the standard templates in an appropriate proportion.
- H. Apply respective markings in colors as indicated and sizes, locations, and dimensions as follows:
 - 1. All parking stalls to be marked with 4" wide striping, color as indicated on Drawings.
 - 2. Crosswalk markings shall be as indicated on Drawings.
 - 3. Pavement arrows, lettering, and symbol dimensions shall conform to MUTCD Standards.
 - 4. All handicapped parking stalls shall be marked with striping and symbols in accordance with Owner and ADA Standards. Handicapped stalls to include both van accessible and non-van accessible. Locations as directed by Owner, or as shown on the drawings. Color shall be blue.
- I. Contractor shall be responsible to replace and/or restore all pavement markings after temporary patching or other Work has removed such markings.

3.06 FIELD QUALITY CONTROL

- A. Section 01 40 00 – Quality Control: Field inspection and testing.
- B. Perform field and laboratory testing by an independent testing laboratory appointed and paid for by the Contractor.
- C. Determine maximum density in accordance with ASTM D2041, and compact each course in the field to a density not less than 92 percent of the Maximum Density attained by the theoretical maximum density method.
- D. Perform field density testing in accordance with ASTM D2950; minimum frequency of one test per 2,000 square feet per lift, or once per day, whichever is more frequent. Ensure that the density gauge is properly calibrated and correlated to core density tests for the mix being used.
- E. Notify testing laboratory to perform density tests when testing is to be performed during construction. Do not proceed with additional Work until results have been verified.
- F. If, during progress of Work, tests indicate that compacted materials do not meet specified

requirements, remove defective Work, replace, and retest. Contractor to bare all costs associated with defective pavement Work.

- G. Perform gradation analysis of aggregate once for each 500 tons of mix produced, as construction progresses. Test base course and wear course for oil content and air voids to differentiate different mix designs.

3.07 TOLERANCES

- A. Flatness: Maximum variation of $\frac{3}{16}$ inch measured with 10-foot straight edge.
- B. Scheduled Compacted Thickness: Within $\frac{1}{4}$ inch of specified thickness.
- C. Variation from true elevation: Within $\frac{1}{4}$ inch.
- D. Variation from horizontal location: Within $\frac{1}{4}$ inch.
- E. Transverse slope of surface course shall not vary from the slope shown on Drawings by more than plus or minus $\frac{1}{4}$ inch in 12 feet.
- F. Asphalt cement content within 0.24% of approved mix design as determined by daily cutoff report.

END OF SECTION 32 12 16

SECTION 32 92 19
SEEDING
(Reference MPWSS Section 02910)

All applicable portions of MPW standard specification Section 02910 shall apply with the following additions, deletions and/or modifications.

PART 2 - PRODUCTS

2.01 SEED

Add following:

E. Seed mixtures shall be proportioned as follows:

1. Dryland Seed.

Seed Species or Variety	Seed Mix %	Application Rate
Western Wheatgrass	20%	21 lbs. Per acre
Pryor Slender Wheatgrass	20%	
Crituna Thickspike Wheatgrass	30%	
Sudar Stream Bank Wheatgrass	20%	
Canada Bluegrass	10%	

Note: All seed shall be 98% pure and shall have a germination percentage of 90%. Do not sow immediately following rain, when ground is to dry, or during windy periods. Apply water with fine spray after seeding. Saturate to 3 inches of soil.

2. Lawn or Turf Grass Seed.

Lawn or turf grass seed shall be a blend of at least 24 percent Kentucky Bluegrass plus a blend of at least three other bluegrasses in approximately equal proportions. Acceptable blend grasses include Adelphi, Silkens, Birka, Nuglade, Rambo, Ram Eclipsey, Quantum, Merian, Nustar or others commonly used in the area by sod producers.

2.02 TOPSOIL

Add the following:

1. Topsoil shall be the existing top 6-12 inches of silty sand surface layer of soil at the site with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (1.0 inches or more in diameter), clay lumps or similar objects. Brush and other vegetation which will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary herbaceous growth such as grass and weeds do not need to be removed but shall be thoroughly broken up and intermixed with the soil during handling operations. The Contractor will be required to compact the topsoil to reduce settling and ensure a uniform grade in the disturbed areas.

2.04 FERTILIZER

Add the following:

C. Fertilize uniformly across all surfaces at the following rate:

Dryland Grass

Nitrogen 25 lbs/acre

Phosphate 25 lbs/acre

Lawn Grass

Nitrogen 50 lbs/acre

Phosphate 50 lbs/acre

2.05 MULCH

Add the following:

A. Mulch with a loose 1-inch layer of straw.

PART 3 - EXECUTION

Add the following:

3.05 CARE OF SEEDED AREAS

D. All weeds including (spotted knapweed, leafy spurge, and all others identified by the State of Montana as non-native) shall be controlled by the Contractor while grass is becoming established and during the full one year warranty period after the project is complete and accepted by the Owner. Chemical control may be utilized where permitted by State Laws and regulations.

PART 4 - MEASUREMENT AND PAYMENT

DELETE: Entire Section

END OF SECTION 32 92 19

SECTION 32 97 00
RESTORATION OF DISTURBED AREAS

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Restoration of all areas disturbed during construction.
2. Restoration of all items not specifically identified for restoration, but damaged through construction.

B. Related Sections include:

1. The General Conditions, Supplementary Conditions, and General Requirements apply to work of this section.
2. Division 1 – General Requirements Specification Sections.
3. Division 31 – Earthwork.
4. Division 32 – Exterior Improvements.

1.02 REFERENCES

A. Reference Standards include:

1. Montana Public Works Standard Specifications, latest edition.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Material Sections include:

1. Asphalt Paving: Per Section 32 12 16;
2. Aggregate Materials: Per Section 32 11 23;
3. Seed: Per Section 32 92 19.

PART 3 - EXECUTION

3.01 EXECUTION

- A. Observe all surface features requiring protection, removal and replacement, and/or restoration prior to construction.
- B. The Contractor shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property marks until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.
- C. The Contractor shall be responsible for all damage or injury to property of any character

during the prosecution of the Work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the Work, or at any time due to defective Work or materials, and said responsibility will not be released until the Project shall have been completed and accepted.

- D. When any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the Work, or in consequence of the non-execution thereof by the Contractor, he shall restore, at his own expense, such property to the condition similar or equal to that existing before such damage or injury was done by repairing, rebuilding, or otherwise restoring as may be directed or he shall make good such damage or injury in an acceptable manner.

3.02 RESTORATION

- A. Restore all areas disturbed by construction to a condition equal to or better than existed prior to construction.
- B. Replace, restore, repair, or otherwise make good any damage done to any tree, bush, or shrub that is not specifically designated for removal.
- C. Restore items such as culverts, road signs, power poles, sodding, fences, sidewalks; mailboxes, landscaping boulders and like, whether or not specifically identified on the Drawings, to a condition equal to or better than existed before construction.
- D. Replace or repair all concrete or asphalt roads, driveways or sidewalks, removed or damaged during construction with equal or better materials. Replace or repair to match existing conditions.
- E. Stabilize subgrade sufficiently to prevent mixing of granular material with subgrade prior to application of base material.
- F. In all grassed areas disturbed by construction, topsoil shall be restored to a minimum depth of 6" and seed applied per Section 32 92 19.
- G. Repairs to all damaged streets, driveways, sidewalks, berms, etc. due to the Contractor's construction techniques and equipment shall be included in the Contractor's bid price and repaired at the Contractor's expense prior to final payment.
- H. Remove all excess dirt, concrete, and other debris from work area immediately upon completion of Work and deposit on-site in a disposal area designated by Owner. Contractor shall be required to clean site to the condition prior to the start of construction before final payment will be made.
- I. Restoration of finished areas shall be completed prior to opening any significant new section(s) of Work.

END OF SECTION 32 97 00

DIVISION 33

UTILITIES

SECTION 33 01 30.81
CURED-IN-PLACE MANHOLE (CIPMH) LINING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope

1. The work consists of furnishing all labor, equipment, materials, and incidentals required to rehabilitate existing manholes identified on the drawings by the installation of cured-in-place manhole (CIPMH) lining materials onto the existing structures (full-depth). Work will include bypass pumping, cleaning, materials disposal, installation of liners and coatings and all other related work. Some manholes may require chimney re-construction or additional riser rings prior to lining, as shown on the drawings. All such work shall comply with these specifications and the specific product manufacturers' recommendations. Any conflict between the product manufacturers' recommendations and any portion of the contract documents shall be resolved with the Owner prior to proceeding with the work.

B. Safety

1. This specification does not address safety problems associated with the use of this product. It is the responsibility of the user of this specification to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

C. Coordination With Other Sewer Improvement Work

1. Complete project scope includes: raising/re-sealing manhole frames/chimneys; sewermain spot repairs, and; manhole replacements. Specialized contractors for all work elements must coordinate work activities to insure efficient work completion and to install the highest quality final work product. ***All bypass pumping necessary to install a uniform and continuous liner on all identified interior manhole surfaces shall be provided.***

1.02 QUALITY ASSURANCE

A. Requirements

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of manhole liner systems for municipal wastewater systems and with a history of successful production acceptable to the owner.
2. The installing Contractor or sub-contractor shall be licensed by the lining system manufacturer and shall have successful experience in the installation of manhole lining systems in municipal wastewater systems. The Contractor or sub-contractor shall also be familiar with the specified requirements, materials and methods needed for proper performance of the work of this section.

3. When requested by the owner, the Contractor shall submit evidence acceptable to the owner, such as a certified copy of a license or agreement, that it has the authority to use and/or install the liner product.

1.03 SUBMITTALS

The Contractor shall submit the following information:

A. Materials

1. Submittals on all lining materials and resins, and shall furnish the manufacturers' certifications that all of the liner materials are in compliance with the specifications, codes, and standards referenced herein. This shall include finished thickness calculations for all CIPMH liners.
2. Installation instructions and details of all component materials and construction methods.
3. Liner manufacturer's certifications, field measurements, and sizing calculations which demonstrate that the liner has been properly sized to avoid the creation of wrinkles or folds.
4. Material Safety Data Sheets for all appropriate materials to be used in the project.

PART 2 - MATERIALS

2.01 GENERAL

A. Full-Depth CIPMH

1. If required, manhole interior walls, benches and chimneys shall be patched with non-shrink, cementitious patching grout manufactured by Tamms, ProSpec or approved equal, prior to lining. Grout shall match or exceed the strength, durability and corrosion-resistance characteristics of ProSpec C-1107 Construction Grout.
2. All CIPMH lining products shall comply with applicable provisions and recommendations of ASTM D 695-10: Standard Test Methods for Compressive Properties of Rigid Plastics.
3. The manhole liner shall be pre-manufactured prior to commencement of installation, to the shape of each individual manhole. Liner shall be of the type that provides close conformity and substantially bond to eccentric, concentric or flat top manholes without removing the manhole cone, chimney or frame. The liner shall provide an absolute watertight fit free from any joints or openings. Structure measurements for liner fabrication shall be the responsibility of the CONTRACTOR.
4. Fused seams will allow the liner to be inflated and pressurized up to 8 psi, with or without an inflation bladder.
5. Liner shall have multiple structural fiberglass layers with a non-porous interior membrane bonded to a fibrous polyester layer. The fibrous layer shall be saturated with a modified epoxy resin, then pressurized and cured-in-place. Curing shall take place via the controlled application of heat and pressure.
6. The minimum overall finished/cured thickness of the liner shall be in accordance with the following formula:

$$T_{(min)} \geq \frac{0.036(H)(D)(FS)}{2(C)}$$

Where:

- H = liner depth (in inches)
- D = liner diameter (in inches)
- FS = factor of safety (minimum 2.5)
- C = liner compressive strength (minimum 1,500 psi)

Minimum liner thicknesses shall be as shown in the manhole schedule: Sheet 2 of the Project Drawings. *This value is generally 140 mils.*

7. Liner shall be completely saturated with 100% solids epoxy, cured-in-place and bonded to the existing structure.
8. Liner shall have a smooth, non-adhesive, non-porous interior surface that is resistant to water and vapors/compounds commonly found in sanitary wastewater.
9. The waterproof liner system shall completely seal off infiltration and exfiltration, and will permanently adhere to wet or dry surfaces of brick, concrete, PVC, and ductile iron; preventing further deterioration, infiltration and exfiltration while providing structural reinforcement to the existing structure.
10. The liner shall extend down the walls and across the manhole bench at least to the lip of the flow channel(s). The liner shall be trimmed smooth and epoxy sealed at the channel lip to prevent de-lamination and loss of adhesion to the concrete substrate.

B. Manufacturers

Acceptable manufacturers for the manhole liner system are:

1. McNeil Technologies™, Inc. - Triplex™ Liners
 Phone: (850) 460-0474
 Manufacturing: 404 Stewart Street, Bonifay, Florida 32425
 Website: www.triplexliners.com Email: info@triplexliners.com
 Local Contact: CIP Construction Technologies, Inc.
 134 First Ave. W., Kalispell, MT 59901
 (406) 291-8017 email: jimswain@cipmanhole.com
2. Alternative Lining Technologies™
 Phone: (616) 583-7100
 Manufacturing: 10075 Sedroc Industrial Drive, SW, Byron Center, MI, 49315
 Website: www.altliner.com

Other cured-in-place manhole liner manufacturers or products will be considered provided the Material specifications are equal to the products specified above.

C. Certificate Of Compliance

A Certificate of Compliance with these Specifications shall be provided by the manufacturer for all materials furnished under these specifications.

PART 3 - INSTALLATION

3.01 PREPARATION

A. Cleaning And Inspection

1. For full-depth manhole lining, all manhole steps shall be removed and replaced after the lining is complete. All surfaces of the host structure are to be cleaned with a high-pressure hydro-jet sprayer with an operating pressure of at least 4,000 psi. and flowrate of at least 4 gpm. After pressure cleaning, surface may be cleaned with degreaser or other solvents as needed in order to remove any film or residue on the surface. Structure shall then be pressure rinsed with water. All cleaned material must be removed from the structure and properly disposed of. A disposal site will be identified by the OWNER.

B. Final Preparation

1. All incoming laterals and main trunk line openings shall be properly trimmed and grouted with **sulfate corrosion-resistant** hydraulic or Portland Type II Cement, forming a filet between the structure wall and each pipe. All inlet and outlet pipes should be trimmed so they do not extend into the structure more than two inches. Such application of grout shall extend at least six inches from the outlet onto the wall area.
2. Benches, walls and floors shall be repaired or refinished as appropriate using **sulfate corrosion-resistant** chemical grout, hydraulic cement or Portland type II cement. Manhole bench and floors shall be integral with the wall liner.

C. Liner Fabrication

1. Each liner is custom fabricated to fit each individual structure. There is no standard configuration in manholes and many other structures; therefore, exact measurements must be completed and submitted prior to manufacturing each liner. The liner installer shall provide diagrams identifying: configuration; measurements; site & structure conditions; notes and observations for each manhole to be lined. Each liner shall conform to each manhole structure, including benches.

D. Bypass Pumping

1. Bypass pumping necessary to accomplish work and to perform the necessary testing, shall be done by plugging the upstream manhole and pumping the sewage into the downstream manhole, or by pumping into an alternate sewer system of adequate capacity to handle the additional sewage flow. The pump and bypass lines shall be sized to handle the anticipated flows. No individual or discrete compensation shall be made for bypass pumping and it shall be included in the unit price cost for CIPMH lining.

E. Manhole Liner Installation

1. Once the liner is fully saturated with resin, at the job site, it shall be lowered into the structure to the pre-marked position at the cover seat of the structure entrance. The liner shall form a monolithic structure permanently connecting the ring & cover seat to the chimney, corbel, walls, and bench. If necessary to allow for lining, upstream

sewage flow must be collected and bypass pumped for a minimum period of 3 hours. The cost of any necessary bypass pumping shall be included in the manhole rehabilitation bid item.

2. The manhole liners shall be pressurized with air or water and cured with steam, ambient or heated air, or ambient or heated water. Most typical manhole liner installations will be pressurized at 750-1,000 lbs. per square foot, depending on the condition of the structure and the amount of hydrostatic pressure from incoming infiltration.

F. Curing Process

1. Once liner is in place, the structure will be pressurized with air or water - and cured with steam, ambient or heated air - or ambient or heated water. Most typical installations are heated by a temperature inversion system of pressurization with steam injection into the high velocity hot air column, creating a steam/convection oven atmosphere to create a liner temperature of approximately 150-190 degrees F. The liner is heated for an estimated one to three hours curing time according to the size and temperature of the structure. Any installation and curing method will receive the same warranty requirements.

G. Replace Manhole Steps

1. Furnish non-corrosive steps, 12-inches (30 cm) in width, of 1/2-inch (13 mm) steel rod encased with polypropylene. Assure steps withstand 400 pound (180 kg) vertical loads and 1,000 pound (450 kg) pull-out resistance.

H. Leakage Testing

1. After the CIPMH liner has been properly cured and inspected, the CONTRACTOR shall conduct leakage testing as follows:
 - Set-up necessary bypassing equipment and piping;
 - Plug all manhole inlet and outlet pipes with watertight inflatable plugs;
 - Fill the manhole to a level between the top and bottom of the frame with water and mark the level precisely.
 - Observe the amount of leakage that occurs within 4 hours and compare to the following formula:

$$L \leq \frac{0.30 \text{ gallons}}{d}$$

Where: L = allowable leakage (gallons)
d = manhole depth (ft.)

- If leakage exceeds the calculated allowable amount, the manhole shall be re-tested at the CONTRACTOR's expense. If it fails the second test, the CONTRACTOR shall determine the cause of the failure and make any necessary remedies until the leakage test is satisfied.

I. Final Product

1. The final CIP manhole lining shall vigorously adhere to the entire manhole interior with no obvious bubbles, de-lamination, water pockets or other anomalies that may

diminish the long-term durability or expected period of service for the manhole. In the event of a minor flaw, the OWNER has the discretion of either negotiating a reasonable price discount, directing the Contractor to repair the liner to better than original condition or, replacing the entire CIP liner for a particular manhole.

PART 4 - WARRANTY

4.01 WARRANTY

A. Liner Material

1. The liner material manufacturer shall warrant all liner materials, where installed and utilized in accordance with and for the purposes described in the specifications for the Product and subject to the provisions herein, to:
 - prevent water infiltration,
 - prohibit root intrusion,
 - provide a surface lining resistant to sewer gas penetration for the structure in which it is installed.
2. Manufacturer shall not be liable or responsible under this warranty for any breach caused by fire, war, earthquake or other earth movement, negligence, abuse, alteration, or the presence of sewer gases or chemicals not typically found in sewer collection systems or from the failure to properly inspect, service, and maintain the finished manhole. Manufacturer's obligation under this warranty shall further be limited to the repair or replacement of the installed product, which an examination shall disclose to Manufacturer's satisfaction to be defective. Warranty on each system is for the time duration as follows:

B. Product

1. **Product is warrantied for ten years materials and five years labor non-prorated plus an additional 10 years material and 5 years labor prorated for liner material failure and to prevent infiltration and deterioration in sewer structures as described.**
2. This warranty is expressly in lieu of any and all other warranties, express or implied, including, without limiting the foregoing, any and all warranties of merchantability and fitness for a specific purpose. Manufacturer shall not be liable for consequential or special damages under any circumstances. This warranty shall not be extended, altered or varied except by a written instrument signed by manufacturer.

END OF SECTION 33 01 30.81

SECTION 33 01 31
MANHOLE IMPROVEMENT MATERIALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. Furnish manhole improvement materials as specified in the Contract and this section.

1.03 CERTIFICATION BY MANUFACTURER

- A. Furnish a manufacturer's certification for all manhole improvement materials, certifying that the materials meet the contract requirements.

PART 2 - PRODUCTS

2.01 RISER RINGS

A. General

1. For all manholes designated in the project documents for replacement or raising the rim elevation, **all existing riser rings shall be removed and discarded;**
2. All new manhole riser rings shall be rubber/fiber composite. *Concrete riser rings shall not be accepted;*
3. Furnish rubber composite adjustment riser rings with a minimum 80% by weight recycled rubber and minimum 10% by volume recycled RFL (resourcinol formaldehyde latex) coated fiber. All rubber manhole risers shall meet the following minimum physical property characteristics:

Property	ASTM Test Method	Minimum Standard
Density (lb/ft ³)	D3574-05 Test A	62.214
Durometer Hardness (Shore A)	D2240-05	77A ± 5
Tensile Strength (psi)	D412-06	304
Compression Deformation (%)	D575-91(01)	Initial: 2.9% +/- 4% Set: 1.5% +/- 4%
Heat Aged Properties: Tensile Strength Retained: Durometer Retained: Compress. Deform. Retained:	D573-04	100% 100% 100%
Low Temp. Brittleness	5 hrs. @ -40°C	No signs of cracks, ruptures or degradation
Coefficient of Thermal Expansion	D696	12.95 x 10 ⁻⁵ Maximum
Standard Flat Thicknesses (in.)		¼"; ½"; 1"; 1½"; 2"; 2½"; 3"

4. Rubber composite riser rings shall be of uniform quality, free from cracks, holes (unless pre-drilled to accommodate mounting anchors), or any other surface defects. Molded adjustment riser tolerance shall be $\pm 1/16$ " from required nominal dimensions. This is applicable to flat and tapered rings;
5. Rubber composite riser rings shall match the manhole frame interior and exterior diameters within $1/4$ ";
6. Rubber composite riser rings shall be designed to support manhole frames subjected to typical industry required traffic loads;
7. A manufacturer certification for the composite riser rings shall be furnished to the OWNER, stating that the product meets the requirements of this specification. All supporting documentation shall be provided, including any and all test results independently conducted by an accredited testing laboratory that conforms to ANSI/ISO/ASQ Q9001-2000.
8. Each adjustment riser shall be marked with the following information and must be molded into the finished product: Manufacturer's name; country of manufacturer, such as "Made in USA"; Product name and Identification number.
9. Rubber composite riser rings shall be the "Infra-Riser" as manufactured by East Jordan Iron Works (ejco.com) or approved equal.

2.02 CHIMNEY SEAL (NOT USED)

~~A. General~~

- ~~1. The chimney sealing system shall prevent leakage of water into the manhole through the frame/structure joint and adjustment ring area (chimney);~~
- ~~2. All materials furnished shall be new, un-damaged and from a reputable manufacturer known to the trade;~~
- ~~3. The casting shall be sealed to the structure with a continuous seamless band made of high-quality EPDM (Ethylene Propylene Diene Monomer) rubber with a minimum thickness of 65 mils. There shall be a pre-formed L shaped corner molded into the top of the seal. The top section and the side section will extend from the L shaped corner at a generally 90-degree angle to each other. Wherein the seal is pre-formed in substantially the same shape as when attached to the manhole structure. The thickness of the L shaped corner extending 1" into the top section and 1" down the side section is increased and may be at least twice the thickness of the top section reinforcing the seal at this particular area. There shall be a 2" to 3" wide strip of butyl mastic attached to the underside of top section of the seal. There shall be a 2" wide strip of butyl mastic attached to the inside of the side section at the bottom of the seal. The mastic shall be non-hardening butyl rubber sealant, with a minimum thickness of 1/8", and shall seal to the cone/top of the manhole section and over the flange of the casting frame. An aerosol primer shall be used to enhance the bond strength of the seal to the structure;~~
- ~~4. All chimney seal materials shall meet the following minimum physical property characteristics:~~

Property	ASTM Test Method	Minimum Standard
Thickness (mil)	D1000-1777	65
Durometer Hardness (Shore A)	D2240-05	60A \pm 5
Tensile Strength (psi)	D412-06	1200
Elongation	D412	350%
Ozone Resistance	D1149 (72hr @ 50 PPHM)	No Cracking
Compression Deformation (%)	D395 Method B (22 hr @ 77°C)	Set: 25% Maximum
Heat Aged Properties: Tensile Strength Retained: Durometer Retained: Elongation:	D573-04	-15% Maximum N/A -20% Maximum
Low Temp. Brittleness	D2137 (-40°C)	No signs of cracks, upon impact
Water Resistance	D471	\pm 10% Maximum

5. The chimney seal shall be the Infi Shield® Uni Band sealing system as manufactured by Sealing Systems, Inc. (www.infi-shield.com) or approved equal.

2.03 EXTERIOR WATERPROOFING MEMBRANE WRAP **(FOR NEW MANHOLES ONLY)**

A. General

1. Waterproofing all manhole joints, cracks, penetrations and surfaces shall be performed with a polyolefin-backed, flexible exterior wrap that aggressively bonds to the concrete;
2. The waterproofing wrap shall be resistant to puncture, tear and abrasions, while providing a permanent barrier to the intrusion of water and soil;
3. All exterior waterproofing wrap materials shall meet the following minimum physical property characteristics:

Property	ASTM Test Method	Minimum Standard
Water Vapor Permeance	F1249	0.045 perms Maximum
Tensile Strength	E154	21.0 lb/in
Puncture Resistance	D1709	864 grams
Backing Bond Element	C877	4 mil
Butyl Rubber Adhesive	C877	0.065 in.
Hydrocarbon Blend Content by Weight	D4	52%
Inert Mineral Filler Content by Weight	C990	45%
Volatile Matter by Weight	C990	1.2% Maximum
Specific Gravity	C990	1.20 - 1.25
Ductility @ 7°F	D113	12
Penetration (150g. cone, 77°F, 5 sec.)	D217	70-80 mm
Softening Point	D36	335°F
Water Resistance	D471	+10% Maximum

4. Waterproofing membrane wrap shall be ConSeal CS-212 polyolefin-backed exterior joint wrap (<https://conseal.com/products/cs-212-polyolefin-backed-exterior-joint-wrap>) by Concrete Sealants, Inc., or approved equal.

PART 3 - EXECUTION

3.01 RISER RINGS

A. General

1. All composite riser rings shall be ordered in either flat or tapered configuration, no cutting or milling will be allowed to accommodate the final intended rim elevation;
2. The final intended rim elevation shall be within $\pm 1/4$ " of the elevation shown on the drawings. **The Contractor shall be responsible for conducting the necessary measurements to order all composite riser rings in the proper diameter, thickness & taper** to accommodate the final intended rim elevation;
3. The Contractor shall select ring thickness(s) that allow the minimum number of rings for each individual manhole;
4. Composite riser rings shall be sealed to the structure, frame and each other with manufacturer approved polyurethane joint sealer/adhesive – *Loctite PL Premium Polyurethane Construction Adhesive* or approved equal;
5. A minimum of four $5/16$ " diameter, epoxy-set anchors shall secure the new frame to each structure. The anchors shall penetrate all riser rings through pre-drilled $3/8$ " holes;
6. Installation of composite riser rings shall be in strict accordance with manufacturer instructions and the Contractor shall demonstrate compliance with the instructions.

3.02 CHIMNEY SEAL **(NOT USED)**

A. General

- ~~1. The chimney seal shall be sized for each manhole such that the seal will extend from the frame to the structure in one piece with no seams or overlaps. **The Contractor shall be responsible for conducting the necessary measurements to order all individual chimney seals in the proper diameter & length.**~~
- ~~2. The chimney sealing system shall be installed in strict accordance with the manufacturer's instructions and the Contractor shall demonstrate compliance with the instructions. Each seal shall be configured to provide a minimum of 3" of attachment to the frame base/flange, side section covering the entire riser ring height and onto the structure a minimum of 2".~~

3.03 EXTERIOR WATERPROOFING MEMBRANE WRAP **(FOR NEW MANHOLES ONLY)**

A. General

1. Prior to installation of the membrane wrap, all concrete surfaces shall be cleaned of all dirt, debris, grease, effluorescence, high points or any other characteristic that may prevent the wrap from properly adhering to the surface and creating a waterproof barrier;

2. All concrete substrate shall be dry and above 40°F before installing primer or wrap;
3. The Contractor shall select the proper width of joint wrap (standard widths: 4", 6", 8", 12", 24", 36", 48") to ensure a minimum 3" wide bond to competent concrete on either side of the joint/crack – i.e.: if a crack/joint is $\frac{3}{4}$ " wide, the wrap would need to be 8" wide, centered over the crack/joint;
4. A joint primer (CS-50 or CS-75) shall be applied to improve adhesion: CS-50 is a solvent-based primer that can be applied days or weeks in advance. CS-75 is a waterborne primer that dries tacky and must be applied at the time of the wrap installation. The primer (CS-50 or CS-75) must be allowed to dry for 15-20 minutes before wrap is installed over it;
5. No puckers, wrinkles or bubbles in the joint wrap will be accepted for the finished installation;
6. Where overlapping is necessary either on a continuous joint or butt-joint, provide a minimum of 2" overlap onto the adjacent layer of wrap.

END OF SECTION 33 01 31

SECTION 33 31 00.10
ABANDONMENT OF PIPING AND MANHOLES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. This section includes abandonment in place of existing pipelines and manholes as indicated on the drawings for abandonment.
- B. Related Sections include, but are not limited to:
 - 1. Section 01 31 00 – Coordination and Meetings.
 - 2. Section 01 33 00 – Submittals.
 - 3. Section 01 40 00 – Quality Control.
 - 4. Section 31 23 33 – Trenching and Backfilling.

1.02 REFERENCES

- A. Reference Standards include, but are not limited to:
 - 1. ASTM C150 – Standard Specification for Portland Cement.
 - 2. ASTM C494 – Standard Specification for Chemical Admixture for Concrete.
 - 3. ASTM C618 – Standard Specification for Fly Ash and raw or Calcined Natural Pozzolan for use as Mineral Admixture in Portland Cement Concrete.
 - 4. ASTM C940 – Standard test Method for Expansion and Bleeding of Freshly Mixed grout for Replaced Aggregate Concrete in the Laboratory.
 - 5. ASTM C1017 – Standard Specification for Chemical Admixture for Use in Producing Flowing Concrete.
 - 6. ASTM C1107 – Standard Specification for Packaged Dry, Hydraulic Cement Grout (NonShrink).

1.03 DEFINITIONS

- A. Abandonment. Pipeline abandonment consists of filling or plugging portions of existing pipelines with flowable fill or grout plugs, as indicated on the Drawings.
- B. Bank Run Sand. Bank run sand shall be a locally available sand material to be used in abandoning existing manholes.
- C. Flowable Fill. Flowable fill shall be controlled low-strength material consisting of fluid mixture of cement, fly ash, aggregate, water and with admixtures as necessary to provide workable properties. Placement of flowable fill may be by grouting techniques in pipelines or other restricted areas, or as mass placement by chutes or tremie methods in unrestricted locations with open access. Long- term hardened strength shall be within

specified range.

- D. Backgrouting. Secondary stage pressure grouting to ensure that voids have been filled within abandoned pipes. Backgrouting will only be required at critical locations indicated on the Drawings or if there is evidence of incomplete flowable fill placements.

1.04 SUBMITTALS

- A. Submit flowable fill mix design report.
 - 1. Flowable fill type and production method. Describe if fill will be mixed to final proportions and consistency in batch plant or if constituents will be added in transit mixer at placement location.
 - 2. Aggregate gradation of fill. Aggregate gradation of mix shall be used as pilot curve for quality control during production.
 - 3. Fill mix constituents and proportions including materials by weight and volume, and air content. Give types and amounts of admixtures including air entrainment or air generating compounds.
 - 4. Fill densities and viscosities, including wet density at point of placement.
 - 5. Initial time of set.
 - 6. Bleeding and shrinkage.
 - 7. Compressive strength.
- B. Submit sand gradation to be used in abandoning manholes.
- C. Submit technical information for equipment and operational procedures including projected injection rate, grout pressure, method for controlling grout pressure, bulkhead and vent design and number of stages for grout application.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with Section 01 40 00.

1.06 PROJECT CONDITIONS

- A. Verify all dimensions of and between existing structures and locations of existing piping and equipment required for the proper abandoning of existing piping.
- B. Contractor shall be responsible for verification of location of all existing piping and structures. Potholing and or excavation to expose existing piping, conduits, etc. may be required prior to installation of new piping or connection to existing piping. Adjustments to the locations of new piping may be required due to locations of existing piping and sequencing of construction that will be required. Adjustments required shall be at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 FLOWABLE FILL

- A. Design Mix Criteria. Provide design of one or more mixes to meet design criteria and

conditions for placement. Present information required by submittals, to include the following:

1. Cement: ASTM C150 Type I or II. Volume and weight per cubic yard of fill. Provide minimum cement content of 50 pounds per cubic yard.
2. Fly ash: ASTM C618, Class C or F. Volume and weight per cubic yard of fill. Provide minimum fly ash content of 200 pounds per cubic yard.
3. Potable water: Volume and weight per cubic yard of fill. Amount of water determined by mix design testing.
4. Aggregate gradation: 100 percent passing 3/8-inch sieve and not more than 10 percent passing No. 200 sieve. Mix design report shall define pilot gradation based on following sieve sizes: 3/8 inch, No. 4, 8, 16, 30, 50, 100 and 200. Do not deviate from pilot gradation by more than plus or minus 10 percentage points for any sieve for production material.
5. Aggregate source material: Screened or crushed aggregate, pit or bank run fine gravels or sand, or crushed concrete. If crushed concrete is used, add at least 30 percent natural aggregate to provide workability.
6. Admixtures: use admixtures meeting ASTM C494 and ASTM C1017 as needed to improve pumpability, to control time of set and to reduce bleeding.
7. Fluidifier: Use fluidifier meeting ASTM C937 as necessary to hold solid constituents in suspension. Add shrinkage compensator if necessary.
8. Performance additive: Use flowable fill performance additive, if needed, to control fill properties.

B. Flowable Fill Requirements:

1. Unconfined compressive strength: minimum 75 psi and maximum 150 psi at 56 days as determined based on an average of three tests for same placement. Present at least three acceptable strength tests for proposed mix design in mix design report.
2. Placement characteristics: self-leveling.
3. Shrinkage characteristics: non-shrink.
4. Water bleeding for fill to be placed by grouting method in pipes: not to exceed 2 percent according to ASTM C940.
5. Minimum wet density: 90 pounds per cubic foot.

C. Grout Plugs

1. Cement-based dry-pack grout conforming to ASTM C1107, Grade B or C.
2. Manufactured Plug: Commercially available plug or cap specifically designed and manufactured to be used with pipe being abandoned.

2.02 BANK RUN SAND

- A. Bank Run Sand: Durable bank run sand classified as SP, SW, or SM by Unified Soil Classification System (ASTM D2487) meeting following requirements:
 - 1. Less than 15 percent passing number 200 sieve when tested in accordance with ASTM D1140. Amount of clay lumps or balls may not exceed 2 percent.
 - 2. Material passing number 40 sieve shall meet the following requirements when tested in accordance with ASTM D4318: Plasticity index: not exceeding 7.
 - 3. Engineer shall consider locally available materials not meeting the above criteria on a case by case basis.

PART 3 - EXECUTION

3.01 CUTTING AND CAPPING OF MAINS

- A. Do not begin cut, plug, and abandonment operations until replacement pipe has been constructed and tested, all service connections have been installed, and main has been approved for use.
- B. Install plug, clamp, and concrete reaction block and make cut at location shown on drawings.
- C. Pipe to be abandoned shall not be valved off and shall not be cut or plugged other than as shown on drawings.
- D. After pipe to be abandoned has been cut and capped, check for other sources feeding abandoned pipe. When sources are found, notify Engineer immediately. Cut and cap abandoned pipe at point of other feed as directed by Engineer.
- E. Plug or cap ends or opening in abandoned pipe in manner approved by Engineer. Install concrete around cap and over pipe to ensure it's not penetrable by groundwater.
- F. Remove and dispose of surface identifications such as cleanouts, curb boxes, and valve boxes.
- G. Backfill excavations in accordance with Section 31 23 33.

3.02 PREPARATION FOR ABANDONMENT VIA FLOWABLE FILL

- A. Have fill mix design reports and other submittals required by Submittals accepted by Engineer prior to start of placement. Notify Engineer at least 24 hours in advance of grouting with flowable fill.
- B. Select fill placement equipment and follow procedures with sufficient safety and care to avoid damage to existing underground utilities and structures. Operate equipment at pressure that will not distort or imperil portion of work, new or existing.
- C. During placement of fill, compensate for irregularities in existing pipe, such as obstructions, open joints, or broken pipe to ensure no voids remain unfilled.
- D. Perform demolition work prior to starting fill placement. Clean placement areas of debris that may hinder fill placement. Remove excessive amounts of sludge and other substances that may degrade performance of fill. Do not leave sludge or other debris in

place if filling more than 2 percent of placement volume.

- E. Remove free water prior to starting fill placement.

3.03 EQUIPMENT FOR FLOWABLE FILL

- A. Mix flowable fill in automated batch plant and deliver it to site in ready-mix trucks. Performance additives may be added at placement site if required by mix design.
- B. Use concrete or grout pumps capable of continuous delivery at planned placement rate.

3.04 INSTALLATION OF FLOWABLE FILL

- A. Abandon existing piping underneath roadway and paved areas by completely filling pipe with flowable fill.
- B. Continuously place flowable fill from end to end with no intermediate pour points.
- C. Have filling operation performed by experienced crews with equipment to monitor density of flowable fill and to control pressure.
- D. Temporarily plug pipes which are to remain in operation during pouring/pumping to keep lines free of flowable fill.
- E. Pump flowable fill through bulkheads or use other suitable construction methods to contain flowable fill in lines to be abandoned. These pipes will act as injection points or vents for placement of flowable fill.
- F. Place flowable fill under pressure flow conditions into properly vented open system until flowable fill emerges from vent pipes. Pump flowable fill with sufficient pressure to overcome friction and to fill pipe from downstream end, to discharge at upstream end.
- G. Inject flowable fill through replaced ballast using grouting equipment and series of grout pipes discharging at bottom of placement, allowing fill to rise through ballast effectively filling all voids. Alternatively, sequentially place individual pieces of ballast at same time as flowable fill is placed. Do not fill with ballast more than 50 percent of volume at any level, to prevent nesting and void formation.
- H. Remediate placement of flowable fill which does not fill voids in pipe, or where voids develop due to excessive shrinkage or bleeding of fill, by using pressure grouting either from inside pipe or from surface.
- I. Plug each end of pipe being abandoned.

3.05 FORCE MAIN ABANDONMENT

- A. Clean inside surface of force main at least 12 inches from ends to achieve firm bond and seal grout plug or manufactured plug to pipe surface. Similarly, clean and prepare exterior pipe surface if manufactured cap is to be used.
- B. When using grout plug, place temporary plug or bulkhead approximately 12 inches inside pipe. Fill pipe end completely with dry-pack grout mixture.
- C. When using manufactured plug or cap, install fitting as recommended by manufacturer's instructions, to form water tight seal.

D. Backfill to surface, above pipe or structures left in place, with flowable fill in restricted areas, compacted bank run sand in unrestricted areas to be paved or select fill in unrestricted areas outside of pavement. Place and compact backfill, other than flowable fill, in compliance with Section 31 23 33.

E. Collect and dispose of excess flowable fill material off site.

3.06 ABANDONING MANHOLES

A. Contractor shall remove top slabs and first section of manholes to be abandoned and any other specified pumps or accessories prior to abandoning.

B. Contractor shall abandon manholes after piping has been grouted and abandoned.

C. Manholes shall be filled with bank run sand material and compacted in 1-foot lifts.

D. Material as specified in MPWSS 02221 Part 2.2 shall be compacted over abandoned material and prepared for improvement as shown on the Construction Drawings.

3.07 PROTECTION OF PERSONS AND PROPERTY

A. Provide safe working conditions as required by OSHA and applicable state and local laws for employees throughout demolition and removal operations. Observe safety requirements for work below grade.

B. Maintain safe access to adjacent property and buildings. Do not obstruct roadways, sidewalks or passageways adjacent to work.

END OF SECTION 33 31 00.10

SECTION 33 31 13
SANITARY SEWER COLLECTION SYSTEM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Special Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. Furnish sewer pipe and fittings as specified in the Contract and this section. Pipe strength classifications are shown on the plans, listed in the Contract Documents or specified herein.

1.03 CERTIFICATION BY MANUFACTURER:

- A. Furnish a manufacturer's certification for all pipe and fittings, certifying that the pipe and fittings meet the contract requirements.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PIPE:

A. General

- 1. Furnish PVC pipe produced by a continuous extrusion process, employing a prime grade of unplasticized polyvinyl chloride. Assure the grade used is highly resistant to hydrogen sulfide, sulfuric acid, gasoline, oil, detergents and other chemicals found in sewage and industrial wastes. Assure the material meets "Rigid Polyvinyl Chloride Compounds", ASTM Designation D-1784 requirements. Assure the pipe has self-extinguishing flammability characteristics.

B. Gravity Sewer Pipe

- 1. Furnish gravity sewer pipe meeting the following requirements:
 - a. ASTM D-3034, "Standard Specifications for Polyvinyl Chloride Sewer Pipe and Fittings", 4"-15" diameter; with an SDR of 35.
- 2. Furnish pipe having nominal 12.5 feet (3.8 meters) laying lengths, except shorter lengths may be used adjacent to manholes, or other appurtenances. Assure each pipe section is marked, as a minimum, with size, SDR, "Sewer Pipe" and Code Number.

C. Pipe Jointing

- 1. Furnish each pipe length with a bell designed to provide a watertight joint when jointing the bell and spigot with a rubber ring.
- 2. Make a rubber gasket joint for PVC pipe and fittings using a rubber gasket compressed between the outer surface of the spigot and the inner surface of the bell. Assure the joint is completely sealed by the gasket so that the assembly remains

watertight under all service conditions, including expansion, contraction, settlement and pipe deformation. Follow the manufacturer's recommendations when assembling the rubber ring joint.

D. Fittings

1. Assure all fittings for connecting all gravity and/or pressure piping and service lines are of the same material, construction and joint design as specified.

2.02 MANHOLE STRUCTURE AND ACCESSORIES:

A. Construct manholes from precast concrete sections having frames, covers, and steps meeting applicable Standard Drawings.

B. Precast Concrete Sections

1. Furnish manholes meeting ASTM C478; "Precast Reinforced Concrete Manhole Sections", specifically including mandatory rejection requirements.

C. Steps

1. Furnish non-corrosive steps, 12-inches in width, of ½" steel rod encased with polypropylene. Assure steps withstand 400 lb. vertical loads and 1,000 lb. pull-out resistance.

D. Frames and covers

1. **For all manholes requiring a new frame/lid**, furnish East Jordan Iron Works Model 3772Z1 black, asphaltic-coated frame and cover or approved equal. Assure that all frames/covers have the following features/characteristics:
 - a. Four 1" diameter anchor holes;
 - b. 24" clear opening;
 - c. 1" cover opening depth;
 - d. 26" cover opening diameter
 - e. 35½" flange outer diameter;
 - f. 7" frame height;
 - g. Two 1"Ø pick holes. Provide two (2) pick hole plugs per lid;
 - h. Cover lettering shall be "Sanitary Sewer";
 - i. AASHTO M105 loading compliant.

E. Concrete Base

1. Furnish precast concrete bases or field poured on undisturbed earth with minimum 8" of compacted ¾" washed gravel base course. Use concrete meeting Section 03 30 00 – CAST IN PLACE CONCRETE

PART 3 - EXECUTION

3.01 PIPE AND SERVICE LINE INSTALLATION

A. Excavation and Backfill

1. Perform excavation and backfill for pipelines and appurtenant structures meeting the

applicable requirements of MPWSS Section 02221.

B. Responsibility for Materials

1. Be responsible for all material furnished. Replace all material found defective in manufacture or damaged in handling after delivery. This includes furnishing all material and labor required for the replacement of installed material discovered defective before final acceptance of the work or during the guarantee period.
2. Be responsible for the safe storage of material intended for the work until it has been incorporated in the completed project.

C. Handling of Pipe

1. Deliver and distribute all pipe to the site. Load and unload pipe, fittings and accessories by lifting with hoists or skidding to avoid shock or damage. Do not drop any materials. Do not roll or skid pipe handled on skidways against pipe already on the ground.
2. In distributing the material at the site of the work, unload each piece opposite or near the place where it is to be laid in the trench. Keep the interior of all pipe and other accessories free from dirt and foreign matter at all times.
3. Handle pipe to prevent damaging coating or lining. If any part of the coating or lining is damaged, make all repairs in a manner satisfactory to the Engineer.

D. Laying Pipe

1. Lay and maintain all pipe to the specified lines and grades with fittings, tees and manholes at the required locations. Establish line and grade using batter boards and string line, laser equipment or other approved methods. When batter boards and string line are used, use a minimum of three batter boards at all times.
2. Install wye fittings in the mainline sewer for service line connections. Furnish fittings of the same material, design and specifications as the sewer main pipe. Joint service pipe to tee branches or main line pipe other than PVC using special joint adapters manufactured specifically for jointing the two types of pipe.
3. Use tools and equipment, satisfactory to the Engineer, for the safe and convenient prosecution of the work. Carefully lower all pipe and fittings into the trench to prevent damage to pipe materials and protective coatings and linings. Do not drop or dump any materials into the trench.
4. Take every precaution to prevent foreign material from entering the pipe while it is being installed. At times when pipe laying is not in progress, close the open ends of pipe using a plug or other means approved by the Engineer. Clean and remove all sand, gravel, concrete and cement grout that has entered the lines during construction

E. Tolerances

1. Install the pipe within ½-inch of the specified alignment and within ½-inch (13 mm) of the specified grade.

3.02 MANHOLES

A. Construction

1. Construct manholes to the specified dimensions. Make invert channels smooth and semi-circular in shape conforming to the inside of the adjacent sewer section. Make changes in flow direction with a smooth curve of as large a radius as the manhole size will permit. Make changes in channel grade and size gradually and evenly. The invert channels may be formed directly in the manhole base concrete or by laying half-pipe in the concrete. Make the floor of the manhole outside the channel smooth and slope toward the channel at one inch per foot (8 cm per meter).
2. Manhole frames shall be secured to the manhole structure using: four (4) 5/8" galvanized all-thread rods, epoxy-set a minimum of 4" into the concrete; galvanized washers with a minimum thickness of 0.177" and minimum outside diameter of 1 3/4" and; 5/8" galvanized nut. All-thread rods shall be long enough to accommodate the depth of composite riser rings that are to be installed at each manhole, with not less than 1/2" extra length above the nut.
3. Joint all connections between manhole walls and base and between wall sections adjusting rings and frame making the manhole watertight. For all horizontal joints, install a pre-formed rubber gasket joint along with exterior waterproofing wrap in accordance with Section 33 01 31. For all sewer pipe to manhole joints, use gasketed, flexible, watertight connections that will accommodate differential settlement. Acceptable options for these connections to the manhole are as follows:
 - a. Adjacent Joints: Bell and spigot pipe joints with rubber sealing rings located within 12 inches (30 cm) of the manhole wall.
 - b. Compression-Type Flexible Connector: A resilient, flexible connection, cast into manhole wall, providing 10 degrees deflection.
 - c. Boot-Type Flexible Connector: A flexible, watertight connection consisting of a rubber gasket or boot, metal expansion ring and a metal take-up clamp. Assure the expansion ring holds the gasket in the manhole wall, with the take-up clamp holding the gasket to the pipe.
 - d. Options (b) and (c) are limited to precast manhole base inverts and other installations where the flexibility of the connection is not compromised.
 - e. Construct manholes meeting ASTM C478, and the rejection criteria stated therein.
 - f. Keep manhole construction within one manhole distant behind sewer pipeline construction.
4. Install composite rubber adjusting rings on each manhole to bring the manhole top elevation to match the existing or specified ground elevations. All adjusting rings shall be in accordance with Section 33 01 31.
5. Install chimney seal on all manholes in accordance with Section 33 01 31.

3.03 SANITARY SEWER SERVICE LINES

- A. Construct service lines meeting MPWSS Standard Drawing 02730-2 with a wye fitting instead of tee for new connections. Replace between 5' to 10' of every active sewer service line.

3.04 TESTS

- A. Make all tests after backfill is completed, but before any surface restoration or street surfacing. Be responsible for finding and repairing all breaks and leaks revealed by the tests. Additionally, perform all tests in the presence of the Engineer, resident inspector, or the Owner's other designated representative.
- B. Light Test (Visual)
 - 1. After the trench has been backfilled and compacted as specified in MPWSS Section 02221, perform a light test between manholes to check alignment and grade for pipe displacement. Excluding curved alignments shown on the plans, the completed pipeline is to permit a true circle of light to be visible from one manhole to the next. If alignment or grade is not that specified and displacement of pipe is found, remedy all defects.
- C. Leakage Test
 - 1. New sewer line will not be finally accepted until leakage tests are made assuring the Engineer that pipe laying and jointing are satisfactory.
- D. Water Test (*preferred for rehabilitated manholes with exterior joint wrap*)
 - 1. Where groundwater is at least 2 feet (0.6 m) above the sewer line, make tests by sealing off the section of lines between manholes and measuring the actual flow by collecting or pumping the discharge into barrels or other approved methods. Continue tests at a minimum of 4 hours for each section tested. Allow time to soak lines and manholes in advance of performing tests.
 - 2. When groundwater is not 2 feet (0.6 m) above the pipe, test as follows: On flat slopes where the depth over the centerline of the pipe in the lower manhole of the section being tested will be not more than 10 feet (3 m), fill the upper manhole to 2 feet (0.6 m) over the top of the pipe or 2 feet (0.6 m) above the groundwater elevation (whichever is higher), and block the lower manhole. When the above conditions cannot be met, the Engineer may order testing the line in sections between manholes. Measure the leakage by checking the water level drop in the manhole over a 4 hour period.
 - 3. The allowable infiltration or exfiltration, including manholes, cannot exceed 200 gallons per day per mile of sewer per inch of pipe diameter (***0.0095 gpd/ft² of manhole interior surface***). This does not exclude obvious and concentrated leaks and physical defects, such as open joints, pinched gaskets, cracked barrels or bells, etc. Make repairs on concentrated leaks, and as required to reduce infiltration or exfiltration leakage below the specified rate.

E. Air Test (Alternative)

1. As an alternate method to water testing, the Contractor may utilize low pressure air or vacuum to test the sewer mains and manholes. Use the test procedure described below: Plug both ends of the pipe or all penetrations in the manhole under test with airtight plugs and brace to prevent slippage and blowout. Furnish one plug with an inlet tap or other provision for connecting an air or vacuum hose.
2. Equip the air supply or vacuum hose, connected between the air compressor and the plug, with a throttling valve, an air bleed valve and either a high pressure or high vacuum shutoff valve for control. Equip the low pressure/vacuum side of the throttling valve with a tee for a monitoring pressure gauge, protected by a gauge cock. This cock is kept closed except when the pressure or vacuum loss is being timed.
3. If the pipeline is submerged under groundwater, the back pressure, caused by the water head, is measured and added to the standard test pressures or subtracted from the vacuum to compensate for the groundwater effect on the air test.
4. Apply air or vacuum slowly to the pipeline until the pressure reaches 4.0 psig. or -4.0 psig. Throttle the air supply to maintain the internal pressure/vacuum between (\pm) 4.0 psig and (\pm) 3.5 psig for at least 2 minutes. During this time check the plugs with soap solution to detect any plug leakage.
5. When the pressure reaches exactly (\pm) 3.5 psig, disconnect the air/vacuum supply, start a stop watch and record the time for the pressure/vacuum to drop to (\pm) 2.5 psig. The minimum time allowed for the pressure drop is computed on an air loss rate of 3.5 cfm or an air loss rate of 0.0030 cubic feet per minute (cfm) per square foot of inner pipe surface area under test, whichever rate yields the least time for the pressure drop. Should the time of the pressure drop, between 3.5 and 2.5 psig, be less than the allowable specified time, make the necessary leakage repairs and repeat the air test.
6. MPWSS Standard Drawing 02730-1 entitled Nomograph for Air Testing Gravity Sewer Mains may be used to compute testing times for air testing. The nomograph computes results based upon English (U.S. Customary) units.
7. For single pipe size test sections, the length limits for minimum test times obtained from Standard Drawing No.02730-1 are contained in the following table.

TABLE 3.1 - LENGTH LIMIT FOR MINIMUM TEST TIMES

Pipe Diameter, Inches	Test Section Length, Feet	
	Minimum	Maximum
4	642	1124
6	429	751
8	322	564
10	257	450
12	215	376

15	172	300
18	43	1250
21	123	215
24	107	188

8. For test sections that are shorter than the minimum lengths, new test times must be calculated. This is done by multiplying the test time from the nomograph by the actual length of the test section (in feet) and then dividing the resultant product by the minimum test section length from the preceding table.
9. For test sections exceeding the maximum lengths, either shorten the test section to an allowable length or use the water test.
- 10. For manholes, the pressure/vacuum loss calculation shall be based on $0.003 \text{ ft}^3 \text{ per minute} \cdot \text{ft}^2$ of interior manhole surface under test conditions. This equates to approximately $0.038 \text{ ft}^3/\text{min}$ per foot of manhole depth**

F. Number of Tests

1. Perform the number of leakage tests directed by the Engineer to assure that materials and workmanship are acceptable. Repair defective joints using only approved methods. Replace pipe having cracked or broken barrels. Do not exceed 800 feet of sewer line per test unless otherwise approved.

G. T.V. Inspection

1. In the event that a sewer pipe segment fails the testing outlined in 3.04 Sections B; C; D or E, the Contractor may request final acceptance be based on a closed-circuit television inspection (CCTV). Final acceptance shall be entirely based on the Engineer and Owner's discretion. A sewer line is deficient and unacceptable if (1) the alignment is outside the specified limits, (2) water ponds in any section are equal to or greater than 2 times the grade tolerance specified herein under MPWSS Section 02730.3.E.1, or (3) the pipe has visible defects such as open joints, pinched gaskets, cracked barrels or bell, or similar defects.
2. The Contractor shall pay all costs incurred for any television inspection performed.
3. Record all television inspections in a format acceptable to the Owner. Pull the camera through the sewer at 30 feet per minute. If the camera is pulled by attaching to the hose of a hydraulic sewer cleaner, assure the hose is not active during the pulling process.

H. Deflection Testing

1. The Engineer may require deflection testing of all or any portion of a flexible pipe installation to assure the construction quality. Flexible pipe is pipe that will deflect at least 2 percent without any sign of structural distress.
2. Conduct deflection tests, when performed on PVC pipe, meeting ASTM D3034 and satisfy either of the following deflection limitations:

TABLE 3.2 - DEFLECTION TESTING LIMITATIONS

Minimum Period Between Trench Backfilling & Testing	Minimum Mandrel Diameter as a Percent of Inside Pipe Diameter
7 Days	95.0
30 Days	92.5

3. Mandrels must have at least nine arms. Perform the mandrel test without mechanical pulling devices.

- I. Material and Equipment for Testing

1. Furnish all labor, equipment and materials (including water) necessary for performing the sewer line tests at Contractor expense.

3.05 WATER AND SEWER MAIN SEPARATION

- A. Horizontal and vertical separation between water and sewer mains shall be maintained as dictated by Montana Department of Environmental Quality Circular DEQ-2. Vertical separation at crossings shall be not less than 18" between outside walls of pipe. Horizontal separation shall be not less than 10'.

END OF SECTION 33 31 13

APPENDIX A

Sheet Index

**(Drawings not attached but
incorporated by reference)**

X:\BIG MOUNTAIN SEWER DISTRICT\DRAWINGS\Sheets Re-Bid\Sheet 2 - Key Sheet.dwg SAVED:6/2/22 PRINTED:6/2/22 BY: ADAM

GENERAL NOTES:

1. CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS FOR CONSTRUCTION, DEWATERING AND STORMWATER DISCHARGES.
2. AS CONSTRUCTED ELEVATIONS SHALL BE WITHIN 0.1' OF ELEVATION SPECIFIED ON THE PLAN DRAWINGS.
3. CONTRACTOR SHALL PROTECT AND PRESERVE ALL EXISTING SITE FEATURES (INCLUDING VEGETATION, SURFACES, STRUCTURES, SURVEY MONUMENTATION, MAILBOXES, CULVERTS, SIGNAGE, DRAINAGE, ETC.) TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. ANY DAMAGE TO EXISTING SITE FEATURES SHALL BE REPAIRED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING SEWER MAIN SIZE, MATERIAL TYPE, MANHOLE SIZE, MATERIALS AND CONDITION PRIOR TO INITIATION OF SEWER SYSTEM REPLACEMENT/REHABILITATION ACTIVITIES.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DUST CONTROL DURING CONSTRUCTION.
6. CONTRACTOR MUST COMPLY WITH MONTANA DEPARTMENT OF TRANSPORTATION REQUIREMENTS FOR CONSTRUCTION CONTRACTORS.
7. THE OWNER AND RESIDENTS SHALL BE NOTIFIED PRIOR TO CHANGE OR DISRUPTION OF WATER OR SEWER SYSTEM OPERATION. SEWER SERVICE SHALL BE INTERRUPTED FOR A PERIOD NO LONGER THAN 5 HOURS. SERVICE INTERRUPTION ON THE OUTFALL LINE SHALL NOT BE PERMITTED AND BYPASS PUMPING WILL BE REQUIRED.
8. ALL SEWER INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND MPW STANDARD DRAWINGS 02221-1, 02660-2, 02720-3, 02720-5 AND SECTION 02730.
9. TRENCHES FOR THE INSTALLATION OF WATER OR SEWER MAINS SHALL BE PROPERLY BACKFILLED AS QUICKLY AS POSSIBLE, BUT NO MORE THAN 48 HOURS AFTER INITIAL DIGGING. UNLESS OTHERWISE PROVIDED.
10. WHEN WORKING NEAR OR EXPOSING EXISTING UTILITIES AND SERVICE LINES, WORKERS SHALL UTILIZE HAND DIGGING IN ORDER TO AVOID DAMAGE TO THOSE UTILITIES. IF DAMAGE OCCURS, THE COST OF REPAIR AND PENALTIES CAN BE IMPOSED BY THE OWNER UPON THE CONTRACTOR.
11. ALL NEW SEWER INSTALLED SHALL BE SDR 35 PCV PIPE.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY DIMENSIONS AND LOCATIONS OF UTILITY INFRASTRUCTURE AND IMPACTED SITE FEATURES TO DETERMINE FOR HIMSELF/HERSELF THE LEVEL OF WORK NECESSARY TO COMPLETE THE PROJECT.
13. MANHOLE REHABILITATION INCLUDES ANY COMBINATION OF: REPLACEMENT OF JOINT MASTIC; EXTERNAL JOINT & PENETRATION WATERPROOFING; EXTERNAL CHIMNEY SEAL; COMPOSITE RISER RING(S); BOLTED FRAME/LID AND CONCRETE COLLAR(S).

UTILITY NOTES:

1. BEFORE BEGINNING ANY EXCAVATION, THE CONTRACTOR SHALL PROVIDE VERIFICATION THAT ONE-CALL HAS BEEN NOTIFIED AND UTILITIES HAVE BEEN LOCATED.
2. THE ENGINEER HAS OBTAINED UTILITY INFORMATION FROM ONE-CALL DURING SURVEYING. THE UTILITY LOCATION INFORMATION IS APPROXIMATE AND MAY BE INCOMPLETE.
3. AFTER AN OWNER OF AN UNDERGROUND FACILITY HAS LOCATED AND MARKED THE UNDERGROUND FACILITIES, THE CONTRACTOR SHALL DETERMINE IF WEATHER, TIME, OR OTHER FACTORS MAY HAVE AFFECTED LOCATION MARKS, WARRANTING RELOCATION OF THE FACILITIES.
4. IF EXCAVATION HAS NOT OCCURRED WITHIN 30 DAYS OF THE LOCATE AND MARK, THE CONTRACTOR SHALL REQUEST THAT THE FACILITY BE RELOCATED AND REMARKED BEFORE EXCAVATING UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE WITH THE UNDERGROUND UTILITY OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH RELOCATING AND REMARKING A FACILITY THAT IS NOT EXCAVATED WITHIN 30 DAYS OF THE LOCATE AND MARK.
5. THE CONTRACTOR MAY NOT BEGIN EXCAVATING BEFORE THE LOCATING AND MARKING IS COMPLETE OR BEFORE THE CONTRACTOR IS NOTIFIED THAT LOCATING AND MARKING IS UNNECESSARY.
6. THE CONTRACTOR SHALL LOCATE AND MARK THE AREA TO BE EXCAVATED IF REQUESTED BY THE UNDERGROUND FACILITY OWNER OR THEIR REPRESENTATIVE. IF THE CONTRACTOR DISCOVERS AN UNDERGROUND FACILITY THAT HAS NOT BEEN LOCATED AND MARKED, THE CONTRACTOR SHALL STOP EXCAVATING IN THE VICINITY OF THE FACILITY AND NOTIFY THE FACILITY OWNER OR THE ONE-CALL NOTIFICATION CENTER. IF THIS OCCURS THE CONTRACTOR SHALL PROCEED WITH OTHER ELEMENTS OF THE PROJECT, AT NO COST TO THE PROJECT OWNER, UNTIL THE UNDERGROUND FACILITY OWNER HAS NOTIFIED THE CONTRACTOR THAT EXCAVATION CAN PROCEED.
7. PRIVATE INDIVIDUAL UNDERGROUND FACILITIES HAVE NOT BEEN LOCATED AND ARE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR SHOULD THEY BE DAMAGED. THESE INDIVIDUAL UNDERGROUND FACILITIES MAY INCLUDE BUT ARE NOT LIMITED TO: INDIVIDUAL ELECTRIC, NATURAL GAS, PROPANE, TELEPHONE, SEWER, SATELLITE DISH, AND WATER SERVICE LINES. TELECOMMUNICATION UTILITIES SHALL BE CONTACTED IN ADVANCE TO COORDINATE UTILITY LOCATION AND CONSTRUCTION WORK.

LEGEND / ABBREVIATIONS:	SYMBOL:
CAST IRON PIPE	CIP
DUCTILE IRON PIPE	DIP
POLYVINYL CHLORIDE	PVC
CENTERLINE	C
ELEVATION	ELEV.
EXISTING	EX.
CUBIC YARDS	C.Y.
EACH	EA
INVERT ELEVATION	IE
LINEAL FOOT	LF
SHEET	SHT.
TYPICAL	TYP.
HORIZONTAL DIRECTIONAL DRILL	HDD
RIGHT OF WAY	ROW
PROPERTY LINE	----
EDGE OF PAVEMENT	-----
FENCE	—o—o—
CABLE TELEVISION	— CTV —
GAS	— GAS —
OVERHEAD ELECTRICAL	— OE —
UNDERGROUND ELECTRICAL	— UE —
TELEPHONE	— T —
POWER POLE	PP
POWER POLE (SYMBOL)	● PP
GUY WIRE	— GUY —
LIGHT POLE	○
STREET SIGN	●
EXISTING WATER	— W —
NEW WATER	— W —
WATER SERVICE	— WS —
MANHOLE	MH
MANHOLE (SYMBOL)	⊗
EXISTING SANITARY SEWER	— S —
NEW SANITARY SEWER	— S —
FORCEMAIN	— FM —
PLUG, ABANDON EXISTING	E
STORM SEWER	— ST —
CULVERT	▨
CASING PIPE	▬
FLANGE	FL
MECHANICAL JOINT	MJ
PLAIN END	PE
BEND	⋈
CROSS, TEE	⋈
REDUCER	△
CURB STOP	⊙
HYDRANT	⊙
VALVE	⊗

NOTES: CONTACT THE ENGINEER FOR SYMBOLS NOT LISTED. THIS IS A STANDARD LEGEND SHEET. THEREFORE, SOME SYMBOLS MAY APPEAR ON THIS SHEET AND MAY NOT BE UTILIZED ON THIS PROJECT.

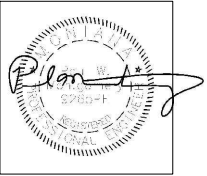
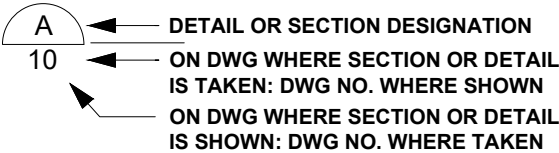
SHEET INDEX: ALTERNATE B

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2	KEY SHEET
3	METADATA
4	VILLAGE PLAN
5	OUTFALL LINE PLAN
6	OUTFALL LINE PLAN CONT.
7	OUTFALL LINE PLAN CONT.
8	OUTFALL LINE PLAN CONT.
9	OUTFALL LINE PLAN CONT.
10	SPOT REPAIR MH A3-1 TO MH A3-1A
11	SPOT REPAIR MH A3-1A TO MH A3-1B
12	SEWER WORK MH A4.6 TO MH A4.5
13	MANHOLE A1
14	MANHOLE A1B
15	MANHOLE A1-1.1
16	MANHOLE A1-1.3
17	MANHOLE A1-1.4
18	MANHOLE A2-1.5
19	MANHOLE A2-2
20	MANHOLE A2-2.1
21	MANHOLE A2-2.4
22	MANHOLE A2-4A
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39	MANHOLE 16
40	MANHOLE 21
41	MANHOLE 22
42	MANHOLE 26A
43	MANHOLE 27
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46	MANHOLE 31
47	MANHOLE 32
48	MANHOLE 32A
49	MANHOLE 33
50	MANHOLE 33A
DETAILS	
D1	MANHOLE DETAILS
D2	MAHOLE DETAILS CONTINUED
D3	DETAILS

DETAIL DESIGNATION:



Revision	Date	By
Draft	12-20-21	AE
Draft	3-10-22	AE
Final	4-17-22	AE
Re-Bid Final	6-10-22	AE

Revision	Re-Bid Final
Plot Scale	1:2
Drawn By	A.Eckhart, P.E.
Approved By	P.Montgomery, P.E.
Checked By	A.Eckhart, P.E.
Designed By	P.Montgomery, P.E.

Engineer



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Owner

Big
Mountain
County
Sewer
District

Project Title

I&I
Mitigation
Project

Sheet Title

Key Sheet

Sheet

2