Oregon International Port of Coos Bay

Proposed Section 204(f)/408 Channel Modification Project

Sub Appendix 9

90% Specifications

May 2024 Draft

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DOCUMENT 00 01 15

LIST OF DRAWINGS
TBD

PART 1 GENERAL

1.1 SUMMARY

This section lists the drawings for the project pursuant to contract clause OAR XXX-XXX-XXXX.

1.2 CONTRACT DRAWINGS

Contract drawings are as follows:

G-001: COVER SHEET AND LOCATION & VICINITY MAPS
G-002: SHEET INDEX, GENERAL NOTES, LEGEND & ABBREVIATIONS
G-003: OVERALL SITE & KEY PLAN
V-100: OVERALL DREDGING PLAN
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1.3 SUPPLEMENTARY DRAWINGS

These supplementary drawings may not be a part of the contract but are included with the drawings for information.

1.4 BORING LOGS

Oregon International Port of Coos Bay (OIPCB) does not guarantee that borings indicate actual conditions, except for the exact locations and the time that they were made.

-- End of Section –-

SECTION 01 10 10.00 25

CONTRACTOR'S OPERATIONS AND REQUIREMENTS
04/2019

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

This Section covers general requirements applicable to specific Contractor's operations and equipment.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

OREGON OCCUPATIONAL SAFETY AND HAZARD DIVISION (OSHD)

OSHD	Oregon OSHD Technical Manual

1.3 SUBMITTALS

Oregon International Port of Coos Bay (OIPCB) approval is required for submittals with a “O” designation; submittals not having a “O” designation are for information only. Submit the following in accordance with Section 01 33 00, SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Schedule for Construction; O

Access Agreements and Work Areas; O

Contractor’s Planned Equipment Methods; O

Plant and Equipment List; O

SD-06 Test Reports

Survey Field Notebooks

Data Storage

1.4 SCHEDULE FOR CONSTRUCTION

See Section 01 32 01 Project Schedule for requirements.

1.5 IN-WATER WORK

1.5.1 IN-WATER WORK (IWW) PERIODS

OIPCB has established interim construction completion date, described as “in-water work periods,” coinciding with the annual cycles of fish migration and related allowed maintenance periods. In general, this is a work period that allows for work in the water, on the water, and adjacent to the water where the work might affect fish passage (usually a 50-foot rule from the work site to the water). The IWW period established for this Contract is: June 15 through February 15. Additionally, there will be a project imposed seasonal work restriction from RM7 to RM8.4 from August 15 through November 15 of each season due to the large numbers of recreational fishing craft in the area. Avoidance of this area is in order to avoid potential conflicts with fishing craft.

1.5.2 IN-WATER WORK ACTIVITIES

For purposes of this Contract, work items that must be restricted to the IWW period, along with further work restrictions, are described below:

a. All work from a barge or other floating plant is considered in water work.

b. All work in an active streambed from a barge or other floating plant is considered water work.

c. Towing or sailing of barges and floating plant is not considered in water work.

1.6 INCLEMENT WEATHER CONSTRUCTION

The Contractor’s schedule must reflect adverse weather days in all weather dependent activities. Protect work areas from inclement weather, wind damage, and precipitation so that no delay in the prosecution of critical work items, or damage to OIPCB property occurs. No time extensions will be authorized for materials, work in place, or equipment damaged due to negligence during periods of inclement weather.

1.7 WORK BY THE OTHER PARTIES CONCURRENT WITH CONTRACTOR WORK

Concurrent construction may be occurring in the Coos Bay Channel or the Coos Bay North Jetty. It is the Contractor’s responsibility to coordinate with other concurrent construction projects. No extensions of payment shall be authorized for delays resulting from interference by other projects.

1.8 WEEKLY COORDINATION MEETINGS

Weekly coordination meetings must be held between the Contractor and OIPCB. This meeting will be used to discuss Contractor’s safety, Quality Control Program, joint risk management, submittals, deficiencies, Contract administration, schedule, actual progress in the last week, and work planned in the upcoming two weeks. Any work requiring Project support or potential impacts to Project operations or maintenance must be noted. During the Preconstruction Meeting, OIPCB will determine responsibility of running this meeting. If OIPCB elects to run the coordination meeting, the Contractor must provide a two week look ahead, with the previous week as-builts, 48 hours before each weekly meeting to the OIPCB Representative. The responsible party must prepare and distribute, by e-mail, the coordination

meeting agenda with a two week look ahead no later than 24 hours before each meeting. A meeting time and place will be mutually agreed upon for the same time each week. Distribute weekly coordination meeting minutes no later than the close of business the next business day.

1.9 CONTRACTOR EMPLOYEES

Ensure that all employees are capable of demonstrating adequate knowledge of tools, supplies, equipment, and techniques necessary to competently perform the work. All personnel employed by the Contractor must be fully qualified in their respective fields to render the services necessary. OIPCB may require the Contractor to discontinue using any employee in the performance of the work specified in this Contract determined by OIPCB to be unsatisfactory. Contractor employees will not be permitted to bring guests, family members, or non-employees to the job site at any time.

1.10 ACCESS AGREEMENTS AND WORK AREAS

1.10.1 ACCESS AGREEMENTS

a. Submit access procedures to and from the work site after the Contractor, and the OIPCB Representative have coordinated and determined the most advantageous access to, and staging of, the Contractor’s assets deployed to the work site.

b. The right-of-way for the work (or delivery site) and access thereto will be furnished as stated in this paragraph subject to mutual agreement between the Contractor and OIPCB concerning the specific route the Contractor is to use. Such mutual agreement must be reached prior to initiation, construction, or delivery.

c. The existing access roadway and any associated access roads on the Project, must not be closed as a result of construction or delivery activities associated with this Contract unless previously coordinated and approved by OIPCB. Traffic delays will only be permitted in accordance with the provisions of this Section.

d. When necessary to operate on or to cross existing highways or roads, all necessary permits must be obtained from the appropriate private or public authority.

e. In accordance with OSHD, flaggers, signs, lights, and/or other safeguards must be provided to safely control and direct the flow of traffic when necessary for equipment to operate on or to cross access roads, arterial roads, or highways.

f. Spillage on Project roads and state or county roads will not be permitted, and the spillage must be immediately cleaned up at the expense of the Contractor.

g. No cleated or crawler-type equipment shall be operated on paved surfaces.

h. Damage to all roads caused by the Contractor’s operations must be repaired to pre-existing conditions at the expense of the Contractor.

i. Photograph the existing condition of all staging areas prior to mobilization and submit all photographs in the Access Agreements submittal. Failure to properly document existing conditions will result in OIPCB determination of necessary repairs.

1.10.2 WORK AREAS

a. Drawings showing the layout of the area proposed for use must be submitted for review and approval. The drawing(s) must show the location of the principal components: offices, access roads, parking, storage facilities and disposal areas, which the Contractor proposes to construct within the designated limits.

b. All Contractor and subcontractor trailers are required to be adequately and physically anchored to prevent overturning due to high winds.

1.10.3 EMPLOYEE ACCESS AND PARKING

For employee access and parking see Section 01 50 00. In addition the following is required: Keep the parking areas free of litter and debris. An adequate number and size of trash receptacles must be placed in the parking areas and emptied, as necessary to avoid overflowing. Trash receptacles must be adequately secured to provide protection from the wind and animals.

1.11 OIPCB TRAILER

Provide a 10 foot by 40-foot temporary office trailer at the staging area for use by OIPCB construction administration personnel. Comply with the current building and electrical codes for the type of occupancy specified. The trailer must be ready for OIPCB use prior to onsite work. Provide the following in the OIPCB trailer:

a. Two - Covered stair accesses with exterior lighting.

b. Security bars over all windows.

c. Matching dead bolts on all doors with three sets of keys provided to the OIPCB Representative.

d. Temporary power. Contractor must pay all fees and monthly charges to establish service and usage for the duration of the Contract.

e. Thermostatically controlled air conditioning and heating unit capable of maintaining 72 degrees F during all seasons.

f. Two - Phone lines. Contractor must pay all fees and monthly charges to establish service and usage for the duration of the Contract. This can either be land lines or mobile phones. OIPCB on site staff to determine.

g. Four - Work stations. Each workstation must include:

(1) One - Double-pedestal desk 2'-6" by 5'-0".

(2) One - Desk chair approximately 37- to 44-inches high by 25-inches wide by 26-inches deep, which can revolve a full 360

degrees, has adjustable height and back tilt-tension mechanism, lumbar support, adjustable armrests, and is upholstered with cloth for heavy use. Desk chairs must have five equally spaced casters intended for the surface used.

(3) One - Internet connection. Contractor must provide internet and modem/router combination unit. The Internet must be independent and not relayed or in any other way connected to another internet connection source. Internet download speed must be a minimum of 10 Mbps. Internet upload speed must be a minimum of 1 Mbps. Contractor must pay all fees and monthly charges to establish service and usage for the duration of the Contract.

h. Four - Legal size filing cabinets with two drawers each.

i. One - Plan review table able to accommodate regular size Contract drawings.

j. Provide bottled drinking water with cooling/heating support frame. Pay all fees and monthly charges to establish service and usage for the duration of the Contract.

k. One - Interior bathroom with a toilet and sink. Sewage holding tank must be pumped out by the Contractor. Water supply must be provided by the Contractor. Non-potable water may be used, but signage must be provided at all outlets. Pay all fees and monthly charges to establish service and usage for the duration of the Contract.

1.12 CHANNEL ACCESS RESTRICTIONS

Do not block operational areas of the channel in a manner that completely restricts vessel traffic. With prior coordination and approval, the channel may be blocked for a period no longer than two hours.

1.13 CONSTRUCTION PROJECT IDENTIFICATION SIGN

Fabricate and install one construction project identification sign in prominent location identifying name of project, Contractor, OIPCB name and information website address. Minimum size 32 square feet, within three days of beginning site work.

1.14 UTILITIES

Provide utilities required for the performance of work under this Contract.

1.14.1 Sanitary Facilities

Provide portable, temporary sanitary facilities in accordance with OSHD.

1.14.2 ELECTRICAL POWER

1.14.2.1 GENERAL

OIPCB-furnished or public utility electrical power is not available for the Contractor's use. The Contractor shall coordinate with the public utility/electrical power company to establish service with a separate meter and pay all associated fees and monthly charges.

1.14.3 TELEPHONE

The Contractor shall coordinate with the local telephone company to establish service with a separate meter and pay all associated fees and monthly charges.

1.14.4 WATER

Provide drinking water/handwashing water for all Contractor personnel working on the project.

1.15 CONTRACTOR'S EQUIPMENT

1.15.1 CONTRACTOR’S PLANNED EQUIPMENT METHODS

Submit proposed methods of transportation and operation of dredges, barges, cranes and other heavy equipment for approval prior to commencement of those operations. Submittals must include the type, size, loadings of equipment, placement of outriggers, and the proposed transportation routes and work areas to be used on the project. Operation of heavy equipment adjacent to existing structures must be avoided when possible. Testing requirements and operation of cranes and other heavy equipment must be in accordance with OSHD. All dredges, barges, cranes, rigging, lifts, operators, vehicles, and other necessary means to move equipment or items must be Contractor-furnished as required to pursue and complete the work and must comply with OSHD.

1.15.2 PLANT AND EQUIPMENT LIST

Within seven days prior to commencing site operations, provide a complete list of all plant and equipment to be used on the job site, exclusive of shop equipment. Throughout the life of the Contract, submit an up-to-date plant and equipment list with each progress payment request. Include rented equipment as well as lease purchase or sale leaseback equipment on the lists. Initial list and the revised monthly lists must indicate dates equipment is assigned to or removed from the project; deadline dates for repairs and returned for use; dates of the most recent and planned inspections; and adequate identification or description of each item of equipment including manufacturer's name (abbreviated), model number, manufacturer's serial number, year of manufacture, and Contractor's assigned serial or record number.

1.16 DAMAGED EQUIPMENT OR ABNORMAL CONDITIONS

Inform the OIPCB Representative immediately upon finding any damaged equipment or other abnormal conditions involving additional work in which the Contractor believes it has no responsibility. The failure or abnormality must not be disturbed until witnessed by the OIPCB Representative. Prior to proceeding further with work, the Contractor and OIPCB Representative shall agree in writing as to the responsibility for the damage or abnormality. Any damage or abnormal conditions not reported as specified above must also be corrected.

1.17 USE OF EXPLOSIVES

Use of explosives is not permitted on this contract.

1.18 DAILY CLEANUP AND DISPOSAL

Keep all work areas reasonably neat on a daily basis. Collect, remove, and dispose of all debris resulting from the work, such as waste metalwork, packing cases, scrap lumber, and other debris off-site at least once per week. Do not dispose of liquid waste in storm drains. All costs of removing debris must be incidental to the work, and therefore, no separate payment will be made.

1.19 DISPOSAL AND SALVAGE OF EQUIPMENT AND MISCELLANEOUS MATERIALS

Title to all materials and equipment to be disposed of will be vested in the Contractor when beginning disassembly work or when such materials and equipment are designated as scrap. OIPCB will not be responsible for the condition, loss, or damage to such property after title transfer. The Contractor may retain these items in usable form and take possession of them providing that there is no subsequent cost or inconvenience to OIPCB. OIPCB does not guarantee that these items are complete or in working order and the Contractor must assume responsibility for any damage caused by their use immediately upon taking possession of them.

1.20 PROTECTION OF MATERIAL AND WORK

All materials, supplies, tools, equipment and OIPCB property (including all tools, equipment, and special devices supplied by the Contractor and to be turned over to the OIPCB at the end of the Contract) must at all times be protected and preserved in an approved manner. If material, equipment, supplies, and work performed are not adequately protected, such property may be protected by the OIPCB and the cost thereof will be charged to the Contractor or deducted from any payment due.

1.21 PROTECTION OF EXISTING UTILITIES

Protect existing utilities in accordance with OAR XX-XXX-XXX. Repairs must be made immediately and at Contractor's expense.

1.22 PROTECTION AND RESTORATION OF EXISTING FACILITIES

Protect all existing facilities, whether or not, shown on the drawings or referenced in the specifications. Upon completion of the work, all the existing facilities, not included as a portion of the work, must be left in a condition equal to the original condition prior to the Contract. Costs for repair and restoration of any facilities must be considered to be incidental to the work and included in the Contract price.

1.23 RESTORATION OF PROJECT ROADS

Project roads used for construction access will be evaluated and must be restored to their original condition by the Contractor as required. Repair and restoration must be made at the expense of the Contractor.

1.24 CONTRACTOR SURVEY DATA

1.24.1 SURVEY FIELD NOTEBOOKS

State of Oregon licensed professional land surveyors must perform Contractor surveys. Submit waterproof Survey Field Notebooks written in a legible, sequential manner. No erasures are to be made. Field notes must be reduced and checked with each page initialed by the reviewer. Initial reductions must be made in black pencil; corrections by reviewing personnel must be in red pencil. An electronic data collection device may be used, provided that the resulting field data is submitted on 8 1/2- by 11-inch paper. Written data collector information must contain the offset distance from the location line/preliminary line/base line, the elevation reading, the station, and a brief feature description. Label information submitted to indicate each facet of work and include all computations and coordinates. Each notebook submitted must bear the signature and seal of a registered land surveyor following the statement: "I certify that the data in this field notebook has been reviewed and checked and is true and correct."

1.24.2 DATA STORAGE

In addition to field notes submit a USB flashdrive using the current version of Microsoft Windows© Operating System. The file must contain coordinates, elevations, and station values relating to control points on the location line/preliminary line/base line and cross sections along the line. The information must be IBM PC compatible and presented in the American Standard for Information (ASCII) format. Data on the disk must conform to the following format:

a. An 80-column format with 15 columns devoted to Northing coordinates, Easting coordinates, elevations, and location line/preliminary line/base line station values. Reserve the remainder of the 80 columns for additional designations.

b. The Northing (Y) and Easting (X) coordinates and elevation values must be shown to three places to the right of the decimal and be right justified.

c. A point identification abbreviation must be entered in the field immediately right of the station value. Typical points and identifications are: angle point (AP); back tangent (BK TAN); forward tangent (FWD TAN); angle split (A SPLT); point of curve (PC); point of tangent (PT); and other significant features such as top of rock, centerline of road, railroad bridge, edge of pavement, corner of building, etc.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

-- End of Section --

SECTION 01 11 00

SUMMARY OF WORK
08/15

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

1.1.1 PROJECT DESCRIPTION

The work includes dredging and disposal of sediment and rock, relocation of aids to navigation, placement of a rock apron at the North Jetty toe and incidental related work.

1.1.2 LOCATION

The work is located at in Coos Bay Federal Navigation Channel, from the offshore entrance to River Mile 8.4, the Coos Bay Jetties, and the adjacent offshore and nearshore disposal areas. The exact locations are shown by the Contract Drawings.

1.2 EXISTING WORK

a. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.

b. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the OIPCB Representative. At the completion of operations, existing work must be in a condition equal to or better than that which existed before new work started.

1.3 LOCATION OF UNDERGROUND UTILITIES

OIPCB will secure dredging and disposal permits prior to start of excavation and contractor will comply with Installation requirements for locating and marking underground utilities. Contact local utility locating service a minimum of 48 hours prior to dredging and within sufficient time required if work occurs on a Monday or after a Holiday. Verify existing utility locations indicated on contract drawings, within area of work.

Identify and mark all other utilities not managed and located by the local utility companies. Scan the construction site with Ground Penetrating Radar (GPR), electromagnetic, or sonic equipment, and record the position of the underground utilities. Verify the elevations of existing piping, utilities and any type of underground obstruction not indicated.

1.3.1 NOTIFICATION PRIOR TO EXCAVATION

Notify the OIPCB at least 48 hours prior to starting excavation work within 1,000 feet of buried utilities.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 20 00.00 20

PRICE AND PAYMENT PROCEDURES
11/11

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this section to the extent referenced. The publications are referred to within the text by the basic designation only.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST HB 44	(2024) Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices

1.2 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Schedule of Prices; O

SD-03 Product Data

Weight Certificates

1.3 SCHEDULE OF PRICES

1.3.1 DATA REQUIRED

This contract requires the use of a cost-loaded Schedule. The information required for the Schedule of Prices will be entered as an integral part of the Schedule. See Section 01 32 01 Project Schedule of additional scheduling requirements.

1.3.2 SCHEDULE INSTRUCTIONS

Payments will not be made until the Schedule of Prices has been submitted to and accepted by the OIPCB Representative.

1.4 CONTRACT MODIFICATIONS

Use actual ownership and operating costs construction equipment from Contractor accounting records, and equipment use rates.

1.5 CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT

1.5.1 CONTENT OF INVOICE

Requests for payment will be processed in accordance with the OIPCB payment provisions. The requests for payment shall include the documents listed below.

a. The Contractor's invoice, showing in summary form, the basis for arriving at the amount of the invoice. The invoice shall include certification by the Contractor’s Quality Control (QC) Manager.

b. Updated Project Schedule and reports required by the contract.

c. Contractor Safety Self Evaluation Checklist.

d. Other supporting documents as requested.

e. Updated copy of Submittal Register.

f. Invoices not completed in accordance with contract requirements will be returned to the Contractor for correction of the deficiencies.

1.5.2 SUBMISSION OF INVOICES

Monthly invoices and supporting forms for work performed through the anniversary award date of the contract shall be submitted to the OIPCB Representative within 5 calendar days of the date of invoice. For example, if the contract award date is the 7th of the month, the date of each monthly invoice shall be the 7th and the invoice shall be submitted by the 12th of the month.

1.5.3 FINAL INVOICE

a. A final invoice shall be accompanied by the certification required by OIPCB payment provisions, and the Contractor’s Final Release. If the Contractor is incorporated, the Final Release shall contain the corporate seal. An officer of the corporation shall sign, and the corporate secretary shall certify the Final Release.

b. Final invoices not accompanied by the Contractor's Final Release and required certification of Transportation of Supplies by Sea will be considered incomplete and will be returned to the Contractor.

1.6 PAYMENTS TO THE CONTRACTOR

Payments will be made on submission of itemized requests by the Contractor which comply with the requirements of this section and will be subject to reduction for overpayments or increase for underpayments made on previous payments to the Contractor.

1.6.1 OBLIGATION OF OIPCB PAYMENTS

The obligation of OIPCB to make payments required under the provisions of this contract will, at the discretion of the OIPCB Representative, be subject to reductions and suspensions permitted for:

a. Reasonable deductions due to defects in material or workmanship;

b. Claims which OIPCB may have against the Contractor under or in connection with this contract;

c. Unless otherwise adjusted, repayment to OIPCB upon demand for overpayments made to the Contractor; and

1.6.2 PAYMENT FOR ONSITE AND OFFSITE MATERIALS

Progress payments may be made to the contractor for materials delivered on the site, for materials stored off construction sites, or materials that are in transit to the construction sites under the following conditions:

a. Materials delivered on the site but not installed, including completed preparatory work, and off-site materials to be considered for progress payment shall be major high cost, long lead, special order, or specialty items, not susceptible to deterioration or physical damage in storage or in transit to the construction site. Examples of materials acceptable for payment consideration include, but are not limited to, structural steel, non-magnetic steel, equipment, machinery, large pipe and fittings, precast/prestressed concrete products, armor stone, plastic lumber (e.g., fender piles/curbs), and high-voltage electrical cable. Materials not acceptable for payment include consumable materials such as nails, fasteners, conduits, gypsum board, glass, insulation, and wall coverings.

b. Materials to be considered for progress payment prior to installation shall be specifically and separately identified in the Contractor's estimates of work submitted for the OIPCB Representative approval in accordance with Schedule of Prices requirement of this contract. Requests for progress payment consideration for such items shall be supported by documents establishing their value.

c. Materials are adequately insured and protected from theft and exposure.

d. Provide written consent from the surety company with each payment request for offsite materials.

1.7 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract job payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular job or unit price payment item, are included in the listed job item most closely associated with the work involved. The job price and payment made for each item listed constitutes full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.7.1 MOBILIZATION AND DEMOBILIZATION

1.7.1.1 PAYMENT

Payment will be made for costs associated with and incidental to mobilization and demobilization and establishment of initial project management and coordination. OIPCB will pay all costs for the mobilization and demobilization of all Contractor’s plant and equipment at the contract lump sum price for this item. 60 percent of the lump sum price upon completion of the contractor’s mobilization at the work site. The remaining 40 percent upon completion of the demobilization. See Clause “Payment for Mobilization and Demobilization” as defined in XXXX”.

1.7.1.2 UNIT OF MEASURE

Unit of measure: Lump Sum.

1.8 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed constitutes full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

1.8.1 SEDIMENT DREDGING

1.8.1.1 PAYMENT

Payment will be made for costs associated with dredging, including paid overdepth dredging, transporting and placement of dredge material at designated placement sites, and other operations incidental thereto, including hydrographic surveys, water quality control, and temporary relocation of buoys during dredging.

1.8.1.2 MEASUREMENT

The total quantity of dredge material for which payment will be made will be by in-place (quantity) measurement in cubic yards by computing the difference in available material between the pre-dredge survey and the post-dredge survey. Available material is defined as material located within the boundaries of the dredge prism. Specifically, a quantity of available material will be computed between the dredge prism and the bottom surface shown by the soundings of OIPCB's pre-dredge survey, and a quantity of available material will be computed between the dredge prism and the bottom surface shown by the OIPCB 's post dredge survey. The difference between these two available quantities (pre-dredge and post-dredge) will constitute the quantity of material dredged. Misplaced materials (including any required removal and placement), excessive overdepth dredging and material falling or drawn into the cut from beyond the side slope plane or beyond the limits indicated, will be excluded from the quantities for which payment will be made. The Triangulated Irregular Network (TIN) method will be used for quantity determination. For method of soundings, see Section 35 20 23 DREDGING.

1.8.1.3 UNIT OF MEASURE

Unit of measure: cubic yard.

1.8.2 ROCK DREDGING

1.8.2.1 PAYMENT

Payment will be made for costs associated with dredging, including paid overdepth dredging, pre-treatment, transporting and placement of dredge material at designated placement sites, and other operations incidental thereto, including hydrographic surveys, water quality control, and temporary relocation of buoys during dredging.

1.8.2.2 MEASUREMENT

The total quantity of dredge material for which payment will be made will be by in-place (quantity) measurement in cubic yards by computing the difference in available material between the pre-dredge survey and the post-dredge survey. Available material is defined as material located within the boundaries of the dredge prism. Specifically, a quantity of available material will be computed between the dredge prism and the bottom surface shown by the soundings of OIPCB's pre-dredge survey, and a quantity of available material will be computed between the dredge prism and the bottom surface shown by the OIPCB 's post dredge survey. The difference between these two available quantities (pre-dredge and post-dredge) will constitute the quantity of material dredged. Misplaced materials (including any required removal and placement), excessive overdepth dredging and material falling or drawn into the cut from beyond the side slope plane or beyond the limits indicated, will be excluded from the quantities for which payment will be made. The Triangulated Irregular Network (TIN) method will be used for quantity determination. For method of soundings, see Section 35 20 23 DREDGING.

1.8.2.3 UNIT OF MEASURE

Unit of measure: cubic yard.

1.8.3 ARMOR STONE

1.8.3.1 PAYMENT

Payment for armor stone satisfactorily placed will be made at the applicable contract unit price for Armor Stone. Price(s) and payment(s) shall constitute full compensation for furnishing all plant, labor, materials and equipment and constructing the stone protection in the work as specified. No separate payment will be made for the stockpiling of stone, and all cost in connection with stockpiling shall be included in the contract unit price for stone.

1.8.3.2 MEASUREMENT

Stone will be measured for payment by the ton. Quantities will be computed to the nearest whole ton. Armor Stone will be measured for payment, in the presence of the OIPCB Representative, by weighing on approved, accurately calibrated scales furnished by and at the expense of the Contractor or by displacement measurements on barge delivered materials. Weight certificates furnished by a public weighmaster will be acceptable. Submit Weigh Scale Certification and Certified Weight Scale Tickets, by a copy of the certification from the regulation agency, attesting to the scale's accuracy and a copy of each certified weight scale ticket after 5 (five) working

day(s) after weighing Armor Stone will be measured for payment by the ton as determined by barge displacement, or by weighing by the truckload on approved scales meeting the requirements of paragraph TRUCKLOAD.

a. Truckload. Each truck load will be weighed to the nearest 0.1 ton and the final quantity rounded to the nearest whole ton. Stone will be measured for payment by weighing on approved scales before being placed in the work. Scales shall be of sufficient length to permit simultaneous weighing of all axle loads and shall have an accuracy within 0.2 percent throughout the range of the scales. The scale's accuracy shall conform to the applicable requirements of NIST HB 44 and shall be certified by an acceptable scales company representative prior to weighing any stone. If commercial scales are readily available in close proximity (within 20 miles) of site of work, documentation shall be submitted certifying that the scales meet the requirements of the specification. The OIPCB Representative may elect to accept certified weight certificates furnished by a public weighmaster in lieu of scale weights at the jobsite.

b. Barge Load. If delivered by barge, stone will be measured for payment by the Contracting Officer by weight determined by barge displacement. Furnish the OIPCB Representative a barge displacement table not less than 10 work days prior to unloading the stone from any barge. Each table submitted shall show the name and/or number of the barge owner, the name of the fabricator, and the certification and date of certification of the person or firm preparing the table. Furnish with the barge displacement tables a drawing or sketch of each barge, dimensioned in sufficient detail to permit checking of the tables. The drawings shall show, as a minimum, the length, width, depth of the barge, and dimensions of the rake or rakes. Each such table shall have its accuracy certified by a person or firm, other than the Contractor, customarily performing this service. Each table submitted shall contain, in parallel columns, the freeboard of the barge in feet and tenths from zero to the full depth of the barge and the corresponding gross displacement to the nearest ton. Each barge shall be suitably marked with two displacement gaging locations on each side near each end of the barge. Each gaging location shall be marked by a line perpendicular to the edge of the barge, 4 inches wide and 1 foot long, on both the deck and side of the barge. Barges with rakes shall have the displacement gaging lines placed at each corner of the box section between the rakes. If a barge has a box end or ends, the gaging locations shall be placed approximately 4 feet from the box end(s). The freeboard will be measured at the four gaging locations and the displacement determined by the use of "STANDARD BARGE TABLES" from the average of these measurements. The displacement will be determined before and after being unloaded and the difference between these values shall be the quantity delivered. Submit the Gaging Table Data, stone hauling vessel, gaging tables and a copy of the data and calculations used for the preparation of the tables. Barges shall be loaded so that the readings taken at the gaging locations do not vary more than 1.5 feet port to starboard fore and aft and do not vary more than 0.5 feet port to starboard. If such is not the case, trim the carrier by shifting the stone until this limit is reached, before the measurement will be accepted. All carriers used in transporting stone shall be free of leaks such as would render accurate gauging difficult. Facilities for inspecting the hold of each carrier to determine whether leakage is occurring shall be provided. Each carrier shall also be provided with adequate pumping facilities, and if water is

found to be accumulating in the hold, the carrier shall be pumped dry before each gaging, both before and after unloading. Lightening by pumping or by transfer of crew or supplies will not be permitted while stone is being transferred. Rejected stone and unacceptable material shall be left aboard the barge until after the final readings have been taken.

c. Determination of Excess Stone. All stone outside the limits and tolerances of the cross sections of the structure, except variations so minor as not to be measurable, will be deducted from the quantity of new stone for which payment is to be made. Weight of excess stone will be determined from the cross sections obtained by the method provided for in paragraph FINAL SURVEYS, on the basis that the cubic feet of volume (including voids) for each type of stone, as listed in the Table in paragraph FACTORS USED FOR CONVERTING IN PLACE VOLUME TO WEIGHT, is equal to one ton or 2,000 pounds for the bulk specific gravity and percentage of voids shown. If the bulk specific gravity of the stone furnished or the percentage of voids is other than as listed below, the cubic feet of volume equaling 2,000 pounds shall be recomputed as described in paragraph REVISIONS OF BIDDING SCHEDULE QUANTITIES. Should any excess stone be disclosed above the tolerance line as defined in paragraph TOLERANCES, its volume will be computed by the average end area method, based upon the cross section in the following manner. The average end area of excess stone above the tolerance line for two (2) successive cross sections, multiplied by the distance between the cross sections will be accepted as the volume. The Contractor will not be required to remove such excess stone and deductions for the weights thereof will be made from contract payments for new stone. In addition to the above, stone, which has been delivered to the site and has been lost or wasted or otherwise not properly incorporated into the final required work, shall be deducted from the quantity for which payment is to be made.

d. Final Surveys. Survey work and measurements required for determination of excess volume computations for stone materials shall be performed in the presence of the OIPCB Representative. Notify the OIPCB Representative not less than 3 days in advance of each survey. In the event of unavailability of the OIPCB Representative, perform the survey and certify to the OIPCB Representative that it complies with the specifications. Cross section surveys shall be taken perpendicular to the axis of the structures. Elevations and soundings shall be taken on lines 25 feet apart measuring along the structure reference line, with the readings at 5-foot intervals and at breaks in the grade along the line. Other survey intervals and readings may be used if deemed appropriate or advisable by the OIPCB's on-site representative. Additional cross sections, elevations, and soundings may be taken if determined necessary by the OIPCB's on-site representative. Determination of quantities will be made by the OIPCB's on-site representative and having once been made, will not reopen, except on evidence of collusion, fraud or obvious error. Prior to performing any work under this Section, coordinate all operations with the OIPCB's on-site representative so that excess volume surveys will be made at the appropriate time. The surveys conducted under paragraph CHECK SURVEYS may be used when deemed appropriate by the OIPCB's on-site representative, as part of the surveys required herein. Stone quantity computations shall be based entirely upon weights of new stone as determined from carrier displacement or certified scale weight tickets.

1.8.3.3 UNIT OF MEASURE

Unit of measure: ton (2,000 pounds).

1.8.4 FURNISH STEEL PIPE PILES

a. "Furnish Steel Pipe Piles" shall be measured and paid for by the linear foot. Work shall include items described in Section 31 62 16.16 STEEL PILES. This payment shall be full compensation for labor, materials, equipment, tools, and other items required to furnish and deliver Steel Pipe piles to the project and described in the Section. The quantity in the bid list includes the quantity for four additional piles to be furnished as determined by the Contracting Officer. These additional piles will be paid if used at the Contracting Officer's discretion or if there are surplus piles remaining after the project is complete.

b. Unit of Measure: Linear Foot

1.8.5 DRIVE STEEL PIPE PILES

a. "Drive Steel Pipe Plies" shall be measured and paid for by each. Work shall include items described in Section 31 62 16.20. This payment shall be full compensation for all labor, materials, equipment, tools, and other items required to install steel pipe piles including pile cutoff and build-up as described in this Section. The quantity in the bid list includes four additional piles to be driven as directed by the Contracting Officer.

b. Unit of Measure: Linear Foot

1.8.6 BUOY RELOCATION

1.8.6.1 PAYMENT

Payment will be made for costs associated with final relocation of buoy Aids to Navigation including removing sinkers, adding additional chain, and replacing sinkers in the prescribed location. This payment shall be full compensation for all labor, materials, equipment, tools, and other items required to relocate buoy aids. This item does not include payment for temporary relocation of buoys during dredging. Payment for temporary relocation is included in Paragraph 1.4.1, Sediment Dredging.

1.8.6.2 MEASUREMENT

The total number of buoys will be determined from as-built plans.

1.8.6.3 UNIT OF MEASURE

Unit of measure: buoy

1.8.7 RELOCATION OF AID PLATFORMS

1.8.7.1 PAYMENT

Payment will be made for costs associated with operations necessary for construction of the fixed Aid to Navigation platforms, including pile driving, foundations, tower assembly, and necessary connections. This

payment shall be full compensation for all labor, materials, equipment, tools, and other items required to construct fixed aid platforms. This item also includes payment for removal and disposal of existing fixed aid platforms to be deconstructed.

1.8.7.2 MEASUREMENT

The total number of platform relocations will be determined from as-built plans, based on inspections of the deconstructed platform and construction of the new platform.

1.8.7.3 UNIT OF MEASURE

Unit of measure: platform

1.9 SUBSURFACE DRILLING, SAMPLING, AND TESTING

Make all measurements for payment by or in the presence of the OIPCB. Preserve all holes in good condition until final measurement and until the records and samples have been examined and accepted. Payment will be made only for drilling those holes that are included in the SCHEDULE OF DRILLING, SAMPLING, AND TESTING, or are directed by the OIPCB to be so drilled or excavated. Payment will not be made for any hole or testing for which satisfactory records (and samples), as determined by the OIPCB, are not furnished.

1.9.1 Mobilization and Demobilization

1.9.1.1 Payment

Payment will be made for costs associated with mobilization and demobilization. Sixty percent of the Mobilization and Demobilization lump sum price will be paid following completion of moving onto the site, including complete assembly in working order, of all equipment necessary to perform the required drilling and sampling operations. The remaining 40 percent of the contract lump sum price will be paid after all site restoration is completed and all equipment has been removed from the site. No separate payment will be made for moves between holes.

1.9.1.2 Unit of Measure

Unit of measure: lump sum.

1.9.2 Mud Rotary Boring and Sampling of Drill Holes

1.9.2.1 Payment

Payment will be made for costs associated with Mud Rotary Boring and Sampling of Drill Holes with a minimum Diameter of 4 inches.

1.9.2.2 Measurement

Mud Rotary Boring and Sampling Drill Holes will be measured for payment to the nearest linear foot, based upon the linear feet of holes that were actually drilled through overburden with mud rotary in accordance with the specifications. Measurements will be made from the original ground surface.

1.9.2.3 Unit of Measure

Unit of measure: linear foot.

1.9.3 Drive Sample Boring and Sampling

1.9.3.1 Payment

Payment will be made for costs associated with Drive Sample Boring and Sampling using a standard 2-inch OD split barrel Standard Penetration Test (SPT) sampler.

1.9.3.2 Measurement

Drilling for drive sample boring and sampling will be measured for payment on a per sample basis.

1.9.3.3 Unit of Measure

Unit of measure: per sample.

1.9.4 Undisturbed Sample Boring and Sampling

1.9.4.1 Payment

Payment will be made for costs associated with Undisturbed Sample Boring and Sampling using a 3-inch Diameter thin-walled Shelby tube sampler.

1.9.4.2 Measurement

Drilling for undisturbed sample boring and sampling will be measured for payment on a per sample basis.

1.9.4.3 Unit of Measurement Unit of measure: Sample.

1.9.5 Rock Core Drilling, Vertical Holes

1.9.5.1 Payment

Payment will be made for costs associated with Core Drilling Vertical Holes for Rock Cores and minimum 2-inch diameter Rock Core Samples.

1.9.5.2 Measurement

Core Drilling Vertical Holes for Rock Cores will be measured for payment to the nearest foot, based upon the linear feet of hole actually drilled in rock in accordance with the specifications.

1.9.5.3 Unit of Measure

Unit of measure: linear foot.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-- End of Section --

01 32 01

PROJECT SCHEDULE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AACE INTERNATIONAL (AACE)

AACE 29R-03	(2011) Forensic Schedule Analysis
AACE 52R-06	(2006) Time Impact Analysis - As Applied in Construction

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1-1-11	(1995) Administration -- Progress, Schedules, and Network Analysis Systems

1.2 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for information only. When used, a designation following the "O" designation identifies the office that will review the submittal for the OIPCB. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Project Scheduler Qualifications; O

Preliminary Project Schedule; O

Initial Project Schedule; O

Periodic Schedule Update; O

1.3 PROJECT SCHEDULER QUALIFICATIONS

Designate an authorized representative to be responsible for the preparation of the schedule and all required updating and production of reports. The authorized representative must have a minimum of 2 years experience scheduling construction projects similar in size and nature to this project with scheduling software that meets the requirements of this specification. Representative must have a comprehensive knowledge of CPM scheduling principles and application.

PART 2 PRODUCTS

2.1 SOFTWARE

The scheduling software utilized to produce and update the schedules required herein must be capable of meeting all requirements of this specification.

2.1.1 OIPCB Default Software

The OIPCB intends to use Primavera P6.

2.1.2 Contractor Software

Scheduling software used by the contractor must be commercially available from the software vendor for purchase with vendor software support agreements available. The software routine used to create the required SDEF file must be created and supported by the software manufacturer.

2.1.2.1 Primavera

If Primavera P6 is selected for use, provide the "XER" export file in a version of P6 importable by the OIPCB system.

2.1.2.2 Other Than Primavera

If the contractor chooses software other than Primavera P6, that is compliant with this specification, provide for the OIPCB's use two licenses, two computers, and training for two OIPCB employees in the use of the software. These computers will be stand-alone and not connected to the OIPCB network. Computers and licenses will be returned at project completion.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Prepare for approval of a Project Schedule, as specified herein. Show in the schedule the proposed sequence to perform the work and dates contemplated for starting and completing all schedule activities. The scheduling of the entire project is required. The scheduling of construction is the responsibility of the Contractor. Contractor management personnel must actively participate in its development. Subcontractors and suppliers working on the project must also contribute in developing and maintaining an accurate Project Schedule. Provide a schedule that is a forward planning as well as a project monitoring tool. Use the Critical Path Method (CPM) of network calculation to generate all Project Schedules. Prepare each Project Schedule using the Precedence Diagram Method (PDM).

3.2 BASIS FOR PAYMENT AND COST LOADING

The schedule is the basis for determining contract earnings during each update period and therefore the amount of each progress payment. The aggregate value of all activities coded to a contract Bid Item must equal the value of the Bid Item.

3.2.1 Activity Cost Loading

Activity cost loading must be reasonable and without front-end loading. Provide additional documentation to demonstrate reasonableness if requested by the OIPCB Representative.

3.2.2 Withholdings/ Payment Rejection

Failure to meet the requirements of this specification may result in the disapproval of the preliminary, initial or periodic schedule updates and subsequent rejection of payment requests until compliance is met.

In the event that the OIPCB Representative directs schedule revisions and those revisions have not been included in subsequent Project Schedule revisions or updates, the OIPCB Representative may withhold 10 percent of pay request amount from each payment period until such revisions to the project schedule have been made.

3.3 PROJECT SCHEDULE DETAILED REQUIREMENTS

3.3.1 Level of Detail Required

Develop the Project Schedule to the appropriate level of detail to address major milestones and to allow for satisfactory project planning and execution. Failure to develop the Project Schedule to an appropriate level of detail will result in its disapproval. The OIPCB Representative will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

3.3.2 Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities may have Original Durations (OD) greater than 20 workdays or 30 calendar days.

3.3.3 Procurement Activities

Include activities associated with the critical submittals and their approvals, procurement, fabrication, and delivery of long lead materials, equipment, fabricated assemblies, and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days.

3.3.4 Mandatory Tasks

Include the following activities/tasks in the initial project schedule and all updates, as appropriate for the project.

a. Submission, review and acceptance of SD-01 Preconstruction Submittals (individual activity for each).

b. Contractor requests for before and/or after dredge surveys.

c. Contractor final acceptance surveys.

d. Submission, review and acceptance of features requiring final acceptance.

e. Project Milestones for the completion of the following dredge areas:

1. Entrance to River Mile 0.0
2. River Mile 0.0 to 1.0
3. River Mile 1.0 to 2.0
4. River Mile 2.0 to 3.0
5. River Mile 3.0 to 4.0
6. River Mile 4.0 to 5.0
7. River Mile 5.0 to 6.0
8. River Mile 6.0 to 7.0
9. River Mile 7.0 to 8.0
10. River Mile 8.0 to 8.4
11. Individual Berthing Areas

f. Submission, review and acceptance of features require design completion.

g. Long procurement activities.

h. Submission and approval of as-built drawings.

i. Contractor's pre-final inspection.

j. Correction of punch list from Contractor's pre-final inspection.

k. OIPCB's pre-final inspection.

1. Correction of punch list from OIPCB's pre-final inspection.

m. Final inspection.

3.3.5 OIPCB Activities

Show OIPCB and other agency activities that could impact progress. These activities include, but are not limited to: approvals, environmental permit approvals by State regulators, inspections, utility tie-in, OIPCB Furnished Equipment, and Notice to Proceed (NTP) for phasing requirements.

3.3.6 Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11. This exact structure is mandatory. Develop and assign all Activity Codes to activities as detailed herein. A template SDEF compatible schedule backup file is available on the QCS web site: http://rms.usace.army.mil.

The SDEF format is as follows:

Field	Activity Code	Length	Description
1	WRKP	3	Workers per day
2	RESP	4	Responsible party
3	AREA	4	Area of work
4	MODF	6	Modification Number
5	BIDI	6	Bid Item (CLIN)

Field	Activity Code	Length	Description
6	PHAS	2	Phase of work
7	CATW	1	Category of work
8	FOW	20	Feature of work*
*Some systems require that FEATURE OF WORK values be placed in several activity code fields. The notation shown is for Primavera P6. Refer to the specific software guidelines with respect to the FEATURE OF WORK field requirements.			

3.3.6.1 Workers Per Day (WRKP)

Assign Workers per Day for all field construction or direct work activities, if directed by the OIPCB Representative. Workers per day is based on the average number of workers expected each day to perform a task for the duration of that activity.

3.3.6.2 Responsible Party Coding (RESP)

Assign responsibility code for all activities to the Prime Contractor, Subcontractor(s) or OIPCB agency(ies) responsible for performing the activity.

a. Activities coded with a OIPCB Responsibility code include, but are not limited to: OIPCB approvals, OIPCB design reviews, environmental permit approvals by State regulators, OIPCB Furnished Property/Equipment and Notice to Proceed (NTP) for phasing requirements.

b. Activities cannot have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for the designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and OIPCB.

3.3.6.3 Area of Work Coding (AREA)

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities cannot have more than one Work Area Code.

Not all activities are required to be Work Area coded. A lack of Work Area coding indicates the activity is not resource or space constrained.

3.3.6.4 Modification Number (MODF)

Assign a Modification Number Code to any activity or sequence of

activities added to the schedule as a result of a Contract Modification, when approved by OIPCB Representative. Key all Code values to the OIPCB's modification numbering system. An activity can have only one Modification Number Code.

3.3.6.5 Bid Item Coding (BIDI)

Assign a Bid Item Code to all activities using the Bid Item to which the activity belongs, even when an activity is not cost loaded. An activity can have only one BIDI Code.

3.3.6.6 Phase of Work Coding (PHAS)

Assign Phase of Work Code to all activities. Examples of phase of work are procurement phase and construction phase. Each activity can have only one Phase of Work code.

a. Code proposed fast track design and construction phases proposed to allow filtering and organizing the schedule by fast-track design and construction packages.

b. If the contract specifies phasing with separately defined performance periods, identify a Phase Code to allow filtering and organizing the schedule accordingly.

3.3.6.7 Category of Work Coding (CATW)

Assign a Category of Work Code to all activities. Category of Work Codes include, but are not limited to construction submittal, procurement, fabrication, weather sensitive installation, non-weather sensitive installation, start-up, and testing activities. Each activity can have no more than one Category of Work Code.

3.3.6.8 Feature of Work Coding (FOW)

Assign a Feature of Work Code to appropriate activities based on the Definable Feature of Work to which the activity belongs based on the approved QC plan.

Definable Feature of Work is defined in Section 01 45 00 QUALITY CONTROL. An activity can have only one Feature of Work Code.

3.3.7 Contract Milestones and Constraints

Milestone activities are to be used for significant project events including, but not limited to, project phasing, project start and end activities, or interim completion dates.The use of artificial float constraints such as "zero free float" or "zero total float" are prohibited.

Mandatory milestones include those listed in Subpart "Mandatory Tasks", Part e.

Mandatory constraints that ignore or affect network logic are prohibited. No constrained dates are allowed in the schedule other than those specified herein. Submit additional constraints to the

OIPCB Representative for approval on a case-by-case basis.

3.3.7.1 Project Start Date Milestone and Constraint

The first activity in the project schedule must be a start milestone titled "NTP Acknowledged," which must have a "Start On" constraint date equal to the date that the NTP is acknowledged.

3.3.7.2 End Project Finish Milestone and Constraint

The last activity in the schedule must be a finish milestone titled "End Project."
Constrain the project schedule to the Contract Completion Date in such a way that if the schedule calculates an early finish, then the float calculation for "End Project" milestone reflects positive float on the longest path. If the project schedule calculates a late finish, then the "End Project" milestone float calculation reflects negative float on the longest path. The OIPCB is under no obligation to accelerate OIPCB activities to support a Contractor's early completion.

3.3.7.3 Interim Completion Dates and Constraints

Constrain contractually specified interim completion dates to show negative float when the calculated late finish date of the last activity in that phase is later than the specified interim completion date.

3.3.7.3.1 Start Phase

Use a start milestone as the first activity for a project phase. Call the start milestone "Start Phase X" where "X" refers to the phase of work.

3.3.7.3.2 End Phase

Use a finish milestone as the last activity for a project phase. Call the finish milestone "End Phase X" where "X" refers to the phase of work.

3.3.8 Calendars

Schedule activities on a Calendar to which the activity logically belongs. Develop calendars to accommodate any contract defined work period such as a 7-day calendar for OIPCB Acceptance activities, concrete cure times, etc. Develop the default Calendar to match the physical work plan with non-work periods identified including weekends and holidays. Develop Seasonal Calendar(s) and assign to seasonally affected activities as applicable.

If an activity is weather sensitive it should be assigned to a calendar showing non-workdays on a monthly basis, with the non-workdays selected at random across the weeks of the calendar, using the anticipated days provided in the contract clause TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. Assign non-workdays over a seven-day week as weather records are compiled on seven-day weeks, which may

cause some of the weather-related non-workdays to fall on weekends.

3. 3. 9 Open Ended Logic

Only two open ended activities are allowed: the first activity "NTP Acknowledged" may have no predecessor logic, and the last activity -"End Project" may have no successor logic.

Predecessor open ended logic may be allowed in a time impact analyses upon the OIPCB Representative's approval.

3.3.10 Default Progress Data Disallowed

Actual Start and Finish dates must not automatically update with default mechanisms included in the scheduling software. Updating of the percent complete and the remaining duration of any activity must be independent functions. Disable program features that calculate one of these parameters from the other. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process must match those dates provided in the Contractor Quality Control Reports. Failure to document the AS and AF dates in the Daily Quality Control report will result in disapproval of the Contractor's schedule.

3.3.11 Out-of-Sequence Progress

Activities that have progressed before all preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis subject to approval by the OIPCB Representative. Propose logic corrections to eliminate out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated project schedule. Address out of sequence progress or logic changes in the Narrative Report and in the periodic schedule update meetings.

3.3.12 Added and Deleted Activities

Do not delete activities from the project schedule or add new activities to the schedule without approval from the OIPCB Representative. Activity ID and description changes are considered new activities and cannot be changed without OIPCB Representative’s approval.

3.3.13 Original Durations

Activity Original Durations (OD) must be reasonable to perform the work item. OD changes are prohibited unless justification is provided and approved by the OIPCB Representative.

3.3.14 Leads, Lags, and Start to Finish Relationships

Lags must be reasonable as determined by the OIPCB and not used in place of realistic original durations, must not be in place to artificially absorb float, or to replace proper schedule logic.

a. Leads (negative lags) are prohibited.

b. Start to Finish (SF) relationships are prohibited.

3.3.15 Retained Logic

Schedule calculations must retain the logic between predecessors and successors ("retained logic" mode) even when the successor activity(s) starts, and the predecessor activity(s) has not finished (out-of-sequence progress). Software features that in effect sever the tie between predecessor and successor activities when the successor has started, and the predecessor logic is not satisfied ("progress override") are not allowed.

3.3.16 Percent Complete

Update the percent complete for each activity started, based on the realistic assessment of earned value.Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be declared 100 percent complete to allow for proper schedule management.

3.3.17 Remaining Duration

Update the remaining duration for each activity based on the number of estimated workdays it will take to complete the activity. Remaining duration may not mathematically correlate with percentage found under paragraph entitled Percent Complete.

3.3.18 Cost Loading of Closeout Activities

Cost load the "Correction of punch list from OIPCB Representative’s pre-final inspection" activity(ies) not less than 1 percent of the present contract value. Activity(ies) may be declared 100 percent complete upon the OIPCB Representative’s verification of completion and correction of all punch list work identified during OIPCB pre-final inspection(s).

3.3.18.1 As-Built Drawings

If there is no separate contract Bid Item for as-built drawings, cost load the "Submission and approval of as-built drawings" activity not less than $35,000 or 1 percent of the present contract value, whichever is greater, up to $200,000. Activity will be declared 100 percent complete upon the OIPCB Representative’s approval.

3.3.19 Anticipated Adverse Weather

Paragraph applicable to contracts with clause entitled TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. Reflect the number of anticipated adverse weather delays allocated to a weather sensitive activity in the activity's calendar.

3.3.20 Early Completion Schedule and the Right to Finish Early

An Early Completion Schedule is an Initial Project Schedule (IPS) that indicates all scope of the required contract work will be

completed before the contractually required completion date.

a. No IPS indicating an Early Completion will be accepted without being fully resource-loaded (including crew sizes and crew hours) and the OIPCB agreeing that the schedule is reasonable and achievable.

b. The OIPCB is under no obligation to accelerate work items it is responsible for to ensure that the early completion is met nor is it responsible to modify incremental funding (if applicable) for the project to meet the contractor's accelerated work.

3.4 PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS. If the Contractor fails or refuses to furnish the information and schedule updates as set forth herein, then the Contractor will be deemed not to have provided an estimate upon which a progress payment can be made. Review comments made by the OIPCB on the schedule(s) do not relieve the Contractor from compliance with requirements of the Contract Documents.

3.4.1 Preliminary Project Schedule Submission

Within 15 calendar days after the NTP is acknowledged submit the Preliminary Project Schedule defining the planned operations detailed for the first 90 calendar days for approval. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Completely cost load the Preliminary Project Schedule to balance the contract award Bid Items shown on the Price Schedule. The Preliminary Project Schedule may be a summary in nature for the remaining performance period. It must be early start and late finish constrained and logically tied as specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and must include all of the required plan and program preparations, submissions and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, planned submissions of all early design packages, permitting activities, design review conference activities, and other non-construction activities intended to occur within the first 90 calendar days. OIPCB acceptance of the associated design package(s) and all other specified Program and Plan approvals must occur prior to any planned construction activities. Activity code any activities that are summary in nature after the first 90 calendar days with Bid Item code (BIDI), Responsibility Code (RESP) and Feature of Work code (FOW).

3.4.2 Initial Project Schedule Submission

Submit the Initial Project Schedule for approval within 30 calendar days after notice to proceed is issued. The schedule must demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. No payment will be made for work items not fully detailed in the Project Schedule.

3.4.3 Periodic Schedule Updates

Update the Project Schedule on a regular basis, monthly at a minimum. Provide a draft Periodic Schedule Update for review at the schedule update meetings as prescribed in the paragraph PERIODIC SCHEDULE UPDATE MEETINGS. These updates will enable the OIPCB to assess Contractor's progress.

a. Update information including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD), and Percent Complete is subject to the approval of the OIPCB at the meeting.

b. AS and AF dates must match the date(s) reported on the Contractor's Quality Control Report for an activity start or finish.

3.5 SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

3.5.1 Data USB Flashdrive

Provide two sets of data USB Flashdrives containing the current project schedule and all previously submitted schedules in the format of the scheduling software (e.g. XER). Also include on the data CD/DVDs the Narrative Report and all required Schedule Reports. Label each CD/DVD indicating the type of schedule (Preliminary, Initial, Update), full contract number, Data Date and file name. Each schedule must have a unique file name and use project specific settings.

3.5.2 Narrative Report

Provide a Narrative Report with each schedule submission. The Narrative Report is expected to communicate to the OIPCB the thorough analysis of the schedule output and the plans to compensate for any problems, either current or potential, which are revealed through that analysis. Include the following information as minimum in the Narrative Report:

a. Identify and discuss the work scheduled to start in the next update period.

b. A description of activities along the two most critical paths where the total float is less than or equal to 20 workdays.

c. A description of current and anticipated problem areas or delaying factors and their impact and an explanation of corrective actions taken or required to be taken.

d. Identify and explain why activities based on their calculated late dates should have either started or finished during the update period but did not.

e. Identify and discuss all schedule changes by activity ID and activity name including what specifically was changed and why the change was needed. Include at a minimum new and deleted activities, logic changes, duration changes, calendar changes, lag changes, resource changes, and actual start and finish date changes.

f. Identify and discuss out-of-sequence work.

3.5.3 Schedule Reports

The format, filtering, organizing, and sorting for each schedule report will be as directed by the OIPCB Representative. Typically, reports contain Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. Provide the reports electronically in .pdf format. Provide three sets of hardcopy reports. The following lists typical reports that will be requested:

3.5.3.1 Activity Report

List of all activities sorted according to activity number.

3.5.3.2 Logic Report

List of detailed predecessor and successor activities for every activity in ascending order by activity number.

3.5.3.3 Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

3.5.3.4 Earnings Report by Bid Item

A compilation of the Total Earnings on the project from the NTP to the data date, which reflects the earnings of activities based on the agreements made in the schedule update meeting defined herein. Provided a complete schedule update has been furnished, this report serves as the basis of determining progress payments. Group activities by Bid Item number and sort by activity number. Provide a total Bid Item percent earned value, Bid Item percent complete, and project percent complete. The printed report must contain the following for each activity: Activity Number, Activity Description, Original Budgeted Amount, Earnings to Date, Earnings this period, Total Quantity, Quantity to Date, and Percent Complete (based on cost).

3.5.3.5 Schedule Log

Provide a Scheduling/Leveling Report generated from the current project schedule being submitted.

3.5.4 Network Diagram

The Network Diagram is required for the Preliminary, Initial and Periodic Updates. Depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The OIPCB Representative will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.4.1 Continuous Flow

Show a continuous flow from left to right with no arrows from right to left. Show the activity number, description, duration, and estimated earned value on the diagram.

3.5.4.2 Project Milestone Dates

Show dates on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.4.3 Critical Path

Show all activities on the critical path. The critical path is defined as the longest path.

3.5.4.4 Banding

Organize activities using the WBS or as otherwise directed to assist in the understanding of the activity sequence. Typically, this flow will group activities by major elements of work, category of work, work area and/or responsibility.

3.5.4.5 Cash Flow/ Schedule Variance Control (SVC) Diagram

With each schedule submission, provide an SVC diagram showing 1) Cash Flow S-Curves indicating planned project cost based on projected early and late activity finish dates, and 2) Earned Value to-date.

3.6 PERIODIC SCHEDULE UPDATE

3.6.1 Periodic Schedule Update Meetings

Conduct periodic schedule update meetings for the purpose of reviewing the proposed Periodic Schedule Update, Narrative Report, Schedule Reports, and progress payment. Conduct meetings at least monthly within five days of the proposed schedule data date. Provide a computer with the scheduling software loaded and a projector which allows all meeting participants to view the proposed schedule during the meeting. The Contractor's authorized scheduler must organize, group, sort, filter, perform schedule revisions as needed and review functions as requested by the Contractor and/or OIPCB. The meeting is a working interactive exchange which allows the OIPCB and Contractor the opportunity to review the updated schedule on a real time and interactive basis.The meeting will last no longer than 8 hours. Provide a draft of the proposed narrative report and schedule data file to the OIPCB a minimum of two workdays in advance of the meeting. The Contractor's Project Manager and scheduler must attend the meeting with the authorized representative of the OIPCB

Representative. Superintendents, foremen and major subcontractors must attend the meeting as required to discuss the project schedule and work. Following the periodic schedule update meeting, make corrections to the draft submission. Include only those changes approved by the OIPCB in the submission and invoice for payment.

3.6.2 Update Submission Following Progress Meeting

Submit the complete Periodic Schedule Update of the Project Schedule containing all approved progress, revisions, and adjustments, pursuant to paragraph SUBMISSION REQUIREMENTS not later than 4 workdays after the periodic schedule update meeting.

3.7 WEEKLY PROGRESS MEETINGS

Conduct a weekly meeting with the OIPCB (or as otherwise mutually agreed to) between the meetings described in paragraph entitled PERIODIC SCHEDULE UPDATE MEETINGS for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. Use the current approved schedule update for the purposes of this meeting and for the production and review of reports. At the weekly progress meeting, address the status of RFI’s, RFP’s and Submittals.

3.8 REQUESTS FOR TIME EXTENSIONS

Provide a justification of delay to the OIPCB Representative in accordance with the contract provisions and clauses for approval within 10 days of a delay occurring. Also prepare a time impact analysis for each OIPCB request for proposal (RFP) to justify time extensions.

3.8.1 Justification of Delay

Provide a description of the event(s) that caused the delay and/or impact to the work. As part of the description, identify all schedule activities impacted. Show that the event that caused the delay/impact was the responsibility of the OIPCB. Provide a time impact analysis that demonstrates the effects of the delay or impact on the project completion date or interim completion date(s). Evaluate multiple impacts chronologically; each with its own justification of delay. With multiple impacts consider any concurrency of delay. A time extension and the schedule fragnet becomes part of the project schedule and all future schedule updates upon approval by the OIPCB Representative.

3.8.2 Time Impact Analysis (Prospective Analysis)

Prepare a time impact analysis for approval by the OIPCB Representative based on industry standard AACE 52R-06. Utilize a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis. If OIPCB Representative determines the time frame between the last approved schedule and the first day of impact is too great, prepare an interim updated schedule to perform the time impact analysis. Unless approved by the OIPCB Representative, no other changes may be incorporated into the schedule

being used to justify the time impact.

3.8.3 Forensic Schedule Analysis (Retrospective Analysis)

Prepare an analysis for approval by the OIPCB Representative based on industry standard AACE 29R-03.

3.8.4 Fragmentary Network (Fragnet)

Prepare a proposed fragnet for time impact analysis consisting of a sequence of new activities that are proposed to be added to the project schedule to demonstrate the influence of the delay or impact to the project's contractual dates. Clearly show how the proposed fragnet is to be tied into the project schedule including all predecessors and successors to the fragnet activities. The proposed fragnet must be approved by the OIPCB Representative prior to incorporation into the project schedule.

3.8.5 Time Extension

The OIPCB Representative must approve the Justification of Delay including the time impact analysis before a time extension will be granted. No time extension will be granted unless the delay consumes all available Project Float and extends the projected finish date ("End Project" milestone) beyond the Contract Completion Date. The time extension will be in calendar days.

Actual delays that are found to be caused by the Contractor's own actions, which result in a calculated schedule delay, will not be a cause for an extension to the performance period, completion date, or any interim milestone date.

3.8.6 Impact to Early Completion Schedule

No extended overhead will be paid for delay prior to the original Contract Completion Date for an Early Completion IPS unless the Contractor actually performed work in accordance with that Early Completion Schedule. The Contractor must show that an early completion was achievable had it not been for the impact.

3.9 FAILURE TO ACHIEVE PROGRESS

Should the progress fall behind the approved project schedule for reasons other than those that are excusable within the terms of the contract, the OIPCB Representative may require provision of a written recovery plan for approval. The plan must detail how progress will be made-up to include which activities will be accelerated by adding additional crews, longer work hours, extra work days, etc.

3.9.1 Artificially Improving Progress

Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying, or adding constraints, shortening activity durations, or changing calendars in the project

schedule is prohibited. Indicate assumptions made and the basis for any logic, constraint, duration and calendar changes used in the creation of the recovery plan. Any additional resources, labor power, or daily and weekly work hour changes proposed in the recovery plan must be evident at the work site and documented in the daily report along with the Schedule Narrative Report.

3.9.2 Failure to Perform

Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and/or may result in corrective action directed by the OIPCB Representative.

3.9.3 Recovery Schedule

Should the OIPCB Representative find it necessary, submit a recovery schedule pursuant to OAR XXX-XXX-XXX.

3.10 OWNERSHIP OF FLOAT

Except for the provision given in the paragraph IMPACT TO EARLY COMPLETION SCHEDULE, float available in the schedule, at any time, may not be considered for the exclusive use of either the OIPCB or the Contractor including activity and/or project float. Activity float is the number of workdays that an activity can be delayed without causing a delay to the "End Project" finish milestone. Project float (if applicable) is the number of workdays between the projected early finish and the contract completion date milestone.

3.11 PRIMAVERA P6 MANDATORY REQUIREMENTS

If Primavera P6 is being used, request a backup file template (XER) from the OIPCB, if one is available, prior to building the schedule. The following settings are mandatory and required in all schedule submissions to the OIPCB:

a. Activity Codes must be Project Level, not Global or EPS level.

b. Calendars must be Project Level, not Global or Resource level.

c. Activity Duration Types must be set to "Fixed Duration & Units".

d. Percent Complete Types must be set to "Physical".

e. Time Period Admin Preferences must remain the default " 8.0 hr/day, 40 hr/week, 172 hr/month, 2000 hr/year". Set Calendar Work Hours/Day to 8.0 Hour days. Set Schedule Option for defining Critical Activities to "Longest Path".

f. Set Schedule Option for defining progressed activities to "Retained Logic".

g. Set up cost loading using a single lump sum labor resource. The Price/Unit must be $1/hr, Default Units/Time must be " 8h/d ", and settings "Auto Compute Actuals" and "Calculate costs from

units" selected.

h. Activity ID's must not exceed 10 characters.

i. Activity Names must have the most defining and detailed description within the first 30 characters.

-- End of Section --

SECTION 01 33 00

SUBMITTAL PROCEDURES
08/18

PART 1 GENERAL

1.1 SUMMARY

1.1.1 SUBMITTAL INFORMATION

The OIPCB Representative may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.

1.1.2 PROJECT TYPE

The Contractor's Quality Control (CQC) System Manager are to check and approve all items before submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

The Contractor and the Designer of Record (DOR), if applicable, are to check and approve all items before submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

1.1.3 SUBMISSION OF SUBMITTALS

Schedule and provide submittals requiring OIPCB approval before acquiring the material or equipment covered thereby. Pick up and dispose of samples not incorporated into the work in accordance with manufacturer's Safety Data Sheets (SDS) and in compliance with existing laws and regulations.

1.2 DEFINITIONS

1.2.1 SUBMITTAL DESCRIPTIONS(SD)

Submittal requirements are specified in the technical sections. Examples and descriptions of submittals identified by the Submittal Description (SD) numbers and titles follow:

SD-01 PRECONSTRUCTION SUBMITTALS

Preconstruction Submittals include schedules and a tabular list of locations, features, and other pertinent information regarding products, materials, equipment, or components to be used in the work.

Certificates Of Insurance

Surety Bonds

List Of Proposed Subcontractors

List Of Proposed Products

Baseline Network Analysis Schedule (NAS)

Submittal Register

Schedule Of Prices

Health And Safety Plan

Work Plan

Quality Control (QC) plan

Environmental Protection Plan

Project Scheduler Qualifications

Preliminary Project Schedule

Initial Project Schedule

Periodic Schedule Update

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Fabricated or unfabricated physical examples of materials, equipment, or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer’s standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards ensuring work can be judged. Includes assemblies that are to be incorporated into the project and those that will be removed at the conclusion of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. Unless specified in another section, testing must have been within three years of date of contract award for the project.

Report that includes findings of a test required to be performed on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report that includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports

Daily logs and checklists

Final acceptance test and operational test procedure

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that the product, system, or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or Subcontractor through Contractor. The document’s purpose is to further promote the orderly progression of a portion of the work by documenting procedures, acceptability of methods, or personnel qualifications.

Text of posted operating instructions.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Submittals required for Guiding Principle Validation (GPV) or Third-Party Certification (TPC).

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements are necessary to properly close out a major phase of construction on a multi-phase contract.

1.2.2 APPROVING AUTHORITY

Office or designated person authorized to approve the submittal.

1.2.3 WORK

As used in this section, on-site and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.3 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for Contractor QC approval. Submit the following in accordance with this section.

SD-01 Preconstruction Submittals

Submittal Register; O

1.4 SUBMITTAL CLASSIFICATION

1.4.1 OIPCB APPROVED (O)

OIPCB approval is required for extensions of design, critical materials, variations, equipment whose compatibility with the entire system must be checked, and other items as designated by OIPCB.

OIPCB approval is required for any variations from the Solicitation or the Accepted Proposal and for other items as designated by OIPCB.

Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, submittals are considered to be "shop drawings."

1.4.2 FOR INFORMATION ONLY

Submittals not requiring OIPCB approval will be for information only. Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, they are not considered to be "shop drawings."

1.5 PREPARATION

1.5.1 TRANSMITTAL FORM

Transmit each submittal, except sample installations and sample panels to the office of the approving authority using the transmittal form prescribed by the OIPCB Representative. Include all information prescribed by the transmittal form and required in paragraph IDENTIFYING SUBMITTALS. Use the submittal transmittal forms to record actions regarding samples.

1.5.2 IDENTIFYING SUBMITTALS

When submittals are provided by a Subcontractor, the Prime Contractor is to prepare, review and stamp with Contractor's approval all specified submittals prior to submitting for OIPCB approval.

Identify submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

a. Project title and location

b. Construction contract number

c. Dates of the drawings and revisions

d. Name, address, and telephone number of Subcontractor, supplier, manufacturer, and any other Subcontractor associated with the submittal.

e. Section number of the specification by which submittal is required

f. Submittal description (SD) number of each component of submittal

g. For a resubmission, add alphabetic suffix on submittal description, for example, submittal 18 would become 18A, to indicate resubmission.

h. Product identification and location in project.

1.5.3 SUBMITTAL FORMAT

1.5.3.1 FORMAT OF SD-01 PRECONSTRUCTION SUBMITTALS

When the submittal includes a document that is to be used in the project, or is to become part of the project record, other than as a submittal, do not apply the Contractor's approval stamp to the document itself, but to a separate sheet accompanying the document.

Provide data in the unit of measure used in the contract documents.

1.5.3.2 FORMAT FOR SD-02 SHOP DRAWINGS

Provide shop drawings not less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full-size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless another form is required. Ensure drawings are suitable for reproduction and of a quality to produce clear, distinct lines and letters, with dark lines on a white background.

Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph IDENTIFYING SUBMITTALS.

Number drawings in a logical sequence. Each drawing is to bear the number of the submittal in a uniform location next to the title block. Place the OIPCB contract number in the margin, immediately below the title block, for each drawing.

Reserve a blank space, no smaller than 3 inches by 3 inches on the right-hand side of each sheet for OIPCB disposition stamp.

Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.

Include the nameplate data, size and capacity on drawings. Also include applicable federal, military, industry and technical society publication references.

Submit drawings in PDF format.

1.5.3.3 FORMAT OF SD-03 PRODUCT DATA

Present product data submittals for each section. Include a table of contents, listing the page and catalog item numbers for product data.

Indicate, by prominent notation, each product that is being submitted; indicate the specification section number and paragraph number to which it pertains.

Supplement product data with material prepared for the project to satisfy the submittal requirements where product data does not exist. Identify this material as developed specifically for the project, with information and format as required for submission of SD-07 Certificates.

Provide product data in units used in the Contract documents. Where product data are included in preprinted catalogs with another unit, submit the dimensions in contract document units, on a separate sheet.

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the OIPCB Representative. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

Collect required data submittals for each specific material, product, unit of work, or system into a single submittal that is marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will not be accepted for expedition of the construction effort.

Submit the manufacturer's instructions before installation.

1.5.3.4 FORMAT OF SD-04 SAMPLES

1.5.3.4.1 SAMPLE CHARACTERISTICS

Furnish samples in the following sizes, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately the same size as specified:

a. Sample of Equipment or Device: Full size.

b. Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.

c. Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.

d. Sample of Linear Devices or Materials: 10-inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.

e. Sample Volume of Nonsolid Materials: Pint. Examples of nonsolid materials are sand and paint.

f. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.

g. Sample Panel: 4 by 4 feet.

h. Sample Installation: 100 square feet.

1.5.3.4.2 SAMPLE INCORPORATION

Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples are to be in undamaged condition at the time of use.

Recording of Sample Installation: Note and preserve the notation of any area constituting a sample installation but remove the notation at the final clean-up of the project.

1.5.3.4.3 COMPARISON SAMPLE

Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

When color, texture, or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.5.3.5 FORMAT OF SD-06 TEST REPORTS

Provide reports on 8 1/2 by 11-inch paper in a complete bound volume.

By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.5.3.6 FORMAT OF SD-07 CERTIFICATES

Provide design data and certificates on 8 1/2 by 11-inch paper. Provide a bound volume for submittals containing numerous pages.

1.5.3.6.1 STANDARDS

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the OIPCB Representative. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

1.5.3.7 FORMAT OF SD-11 CLOSEOUT SUBMITTALS

When the submittal includes a document that is to be used in the project or is to become part of the project record, other than as a submittal, do not apply the Contractor's approval stamp to the document itself, but to a separate sheet accompanying the document.

Provide data in the unit of measure used in the contract documents.

1.5.4 SOURCE DRAWINGS FOR SHOP DRAWINGS

1.5.4.1 SOURCE DRAWINGS

The entire set of source drawing files (DWG) will not be provided to the Contractor. Request the specific Drawing Number for the preparation of shop drawings. Only those drawings requested to prepare shop drawings will be provided. These drawings are provided only after award.

1.5.4.2 TERMS AND CONDITIONS

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse is at the sole risk of the Contractor and without liability or legal exposure to the OIPCB. The Contractor must make no claim and waives to the fullest extent permitted by law any claim or cause of action of any nature against OIPCB, its agents, or its subconsultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold OIPCB harmless against all damages, liabilities, or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic source drawing files are not construction documents. Differences may exist between the source drawing files and the corresponding

construction documents. OIPCB makes no representation regarding the accuracy or completeness of the electronic source drawing files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. The Contractor is responsible for determining if any conflict exists. In the event that a conflict arises between the signed and sealed construction documents prepared by OIPCB and the furnished source drawing files, the signed and sealed construction documents govern. The use of these source drawing files does not relieve the Contractor of the duty to fully comply with the contract documents, including and without limitation the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction data related to this contract, remove all previous indication of ownership (seals, logos, signatures, initials and dates).

1.5.5 ELECTRONIC FILE FORMAT

Provide submittals in electronic format, with the exception of material samples required for SD-04 Samples items. In addition to the electronic submittal, provide two hard copies of the submittals. Compile the submittal file as a single, complete document, to include the Transmittal Form described within. Name the electronic submittal file specifically according to its contents and coordinate the file naming convention with the OIPCB Representative. Electronic files must be of sufficient quality that all information is legible. Use PDF as the electronic format, unless otherwise specified or directed by the OIPCB Representative. Generate PDF files from original documents with bookmarks so that the text included in the PDF file is searchable and can be copied. If documents are scanned, optical character resolution (OCR) routines are required. Index and bookmark files exceeding 30 pages to allow efficient navigation of the file. When required, the electronic file must include a valid electronic signature or a scan of a signature.

E-mail electronic submittal documents smaller than 10MB to an e-mail address as directed by the OIPCB Representative. Provide electronic documents over 10 MB on a USB Flashdrive disc or through an electronic file sharing system such as instructed by the OIPCB Representative.

1.6 QUANTITY OF SUBMITTALS

1.6.1 NUMBER OF SD-01 PRECONSTRUCTION SUBMITTAL COPIES

Unless otherwise specified, submit two sets of administrative submittals.

1.6.2 NUMBER OF SD-02 SHOP DRAWING COPIES

Submit six copies of submittals of shop drawings requiring review and approval by a QC organization. Submit six copies of shop drawings requiring review and approval by the OIPCB Representative.

1.6.3 NUMBER OF SD-03 PRODUCT DATA COPIES

Submit in compliance with quantity requirements specified for shop drawings.

1.6.4 NUMBER OF SD-04 SAMPLES

a. Submit two samples, or two sets of samples showing the range of variation, of each required item. One approved sample or set of samples will be retained by the approving authority and one will be returned to the Contractor.

b. Submit one sample panel or provide one sample installation where directed. Include components listed in the technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of nonsolid materials.

1.6.5 NUMBER OF SD-06 TEST REPORT COPIES

Submit in compliance with quantity and quality requirements specified for shop drawings, other than field test results that will be submitted with QC reports.

1.6.6 NUMBER OF SD-07 CERTIFICATE COPIES

Submit in compliance with quantity requirements specified for shop drawings.

1.6.7 NUMBER OF SD-11 CLOSEOUT SUBMITTALS COPIES

Unless otherwise specified, submit two sets of administrative submittals.

1.7 INFORMATION ONLY SUBMITTALS

OIPCB Representative is not required on information only submittals. The OIPCB Representative will mark "receipt acknowledged" on submittals for information and will return only the transmittal cover sheet to the Contractor. Normally, submittals for information only will not be returned. However, OIPCB reserves the right to return unsatisfactory submittals and require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the OIPCB Representative from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by an independent laboratory or for check testing by the OIPCB in those instances where the technical specifications so prescribe.

1.8 PROJECT SUBMITTAL REGISTER

Prepare and maintain a submittal register, as the work progresses. Do not change data that is output in columns (c), (d), (e), and (f) as delivered by OIPCB; retain data that is output in columns (a), (g), (h), and (i) as approved. As an attachment, provide a submittal register showing items of equipment and materials for which submittals are required by the specifications. This list may not be all-inclusive and additional submittals may be required.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD Number. and type, e.g., SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in each specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting the project requirements.

Column (f): Lists the approving authority for each submittal.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns and all dates on which submittals are received by and returned by OIPCB.

1.8.1 PRECONSTRUCTION USE OF SUBMITTAL REGISTER

Submit the submittal register. Include the QC plan and the project schedule. Verify that all submittals required for the project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for the approving authority to receive submittals.

Column (h) Contractor Approval Date: Date that Contractor needs approval of submittal.

Column (i) Contractor Material: Date that Contractor needs material delivered to Contractor control.

1.8.2 CONTRACTOR USE OF SUBMITTAL REGISTER

Update the following fields in the submittal register program or equivalent fields in the program used by the Contractor with each submittal throughout the contract.

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) Date submittal transmitted.

Column (q) Date approval was received.

1.8.3 APPROVING AUTHORITY USE OF SUBMITTAL REGISTER

Update the following fields:

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (l) Date submittal was received.

Column (m) through (p) Dates of review actions.

Column (q) Date of return to Contractor.

1.8.4 ACTION CODES

Entries for columns (j) and (o) are to be used as follows (others may be prescribed by the Transmittal Form):

1.8.4.1 OIPCB REVIEW ACTION CODES

"A" - "Approved as submitted"; "Completed"

"B" - "Approved, except as noted on drawings"; "Completed"

"C" - "Approved, except as noted on drawings; resubmission required"; "Resubmit"

"D" - "Returned by separate correspondence"; "Completed"

"E" - "Disapproved (See attached)"; "Resubmit"

"F" - "Receipt acknowledged"; "Completed"

"G" - "Other (Specify)"; "Resubmit"

"X" - "Receipt acknowledged, does not comply with contract requirements"; "Resubmit"

1.8.5 DELIVERY OF COPIES

Deliver one copy of submittal register updated by Contractor to OIPCB with each invoice request.

1.9 VARIATIONS

Variations from contract requirements require OIPCB Representative approval for Construction, and will be considered where advantageous to the OIPCB.

1.9.1 CONSIDERING VARIATIONS

Discussion of variations with the OIPCB Representative before submission will help ensure that functional and quality requirements are met and minimize rejections and resubmittals. When contemplating a variation that results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

Specifically point out variations from contract requirements in transmittal letters. Failure to point out variations may cause OIPCB to require rejection and removal of such work at no additional cost to OIPCB.

1.9.2 PROPOSING VARIATIONS

When proposing variation, deliver a written request to the OIPCB Representative, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to OIPCB.

Include the DOR's written analysis and approval. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.9.3 WARRANTING THAT VARIATIONS ARE COMPATIBLE

When delivering a variation for approval, the Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.9.4 REVIEW SCHEDULE EXTENSIONS

In addition to the normal submittal review period, a period of 10 calendar working days will be allowed for OIPCB to consider submittals with variations.

1.10 SCHEDULING

Schedule and submit concurrently submittals covering component items forming a system of items that are interrelated. Submit pertinent certifications at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.

a. Coordinate scheduling, sequencing, preparing, and processing of submittals with performance of work so that work will not be delayed by submittal processing. The Contractor is responsible for additional time required for OIPCB reviews resulting from required resubmittals. The review period for each resubmittal is the same as for the initial submittal.

b. Submittals required by the contract documents are listed on the submittal register. If a submittal is listed in the submittal register but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the OIPCB Representative does not relieve the Contractor of supplying submittals required by the contract documents but that have been omitted from the register or marked "N/A."

c. Resubmit the submittal register and annotate it monthly with actual submission and approval dates. When all items on the register have been fully approved, no further resubmittal is required.

The OIPCB Representative review will be completed within 15 calendar working days after the date of submission.

1.11 OIPCB APPROVING AUTHORITY

The OIPCB Representative will:

a. Note the date on which the submittal was received.

b. Review submittals for approval within the scheduling period specified and only for conformance with project design concepts and compliance with contract documents.

c. Identify returned submittals with one of the actions defined in paragraph REVIEW NOTATIONS and with comments and markings appropriate for the action indicated.

Upon completion of review of submittals requiring OIPCB approval, stamp and date submittals.

1.11.1 REVIEW NOTATIONS

Submittals will be returned to the Contractor with the following notations:

a. Submittals marked "approved" or "accepted" authorize proceeding with the work covered.

b. Submittals marked "approved as noted" or "approved, except as noted, resubmittal not required," authorize proceeding with the work covered provided that the Contractor takes no exception to the corrections.

c. Submittals marked "not approved," "disapproved," or "revise and resubmit" indicate incomplete submittal or noncompliance with the contract requirements or design concept. Resubmit with appropriate changes. Do not proceed with work for this item until the resubmittal is approved.

d. Submittals marked "not reviewed" indicate that the submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

e. Submittals marked "receipt acknowledged" indicate that submittals have been received by the OIPCB. This applies only to "information-only submittals" as previously defined.

1.12 DISAPPROVED SUBMITTALS

Make corrections required by the OIPCB Representative. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications, give notice to the OIPCB Representative. The Contractor is responsible for the dimensions and design of connection details and the construction of work. Failure to point out variations may cause OIPCB to require rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, make such revisions and resubmit in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.13 APPROVED SUBMITTALS

The OIPCB Representative's approval of submittals is not to be construed as a complete check, and indicates only that the general method of construction, materials, detailing, and other information are satisfactory.

Approval or acceptance by OIPCB for a submittal does not relieve the Contractor of the responsibility for meeting the contract requirements or for any error that may exist, because under the Quality Control (QC) requirements of this contract, the Contractor is responsible for ensuring information contained within each submittal accurately conforms with the requirements of the contract documents.

After submittals have been approved or accepted by the OIPCB Representative, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.14 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, provide assurance that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those that may be damaged in testing, will be returned to the Contractor, at its expense, upon completion of the contract. Unapproved samples will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make as that material. OIPCB reserves the right to disapprove any material or equipment that has previously proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the OIPCB Representative for testing. Samples failing to meet contract requirements will automatically void previous approvals. Replace such materials or equipment to meet contract requirements.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-- End of Section --

SECTION 01 35 26

CONTRACT SAFETY REQUIREMENTS

PART 1 GENERAL

1.1 APPLICABLE LAWS

The Contractor shall comply with all Laws applicable to the safety of persons or property. Damage, injury, or loss to property caused by the Contractor, Subcontractor, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by the Contractor.

1.2 SAFETY PRECAUTIONS

The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

1.3 SAFETY REPRESENTATIVES

The Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities shall be the prevention of accidents and the maintenance and supervision of safety precautions and programs. This person shall be the Contractor’s project superintendent unless otherwise designated in writing by the Contractor to the Port.

1.4 RECORDING ACCIDENTS AND INJURIES

The Contractor shall report promptly in writing to OIPCB all recordable accidents and injuries occurring at the site. When the Contractor is required to file an accident report with a public authority, the Contractor shall submit a copy of the report to the Port.

1.5 SAFETY PROGRAM

The Contractor shall inform OIPCB of the specific requirements of the Contractor’s safety program with which OIPCB’s employees and representatives must comply while at the site.

1.6 UNSAFE WORK

If OIPCB deems any part of the Work unsafe, OIPCB, without assuming responsibility for the Contractor’s safety program, may require the Contractor to stop performance of the Work or take corrective measures satisfactory to OIPCB, or both. If the Contractor does not adopt corrective measures, the Port may perform them and deduct their cost from the Contract Price. The Contractor agrees to make no claim for damages, for an increase in the Contract Price, or for a change in the Contract Time based on the Contractor’s compliance with the Port’s reasonable
request.

1.7 SAFEGUARDS FOR SAFETY AND PROTECTION

The Contractor shall erect and maintain necessary safeguards for the safety and protection of:

a. Employees on the Work and other persons whose safety may be adversely affected by performance of the Work.

b. The Work and material to be incorporated into the Work, whether in storage on or off the site. If the Contractor fails to protect the Work, the Port may, after giving notice to the Contractor, protect the Work and deduct the resulting cost from payment due the Contractor. The Port's determination of when and to what degree such protection is necessary shall be final.

c. Other property at the site including trees, shrubs, lawn, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement.

d. Adjacent property and utilities when prosecution of the Work may affect them.

e. Contractor shall demonstrate that an employee drug testing program is in place.

1.8 DUTIES AND RESPONSIBILITIES

The Contractor's duties and responsibilities for the safety and protection of the Work shall continue until the Contractor has completed all obligations under this Contract.

1.9 EMERGENCY AFFECTING SAFETY

In the event of an emergency affecting the safety or protection of persons or the Work or property at, adjacent to, or near the site, the Contractor shall act to prevent threatened damage, injury, or loss. The Contractor may act without special instruction or authorization from the Port. The Contractor shall give the Port written notice within 24 hours of any significant change in the Work or deviation from this Contract caused by the Contractor's acts.

1.10 Personal Locator Beacons

All personnel working outbound of River Mile 1.0 shall be required a Personal Locator Beacon (PLB) at all times. PLB's shall be attached to the employee (i.e. no handheld PLB's.

Not used.

2.0 PRODUCTS

Not Used.

3.0 EXECUTION

Not used.

-- End of Section --

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS
02/19

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization (e.g. ASTM B564 Standard Specification for Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
130 East Randolph, Suite 2000
Chicago, IL 60601
Ph: 312-670-5444
Fax: 312-670-5403
Steel Solutions Center: 866-275-2472
E-mail : solutions@aisc.org
Internet : https ://www.aisc.org/

AMERICAN WELDING SOCIETY (AWS)
8669 NW 36 Street, #130 Miami, FL 33166-6672
Ph: 800-443-9353
Internet : https ://www.aws.org/

ASME INTERNATIONAL (ASME)
Two Park Avenue New York, NY 10016-5990
Ph: 800-843-2763
E-mail : customercare@asme.org
Internet : https ://www.asme.org/

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
E-mail : service@astm.org
Internet : https://www.astm.org/

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1 Batterymarch Park Quincy, MA 02169-7471
Ph: 800-344-3555
Internet: https://www.nfpa.org

U.S. ARMY CORPS OF ENGINEERS (USACE)
CRD-C DOCUMENTS available on Internet :
http ://www.wbdg.org/ffc/army-coe/standards
Order Other Documents from:
Official Publications of the Headquarters, USACE
E-mail : hqpublications@usace.army.mil
Internet : http ://www.publications.usace.army.mil/
or
https://www.hnc.usace.army.mil/Missions/Engineering-Directorate/TECHINFO/
U.S. DEPARTMENT OF DEFENSE (DOD)
Order DOD Documents from:
Room 3A750-The Pentagon
1400 Defense Pentagon
Washington, DC 20301-1400
Ph: 703-571-3343
Fax: 215-697-1462
E-mail : customerservice@ntis.gov
Internet : https ://www.ntis.gov/
Obtain Military Specifications, Standards and Related Publications from:
Acquisition Streamlining and Standardization Information System (ASSIST)
Department of Defense Single Stock Point (DODSSP)
Document Automation and Production Service (DAPS)
Building 4/D
700 Robbins Avenue Philadelphia, PA 19111-5094
Ph: 215-697-6396 – for account/password issues
Internet: https://assist.dla.mil/online/start/; account registration required
Obtain Unified Facilities Criteria (UFC) from:
Whole Building Design Guide (WBDG)
National Institute of Building Sciences (NIBS)
1090 Vermont Avenue NW, Suite 700 Washington, DC 20005
Ph: 202-289-7800
Fax: 202-289-1092
Internet : https ://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
8601 Adelphi Road College Park, MD 20740-6001
Ph: 866-272-6272
Internet : https ://www.archives.gov/
Order documents from:
Superintendent of Documents
U.S. Government Publishing Office (GPO)
732 N. Capitol Street, NW Washington, DC 20401
Ph: 202-512-1800 or 866-512-1800
Bookstore: 202-512-0132
Internet: https://www.gpo.gov/

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

SECTION 01 45 00.00 10

QUALITY CONTROL
11/16

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D3740	(2023) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E329	(2020) Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program. Include all associated costs in the applicable Pricing Schedule item.

1.3 SUBMITTALS

OIPCB approval is required for submittals with an “O” designation; submittals not having an “O” designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor Quality Control (CQC) Plan; O

SD-06 Test Reports

Verification Statement

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Establish and maintain an effective quality control (QC) system that complies with OAR XXX-XXX_XXXX. The QC system consists of plans, procedures, and organization necessary to produce an end product, which complies with the Contract requirements. The QC system covers all construction operations,

both onsite and offsite, and be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work and is subject to removal by the OIPCB Representative for non-compliance with the quality requirements specified in the Contract. In this context, the highest-level manager responsible for the overall construction activities at the site, including quality and production, is the project superintendent. The project superintendent maintains a physical presence at the site at all times and is responsible for all construction and related activities at the site, except as otherwise acceptable to the OIPCB Representative.

3.2 CONTRACTOR QUALITY CONTROL (CQC) PLAN

Submit no later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements OAR XXX-XXX-XXXX. OIPCB will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional work.

3.2.1 CONTENT OF THE CQC PLAN

Include, as a minimum, the following to cover all construction-operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff will implement the three-phase control system for all aspects of the work specified. Include a CQC System Manager that reports to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the Contract. Letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities will be issued by the CQC System Manager. Furnish copies of these letters to the OIPCB Representative.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures must be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities approved by the OIPCB Representative are required to be used.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. Establish verification procedures that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and is identified by different trades or disciplines, or it is work by the same trade in a different environment. Although each section of the specifications can generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

j. Plan Description of method to ensure dredging and placement within specified limits. Conduct frequent progress surveys to monitor and manage the CQC requirements. All surveys conducted by the Contractor must be in accordance with EM-1110-2-1003. Notify OIPCB in advance of any surveys conducted by the Contractor, and OIPCB will have the option of accompanying the Contractor on these surveys. Include the manufacturer, model, and equipment operating frequency for the electronic positioning and tide measuring equipment and procedures for verifying accuracy in accordance with subparagraph Positioning Equipment

k. Daily production estimating method.

3.2.2 ACCEPTANCE OF PLAN

Acceptance of the Contractor’s plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. OIPCB reserves the right to require the Contractor to make changes in the Contractor Quality Control(CQC) Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 NOTIFICATION OF CHANGES

After acceptance of the CQC Plan, notify the OIPCB Representative in writing of any proposed change. Proposed changes are subject to acceptance by the OIPCB Representative.

3.3 COORDINATION MEETING

After the Post award Conference, before start of construction, and prior to acceptance by OIPCB of the CQC Plan, meet with the OIPCB Representative and discuss the Contractor’s quality control system. Submit the CQC Plan a minimum of 15 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details must be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor’s Management and

control with OIPCB's Quality Assurance. Minutes of the meeting will be prepared by OIPCB, signed by both the Contractor and the OIPCB Representative and will become a part of the contract file. There can be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings or address deficiencies in the CQC system or procedures which can require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 PERSONNEL REQUIREMENTS

The requirements for the CQC organization are a Safety and Health Manager, CQC System Manager, and sufficient number of additional qualified personnel to ensure safety and Contract compliance. The Safety and Health Manager reports directly to a senior project (or corporate) official independent of the CQC System Manager. The Safety and Health Manager will also serve as a member of the CQC Staff Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff maintains a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure Contract compliance. The CQC staff will be subject to acceptance by the OIPCB Representative. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly complete and furnish all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the CQC organization. The CQC organization is responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the OIPCB Representative.

3.4.2 CQC SYSTEM MANAGER

Identify as CQC System Manager an individual within the onsite work organization that is responsible for overall management of CQC and has the authority to act in all CQC matters for the Contractor. The CQC System Manager is required to be a graduate engineer, with a minimum of 10 years of verifiable experience working with dredging utilizing the type of floating plant proposed for the project. This CQC System Manager is on the site at all times during construction and is employed by the prime Contractor. The CQC System Manager is assigned no other duties. Identify in the plan an alternate to serve in the event of the CQC System Manager's absence. The requirements for the alternate are the same as the CQC System Manager.

The CQC System Manager must have skills typical of a field engineer in the following areas:

a. Surveys: An understanding of basic survey data (hydro survey and land survey) including coordinate systems and GPS.

b. Hydro survey Program: A basic proficiency in hydro survey programs including the ability to review and analyze survey data.

c. Electronic Dredge Data: Familiarity with the dredge operating system including the ability to review and analyze electronic dredge data for dredging depths, compliance with environmental requirements, etc.

d. Dredge Operations: A basic familiarity with dredge operations for the type of dredging plant and placement operation for this project.

e. Ability to work with complex EXCEL spreadsheets and programs.

f. A basic proficiency in MicroStation or AutoCAD.

3.4.3 CQC PERSONNEL

In addition to CQC personnel specified elsewhere in the contract, provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: subsurface explorations, rock apron placement, and installation, relocation of Aids to Navigation. These individuals or specialized technical companies are employees of the prime or subcontractor. These individuals or specialized technical companies shall be responsible to the CQC System Manager; be physically present at the construction site during work on the specialized personnel's areas of responsibility; have the necessary education or experience. These individuals have no other duties other than quality control.

Experience Matrix

Areas	Qualifications
Civil	Graduate Civil Engineer or Construction Manager with 2 years experience in the type of work being performed on this project or technician with 5 years related experience.
Mechanical	Graduate Mechanical Engineer with 2 years experience or person with 5 years of experience supervising mechanical features of work in the field with a construction company.
Electrical	Graduate Electrical Engineer with 2 years related experience supervising electrical features of work in the field with a construction company.
Structural	Graduate Civil Engineer (with Structural Track or Focus) or Construction Manager with 2 years experience or person with 5 years experience supervising structural features of work in the field with a construction company.
Architectural	Graduate Architect with 2 years experience or person with 5 years of related experience
Environmental	Graduate Environmental Engineer with 3 years experience
Submittals	Submittal Clerk with 1 year experience
Occupied Family Housing	Person, customer relations type, coordinator experience

Concrete, Pavements, Soils	Materials Technician with 2 years experience for the appropriate area
Testing, Adjusting and Balancing (TAB) Personnel	Specialist must be a member of AABCC or an experienced technician of the firm certified by the NEBB
Design Quality Manager	Registered Architect or Professional Engineer

3.4.4 ADDITIONAL REQUIREMENTS

In addition to the above experience and education requirements, the Contractor Quality Control (CQC) System Manager and Alternate CQC System Manager are required to have completed the Construction Quality Management (CQM) for Contractor’s course. If the CQC System Manager does not have a current certification, obtain the CQM for Contractors course certification within 90 days of award. This course is periodically offered by the Naval Facilities Engineering Command and the Army Corps of Engineers. Contact the OIPCB Representative for information on the next scheduled class.

The Construction Quality Management Training certificate expires after 5 years. If the CQC System Manager’s certificate has expired, retake the course to remain current.

3.4.5 ORGANIZATIONAL CHANGES

Maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, revise the CQC Plan to reflect the changes and submit the changes to the OIPCB Representative for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, have to comply with the requirements in Section 01 33 00SUBMITTAL PROCEDURES. The CQC organization is responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

CQC is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control are required to be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 PREPARATORY PHASE

This phase is performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase includes:

a. A review of each paragraph of applicable specifications, reference codes, and standards. Make available during the preparatory inspection a copy of those sections of referenced codes and standards applicable

to that portion of the work to be accomplished in the field. Maintain and make available in the field for use by OIPCB personnel until final acceptance of the work.

b. Review of the Contract drawings.

c. Check to ensure that all materials and equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the Contract.

f. Examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. Review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. Check to ensure that the portion of the plan for the work to be performed has been accepted by the OIPCB Representative.

j. Discussion of the initial control phase.

k. OIPCB needs to be notified at least 72 hours in advance of beginning the preparatory control phase. Include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. Document the results of the preparatory phase actions by separate minutes prepared by the CQC System Manager and attach it to the daily CQC report. Instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 INITIAL PHASE

This phase is accomplished at the beginning of a definable feature of work. Accomplish the following:

a. Check work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing are in compliance with the contract.

c. Establish a level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The OIPCB needs to be notified at least 72 hours in advance of beginning the initial phase for definable feature of work. Prepare separate minutes of this phase by the CQC System Manager and attach to the daily CQC report. Indicate the exact location of the initial phase for definable feature of work for future reference and comparison with follow-up phases.

g. The initial phase for each definable feature of work is repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 FOLLW-UP PHASE

Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. Record the checks in the CQC documentation. Conduct final follow-up checks and correct all deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work.

3.6.4 ADDITIONAL PREPARATORY AND INITIAL PHASES

Conduct additional preparatory and initial phases on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 TESTING PROCEDURES

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, furnish to OIPCB duplicate samples of test specimens for possible testing by OIPCB. Testing includes operation and acceptance tests when specified. Procure the services of an approved testing laboratory at the project site. Perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Record results of all tests taken, both passing and failing on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the OIPCB Representative, actual test reports are submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the OIPCB Representative. Failure to submit timely test reports as stated results in nonpayment for related work performed and disapproval of the test facility for this Contract.

3.7.2 TESTING LABORATORIES

All testing laboratories must be validated by the State of Oregon for the tests to be performed.

3.7.2.1 CAPABILITY CHECK

OIPCB reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician’s testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel is required to meet criteria detailed in ASTM D3740 and ASTM E329.

3.7.2.2 CAPABILITY RECHECK

If the selected laboratory fails the capability check, the Contractor will reimburse OIPCB for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the Contract amount due the Contractor.

3.7.3 ONSITE LABORATORY

OIPCB reserves the right to utilize the Contractor’s control testing laboratory and equipment to make assurance tests, and to check the Contractor’s testing procedures, techniques, and test results at no additional cost to OIPCB.

3.8 COMPLETION INSPECTION

3.8.1 PUNCH-OUT INSPECTION

Conduct an inspection of the work by the CQC System Manager near the end of the work, or any increment of the work established by a time stated in the specifications. Prepare and include in the CQC documentation a punch list of items which do not conform to the approved drawings and specifications, as required by paragraph DOCUMENTATION. Include within the list of deficiencies the estimated date by which the deficiencies will be corrected. Make a second inspection so the CQC System Manager or staff to ascertain that all deficiencies have been corrected. Once this is accomplished, notify OIPCB that the facility is ready for the OIPCB Pre-Final inspection.

3.8.2 PRE-FINAL INSPECTION

OIPCB will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. An OIPCB Pre-Final Punch List may be developed as a result of this inspection. Ensure that all items on this list

have been corrected before notifying the OIPCB, so that a final inspection with the customer can be scheduled. Correct any items noted on the pre-final inspection in a timely manner. These inspections and any deficiency corrections required by this paragraph need to be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 FINAL ACCEPTANCE INSPECTION

The Contractor’s Quality Control Inspection personnel, plus the superintendent or other primary management person, and the OIPCB Representative is required to be in attendance at the final acceptance inspection. Additional OIPCB personnel can also be in attendance. The final acceptance inspection will be formally scheduled by the OIPCB Representative based upon results of the pre-final inspection. Notify the Contracting Officer at least 14 days prior to the final acceptance inspection and include the Contractor’s assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the Contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the OIPCB Representative to bill the Contractor for the OIPCB’s additional inspection cost in accordance OAR XXX-XXX XXXX.

3.9 DOCUMENTATION

3.9.1 QUALITY CONTROL ACTIVITIES

Maintain current records providing factual evidence that required quality control activities and tests have been performed. Include in these records the work of subcontractors and suppliers on an acceptable form that includes, as a minimum, the following information:

a. The name and area of responsibility of the Contractor/Subcontractor.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and control activities performed with results and references to specifications/drawings requirements. Identify the control phase (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with Contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and specifications.

3.9.2 VERIFICATION STATEMENT

Indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. Cover both conforming and deficient features and include a statement that equipment and materials incorporated in the work and workmanship comply with the Contract. Furnish the original and one copy of these records in report form to the OIPCB daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, prepare and submit one report for every 7 days of no work and on the last day of a no work period. All calendar days need to be accounted for throughout the life of the contract. The first report following a day of no work will be for that day only. Reports need to be signed and dated by the Contractor Quality Control (CQC) System Manager. Include copies of test reports and copies of reports prepared by all subordinate quality control personnel within the CQC System Manager Report.

-- End of Section --

SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
05/18

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C511	(2017) Reduced-Pressure Principle Backflow Prevention Assembly

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR)

FCCCHR List	(continuously updated) List of Approved Backflow Prevention Assemblies
FCCCHR Manual	(10th Edition) Manual of Cross-Connection Control

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241	(2013; Errata 2015) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 70	(2017; ERTA 1-2 2017; TIA 17-1; TIA 17-2; TIA 17-3; TIA 17-4; TIA 17-5; TIA 17-6; TIA 17-7; TIA 17-8; TIA 17-9; TIA 17-10; TIA 17-11; TIA 17-12; TIA 17-13; TIA 17-14; TIA 17-15; TIA 17-16; TIA 17-17) National Electrical Code

OREGON OCCUPATIONAL SAFETY AND HAZARD DIVISION (OSHD)

OSHD	Oregon OSHD Technical Manual

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)

FAA AC 70/7460-1	(2015; Rev L) Obstruction Marking and Lighting

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

MUTCD	(2015) Manual on Uniform Traffic Control Devices

1.2 SUBMITTALS

OIPCB approval is required for submittals with an “O” designation; submittals not having an “O” designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Site Plan; O

Traffic Control Plan; O

Haul Road Plan; O

SD-02 Shop Drawings

Project Identification Signs; O

SD-03 Product Data

Backflow Preventers; O

SD-06 Test Reports

Backflow Preventer Tests

SD-07 Certificates

Backflow Tester Certification

Backflow Preventers Certificate of Full Approval

1.3 CONSTRUCTION SITE PLAN

Prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

1.4 BACKFLOW PREVENTERS CERTIFICATE

This section applies if any project element, including the staging or laydown facilities, will connect to a potable water supply. If no project elements will connect to a potable water supply, submit in accordance with Section 01 33 00 SUBMITTAL PROCEDURES a notice to the OIPCB Representative that no such connection will be made.

Certificate of Full Approval from FCCCHR List attesting that the design, size and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of Provisional Approval will not be acceptable.

1.4.1 Backflow Tester Certificate

Prior to testing, submit to the OIPCB Representative certification issued by the State or local regulatory agency attesting that the backflow tester has successfully completed a certification course sponsored by the regulatory agency. Tester must not be affiliated with any company participating in any other phase of this Contract.

1.4.2 BACKFLOW PREVENTION TRAINING CERTIFICATE

Submit a certificate recognized by the State or local authority that states the Contractor has completed at least 10 hours of training in backflow preventer installations. The certificate must be current.

PART 2 PRODUCTS

2.1 TEMPORARY SIGNAGE

2.1.1 BULLETIN BOARD

Within one calendar day of mobilization on site and prior to the commencement of work activities, provide a clear weatherproof covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, Safety and Health Information as required by OSHD and other information approved by the OIPCB Representative. Coordinate requirements herein with 01 35 26 CONTRACT SAFETY REQUIREMENTS.

2.1.2 PROJEECT IDENTIFICATION SIGNS

The requirements for the signs, their content, and location are as indicated. Erect signs within 15 days after receipt of the notice to proceed. Correct the data required by the safety sign daily, with light colored metallic or non-metallic numerals.

Prior to initiating any work on site, provide one project identification sign at the location designated. Sign shall include a project description, and proposed construction duration. The Project Identification Sign shall be presented to OIPCB for review and, upon approval, three (3) signs not smaller than 4 feet by 6 feet be placed as directed by the OIPCB Representative. Maintain signs throughout the life of the project. Upon completion of the project, remove the signs from the site. Provide color rendering of the project. Reproduce the rendering on the signboard or enclose a copy of the rendering under a water-proof, transparent cover, and caulk for weather protection.

2.1.3 WARNING SIGNS

Post temporary signs, tags, and labels to give workers and the public adequate warning and caution of construction hazards according to the OSHD. Attach signs to the perimeter fencing every 150 feet warning the public of the presence of construction hazards. Signs must require unauthorized persons to keep out of the construction site. Correct the data required by safety signs daily.

2.2 TEMPORARY TRAFFIC CONTROL

2.2.1 HAUL ROADS

Construct access and haul roads necessary for proper prosecution of the work under this contract in accordance with OSHD. Construct with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic are be avoided. Submit haul road plan for approval. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, must be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads are subject to approval by the OIPCB Representative. Lighting must be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations.

2.2.2 BARRICADES

Erect and maintain temporary barricades to limit public access to hazardous areas. Whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic barricades will be required. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

2.3 FENCING

Provide fencing along the construction site and at all open excavations and tunnels to control access by unauthorized personnel. Safety fencing must be highly visible to be seen by pedestrians and vehicular traffic. Specific fencing requirements are as described herein. All fencing will meet the requirements of OSHD.

Temporary safety fencing must be a high visibility orange colored, high density polyethylene grid, a minimum of 48 inches high and maximum mesh size of 2 inches. Fencing must extend from the grade to a minimum of 48 inches above the grade and be tightly secured to T-posts spaced as necessary to maintain a rigid and taut fence. Fencing must remain rigid and taut with a minimum of 200 pounds of force exerted on it from any direction with less than 4 inches of deflection.

2.4 TEMPORARY WIRING

Provide temporary wiring in accordance with OSHD, NFPA 241 and NFPA 70. Include monthly inspection and testing of all equipment and apparatus.

2.5 BACKFLOW PREVENTERS

This section applies if any project element, including the staging or laydown area, will connect to a potable water supply. Reduced pressure principle type conforming to the applicable requirements AWWA C511. The particular make, model/design, and size of backflow preventers to be installed must be included in the latest edition of the List of Approved Backflow Prevention Assemblies issued by the FCCCHR List and be accompanied by a Certificate of Full Approval from FCCCHR List. After installation

conduct Backflow Preventer Tests and provide test reports verifying that the installation meets the FCCCHR Manual Standards.

PART 3 EXECUTION

3.1 EMPLOYEE PARKING

Construction contract employees will park privately owned vehicles in an area designated by the OIPCB Representative. This area will be within reasonable walking distance of the construction site. Employee parking must not interfere with existing and established parking.

3.2 TEMPORARY BULLETIN BOARD

Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the OIPCB Representative.

3.3 AVAILABILITY AND USE OF UTILITY SERVICES

3.3.1 TEMPORARY UTILITIES

Provide temporary utilities required for construction. Materials may be new or used, must be adequate for the required usage, not create unsafe conditions, and not violate applicable codes and standards.

The Contractor shall pay all costs incurred in connecting, converting, and transferring the utilities to the work. The Contractor shall make connections, including providing backflow-preventing devices on connections to domestic water lines; providing meters; and providing transformers; and make disconnections.

3.3.2 ELECTRICITY

Provide connections, sized to provide service required for power and lighting. Locate feeder and branch wiring with area distribution boxes so that power is available throughout the project site by use of power cords.

3.3.3 WATER

Make connections to existing facilities to provide water for construction purposes. Water used will not be furnished by the OIPCB.

3.3.4 SANITATION

Provide and maintain within the construction area minimum field-type sanitary facilities approved by the OIPCB Representative and periodically empty wastes into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Obtain approval from the system owner prior to discharge into any municipal, district, or commercial sanitary sewer system. Any penalties or fines associated with improper discharge will be the responsibility of the Contractor. Coordinate with the OIPCB Representative and follow station regulations and procedures when discharging into the station sanitary sewer system. Maintain these conveniences at all times. Include provisions for pest control and elimination of odors. Toilet facilities will not be made available to Contractor’s personnel.

3.3.5 TELEPHONE

Arrange service and pay all costs for telephone facilities desired.

3.3.6 OBSTRUCTION LIGHTING OF CRANES

Provide a minimum of 2 aviation red or high intensity white obstruction lights on temporary structures (including cranes) over 100 feet above ground level. Light construction and installation must comply with FAA AC 70/7460-1. Lights must be operational during periods of reduced visibility, darkness, and as directed by the OIPCB Representative.

3.3.7 FIRE PROTECTION

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials weekly to minimize potential hazards.

3.4 TRAFFIC PROVISIONS

3.4.1 MAINTENANCE OF TRAFFIC

a. Conduct operations in a manner that will not close any thoroughfare or interfere in any way with traffic on railways or highways except with written permission of the OIPCB Representative at least 15 calendar days prior to the proposed modification date, and provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval. The plan must be in accordance with State and local regulations and the MUTCD, Part VI. Make all notifications and obtain any permits required for modification to traffic movements outside Station’s jurisdiction. Contractor may move oversized and slow-moving vehicles to the worksite provided requirements of the highway authority have been met.

b. Conduct work so as to minimize obstruction of traffic, and maintain traffic on at least half of the roadway width at all times. Obtain approval from the OIPCB Representative prior to starting any activity that will obstruct traffic.

c. Provide, erect, and maintain, at contractors expense, lights, barriers, signals, passageways, detours, and other items, that may be required by the Life Safety Signage, overhead protection authority having jurisdiction.

3.4.2 PROTECTION OF TRAFFIC

Maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the OIPCB Representative. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment the work, and the erection and maintenance of adequate warning, danger, and direction signs, will be as required by the State and local authorities having jurisdiction. Protect the traveling public from damage to person and property. Minimize the interference with public traffic on roads selected for hauling material to and from the site. Investigate the adequacy of existing roads and their

allowable load limit. Contractor is responsible for the repair of any damage to roads caused by construction operations.

3.4.3 DUST CONTROL

Dust control methods and procedures must be approved by the OIPCB Representative. Coordinate dust control methods with 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS.

3.5 CONTRACTOR'S TEMPORARY FACILITIES

Contractor-owned or -leased trailers must be identified by OIPCB assigned numbers. Apply the number to the trailer within 14 calendar days of notification, or sooner, if directed by OIPCB. The size and placement of the numbers shall be directed by the OIPCB Representative. Temporary facilities will meet requirements as identified in OSHD.

3.5.1 QUALITY CONTROL MANAGER RECORDS AND FIELD OFFICE

Provide on the jobsite an office with approximately 200 square feet of useful floor area for the exclusive use of the QC Manager. Provide a weathertight structure with adequate heating and cooling, toilet facilities, lighting, ventilation, a 4 by 8-foot plan table, a standard size office desk and chair, computer station, and working communications facilities. Provide a door with a cylinder lock and windows with locking hardware. Make utility connections. Locate as directed. File quality control records in the office and make available at all times to OIPCB. After completion of the work, remove the entire structure from the site.

3.5.2 SAFETY SYSTEMS

Protect the integrity of any installed safety systems or personnel safety devices. Obtain prior approval from OIPCB Representative if entrance into systems serving safety devices is required. If it is temporarily necessary to remove or disable personnel safety devices in order to accomplish contract requirements, provide alternative means of protection prior to removing or disabling any permanently installed safety devices or equipment and obtain approval from the OIPCB Representative.

3.5.3 ADMINISTRATIVE FIELD OFFICES

Provide and maintain administrative field office facilities within the construction area at the designated site. OIPCB office and warehouse facilities will not be available to the Contractor’s personnel.

3.5.4 STORAGE AREA

Construct a temporary 6-foot-high chain link fence around trailers and materials. Include plastic strip inserts, colored green, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Do not place or store trailers, materials, or equipment outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the OIPCB Representative away from the vicinity of the construction site but within the installation boundaries. Trailers, equipment, or materials must not be open to public view with the exception of those items which are in support of ongoing work on any given day. Do not

stockpile materials outside the fence in preparation for the next day's work. Park mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment within the fenced area at the end of each workday.

3.5.5 SUPPLEMENTAL STORAGE AREA

Upon request, and pending availability, the OIPCB Representative will designate another or supplemental area for the use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but will be within the installation boundaries. The area will be maintained in a clean and orderly fashion and secure if needed to protect supplies and equipment.

3.5.6 APPEARANCE OF TRAILERS

a. Trailers which are rusted, have peeling paint or are otherwise in need of repair will not be allowed on Installation property. Trailers must present a clean and neat exterior appearance and be in a state of good repair.

b. Maintain the temporary facilities. Failure to do so will be sufficient reason to require their removal.

3.5.7 MAINTENANCE OF STORAGE AREA

Keep fencing in a state of good repair and proper alignment. Grassed or unpaved areas, which are not established roadways, and will be traversed with construction equipment or other vehicles, will be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways, should the Contractor elect to traverse them with construction equipment or other vehicles. Mow and maintain grass located within the boundaries of the construction site for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers will be edged or trimmed neatly.

3.5.8 NEW BUILDING

In the event a new building is constructed for the temporary project field office, it will be a minimum 12 feet in width, 16 feet in length and have a minimum of 7 feet headroom. Equip the building with approved electrical wiring, at least one double convenience outlet and the required switches and fuses to provide 110–120-volt power. Provide a worktable with stool, desk with chair, two additional chairs, and one legal size file cabinet that can be locked. The building must be waterproof, supplied with a heater, have a minimum of two doors, electric lights, a telephone, a battery-operated smoke detector alarm, a sufficient number of adjustable windows for adequate light and ventilation, and a supply of approved drinking water. Approved sanitary facilities must be furnished. Screen the windows and doors and provide the doors with dead bolt type locking devices or a padlock and heavy-duty hasp bolted to the door. Door hinge pins will be non-removable. Arrange the windows to open and to be securely fastened from the inside. Protect glass panels in windows by bars or heavy mesh screens to prevent easy access. In warm weather, furnish air conditioning capable of maintaining the office at 50 percent relative humidity and a room temperature 20 degrees F below the outside temperature when the outside temperature is 95 degrees F. Any new building erected for a temporary field office must be maintained during the

life of the contract. Unless otherwise directed by the OIPCB Representative, remove the building from the site upon completion and acceptance of the work.

3.5.9 SECURITY PROVISIONS

Provide adequate outside security lighting at the temporary facilities. The Contractor will be responsible for the security of its own equipment.

3.5.10 STORAGE IN EXISTING BUILDINGS

The Contractor will be working around existing buildings; the storage of material will not be allowed in the buildings without express consent of the building owner(s). Provide an 8-foot-high security fence with a lockable gate around the storage area. Remove at the completion of work.

3.5.11 WEATHER PROTECTION OF TEMPORARY FACILITIES AND STORED MATERIALS

Take necessary precautions to ensure that roof openings and other critical openings in the building are monitored carefully. Take immediate actions required to seal off such openings when rain or other detrimental weather is imminent, and at the end of each workday. Ensure that the openings are completely sealed off to protect materials and equipment in the building from damage.

3.5.11.1 BUILDING AND SITE STORM PROTECTION

When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby property. Precautions must include, but are not limited to, closing openings; removing loose materials, tools and equipment from exposed locations; and removing or securing scaffolding and other temporary work.

3.6 OIPCB FIELD OFFICE

3.6.1 OIPCB ENGINEER’S OFFICE

Furnish and maintain a trailer-type mobile office acceptable to the OIPCB Representative to meet the requirements of the minimum facilities specified above. Securely anchor the trailer to the ground at all four corners to guard against movement during high winds. Coordinate requirements for proper anchoring with OSHD.

3.7 PLANT COMMUNICATIONS

Whenever the individual elements of the plant are located so that operation by normal voice between these elements is not satisfactory, install a satisfactory means of communication, such as telephone or other suitable devices and make available for use by OIPCB personnel.

3.8 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, furnish and erect temporary project safety fencing at the work site. Maintain the safety fencing during the life of the contract and, upon completion and acceptance of the work, remove from the work site.

3.9 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store any salvageable materials resulting from demolition activities within the fenced area described above or at the supplemental storage area. Neatly stack stored materials not in trailers, whether new or salvaged.

3.10 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, haul roads, and any other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence. Restore areas used during the performance of the contract to the original or better condition. Remove gravel used to traverse grassed areas and restore the area to its original condition, including topsoil and seeding as necessary.

-- End of Section --

SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS AND PERMITS
11/15

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

STATE OF OREGON, OREGON REVISED STATUTES (ORS)

ORS 316.167	Revenue and Taxation, Personal Income Tax, Withholding of Tax Required
ORS 279C.515	Public Facilities and Finance, Public Improvements and Related Contracts, Conditions concerning payment of claims by public officers, payment to persons furnishing labor or materials and complaints.
ORS 279C.520	Public Facilities and Finance, Public Improvements and Related Contracts, Condition concerning hours of labor.
ORS 279C.540	Public Facilities and Finance, Public Improvements and Related Contracts, Maximum hours of labor on public contracts
ORS 279C.580	Public Facilities and Finance, Public Improvements and Related Contracts, Prompt Payment Policy
ORS 652.220	Trade Practices, Labor and Employment, Hours; Wages; Wage Claims; Records, Prohibition of discriminatory wage rates based on sex.
ORS 656.017	Trade Practices, Labor and Employment, Workers' Compensation, Employer required to pay compensation and perform other duties.
ORS 656.126	Trade Practices, Labor and Employment, Workers' Compensation, Coverage while temporarily in or out of state

1.2 PERMITS

1.2.1 OIPCB DESIGNED WORK

a. OIPCB will submit to federal, state, and local units of government all calculations and other documentation required for review and checking for purposes of obtaining permits.

b. OIPCB will obtain, and pay the costs and charges of, general project permits such as building, fill, environmental, and land use.

c. The Contractor shall obtain and pay all costs and charges imposed for permits customarily issued only to a contractor, such as electrical, mechanical, and plumbing.

d. The Contractor shall give all notices necessary for permit-related inspections by third parties.

e. The Contractor shall submit to OIPCB a legible copy of permits, certificates of approval, and certificates of occupancy issued by the responsible unit of government.

1.2.2 CONTRACTOR-DESIGNED WORK

a. The Contractor shall submit to OIPCB, for review, all calculations and other documentation required for purposes of obtaining permits for Contractor-designed work.

b. After OIPCB review, the Contractor shall submit to federal, state, and local units of government all calculations and other documentation required for obtaining permits. During review by units of government, the Contractor shall notify the Port of proposed deviations from the original permit documentation.

c. The Contractor shall submit to OIPCB all calculations and other documentation approved by units of government.

d. The Contractor shall pay costs and charges imposed by local units of government for permits issued to the Contractor.

e. The Contractor shall give all notices necessary for permit-related inspections by third parties.

f. The Contractor shall submit to OIPCB a legible copy of permits, certificates of approval, and certificates of occupancy issued by the responsible unit of government.

1.3 LAWS AND REGULATIONS

The Contractor shall comply and shall ensure that their employees and those of their Subcontractors and suppliers at every tier comply with the most current versions of applicable Laws, rules, regulations, and practices.

If the Contractor performs any Work knowing or having reason to know that it is contrary to any Law, the Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to the Contractor’s performance or the resulting Work. The Contractor shall immediately report to the Port if performance under this Contract would violate any Law in any respect.

The Contractor shall adhere to the following specific provisions of the Public Contracting Code.

a. The Contractor shall:

    1. Make payment promptly, as due, to all persons supplying the Contractor labor or material for the performance of the work provided for in this Contract.

    2. Pay all contributions or amounts due to the Industrial Accident Fund from the Contractor or any Subcontractor incurred in the performance of this Contract.

    3. Not permit any lien or claim to be filed or prosecuted against the Port on account of any labor or material furnished.

    4. Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

b. If this is a public contract for demolition, the Contractor shall salvage or recycle construction and demolition debris, if feasible and cost-effective.

c. If this is a public contract for lawn and landscape maintenance, the Contractor shall compost or mulch yard waste material at an approved site, if feasible and cost-effective.

d. If the Contractor fails, neglects, or refuses to pay promptly a person’s claim for labor or services that the person provides to the Contractor or a Subcontractor in connection with this Contract as such claim becomes due, the proper officer that represents the Port may pay the amount of the claim to the person that provides the labor or services and charge the amount of the payment against funds due or to become due the Contractor by reason of this Contract.

e. If the Contractor or a first-tier Subcontractor fails, neglects, or refuses to pay a person that provides labor or material in connection with this Contract within 30 days after receiving payment from the Port or the Contractor, the Contractor or first-tier Subcontractor owes the person the amount due plus interest charges that begin at the end of the 10-day period within which payment is due under ORS 279C.580(3) or (4) and that end upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580(5). The rate of interest on the amount due is 9 percent per annum. The amount of interest may not be waived.

f. If the Contractor or a Subcontractor fails, neglects, or refuses to pay a person that provides labor or material in connection with this Contract, the person may file a complaint with the Construction Contractors Board, unless payment is subject to a good faith dispute as defined in ORS 279C.580(5).

g. Hours of Labor, Pay Equity, and Employee Discussions of Rate of Pay or Benefits:

    1. Hours of labor and rate of pay shall comply with State and Federal laws.

2. The Contractor shall comply with the prohibition set forth in ORS 652.220. Such compliance is a material element of the Contract and a failure to comply is a breach that entitles the Port to terminate the Contract for cause.

3. The Contractor shall not prohibit any of the Contractor's employees from discussing the employee's rate of wage, salary, benefits, or other compensation with another employee or another person and shall not retaliate against an employee who discusses the employee's rate of wage, salary, benefits, or other compensation with another employee or another person.

4. The Contractor and all Subcontractors shall give notice in writing to employees working on this Contract as required by ORS 279C.520 (2) and ORS 279C.520(5)(b), either at the time of hire or before work begins on this Contract, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the Contractor or Subcontractor may require the employees to work.

5. The Contractor shall pay employees at least time and a half pay for work the employees perform under this Contract on the legal holidays specified in a collective bargaining agreement or in ORS 279C.540 (1)(b)(B) to (G) and for all time the employees work in excess of 10 hours in any one day or in excess of 40 hours in any one week, whichever is greater.

h. The Contractor shall promptly, as due, make payment to any person, copartnership, association, or corporation furnishing medical, surgical and hospital care or other needed care and attention, incident to sickness or injury, to the employees of the Contractor, of all sums which the Contractor agrees to pay for such services and all moneys and sums which the Contractor collected or deducted from the wages of employees pursuant to any law, contract, or agreement for the purpose of providing or paying for such service.

i. The Contractor shall comply with the terms of the workers' compensation laws of the State of Oregon, unless exempt, and any other applicable jurisdiction. All subject employers performing work under this Contract are either employers that will comply with ORS 656.017 or employers that are exempt under ORS 656.126.

j. The Contractor shall comply with the following requirements (and, if applicable, prompt payment provisions stated in Document 007301, Supplementary Conditions for Federally Assisted Contracts):

1. The Contractor shall include in each subcontract for property or services the Contractor enters into with a first-tier Subcontractor, including a material supplier, for the purpose of performing this Contract:

a) A payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under

the subcontract within 10 days out of amounts the Port pays to the Contractor under this Contract.

b) A clause that requires the Contractor to provide a first-tier Subcontractor with a standard form that the first-tier Subcontractor may use as an application for payment or as another method by which the Subcontractor may claim a payment due from the Contractor.

c) A clause that requires the Contractor, except as otherwise provided in this paragraph, to use the same form and regular administrative procedures for processing payments during the entire term of the subcontract. A Contractor may change the form or the regular administrative procedures the Contractor uses for processing payments if the Contractor:

   1) Notifies the Subcontractor in writing at least 45 days before the date on which the Contractor makes the change; and

   2) Includes with the written notice a copy of the new or changed form or a description of the new or changed procedure.

d) An interest penalty clause that obligates the Contractor, if the Contractor does not pay the first-tier Subcontractor within 30 days after receiving payment from the Port, to pay the first-tier Subcontractor an interest penalty on amounts due in each payment the Contractor does not make in accordance with the payment clause included in the subcontract pursuant to this subsection. The Contractor or first-tier Subcontractor is not obligated to pay an interest penalty if the only reason that the Contractor or first-tier Subcontractor did not make payment when payment was due is that the Contractor or first-tier Subcontractor had not received payment from the Port or the Contractor when payment was due. The interest penalty:

   1) Applies to the period that begins on the day after the required payment date and that ends on the date on which the amount due is paid; and 2) Is computed at the rate specified in ORS 279C.515(2).

   2) The Contractor shall include in each of their subcontracts a provision requiring the first tier Subcontractor to include a payment clause and an interest penalty clause that conforms to the standards of this section in each of their subcontracts and to require each of their Subcontractors to include such clauses in their subcontracts with each lower-tier Subcontractor or supplier.

   3) The clauses required by this section do not impair the right of the Contractor or a Subcontractor at any tier

to negotiate, and to include in the subcontract, provisions that:

a. Permit the Contractor or a Subcontractor to retain, in the event of a good faith dispute, an amount not to exceed 150 percent of the amount in dispute from the amount due a Subcontractor under the subcontract without incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions the parties to the subcontract agree upon, giving such recognition as the parties consider appropriate to the ability of a Subcontractor to furnish a performance bond and a payment bond;

b. Permit the Contractor or a Subcontractor to make a determination that part or all of the Subcontractor's request for payment may be withheld in accordance with the subcontract; and

c. Permit such withholdings without incurring any obligation to pay a late payment interest penalty if:

   1) A notice that conforms to the standards of ORS 279C.580(8) has been previously furnished to the Subcontractor; and

   2) A copy of any notice the Contractor issues pursuant to the foregoing subsection has been furnished to the Port.

d. d) As used in this subsection, "good faith dispute" means a documented dispute concerning:

   1) Unsatisfactory job progress.

   2) Defective work not remedied.

   3) Third party claims filed or reasonable evidence that claims will be filed.

   4) Failure to make timely payments for labor, equipment, and materials.

   5) Damage to the Contractor or a Subcontractor.

   6) Reasonable evidence that the subcontract cannot be completed for the unpaid balance of the subcontract sum.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 ENVIRONMENTAL RESPONSIBLITIES

The following federal, state, and local agencies have enacted ordinances or regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the performance of this Contract:

a. City.
b. Oregon Environmental Quality Commission.
c. Oregon Fish and Wildlife Commission.
d. U.S. Environmental Protection Agency.
e. U.S. Fish and Wildlife Service; and
f. National Marine Fisheries Service.

Known conditions at the construction site that may require the Contractor to comply with statutes or with ordinances or regulations enacted by the agencies listed above are specifically referred to at various places in this Contract, including but not necessarily limited to Division 1 of the Specifications.

The Contractor is solely responsible for:

(1) considering applicable statutes and the ordinances and regulations enacted by the agencies listed above,

(2) considering the known conditions specifically referred to in this Contract, and

(3) ensuring that the activities of the Contractor and the Contractor's employees, Subcontractors (including suppliers), agents, and invitees with respect to those conditions do not violate any of those statutes, ordinances, or regulations. Without limiting the foregoing, the Contractor is solely responsible for the following environmental and natural resource risks associated with the performance of this Contract:

a. Air pollution.
b. Water pollution.
c. Contamination of soil, groundwater, or sediment.
d. Filling or destruction of wetlands.
e. Taking of a federally listed threatened or endangered species through habitat destruction, habitat degradation, or otherwise; unless permit conditions provide allowances otherwise; and
f. Introduction of an invasive species.

In addition to the foregoing requirements, the Contractor shall manage and conduct all activities related to the performance of this Contract in accordance with all environmental Laws and regulations, and with the requirements of all permits issued under those Laws and regulations of which the Contractor has been given notice or has actual knowledge. "Environmental laws and regulations" means all federal and state statutes, all local ordinances, and all regulations adopted pursuant to those statutes and ordinances, as any of them may be amended from time to time, dealing with the prevention of environmental pollution or the preservation of natural resources, including but not limited to: the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Toxic Substances Control Act, the Clean Air Act, the Clean

Water Act, and Oregon Revised Statutes Chapters 465, 466, 467, 468, 468A, 468B, and 496. If the Contractor believes compliance with a requirement under this Contract or a direction given by the Port will result in violation of any environmental laws or regulations, the Contractor shall so notify the Port in writing immediately and shall not proceed pursuant to that requirement or direction until the Port directs the Contractor to proceed.

In the event of a sudden spill or discharge of hazardous material as a result of actions related to this Contract by the Contractor or the Contractor's Subcontractor or agent, the Port may take action, including contracting for control or cleanup of the spill or discharge, unless the Contractor takes immediate appropriate action. If the Port takes action pursuant to this paragraph, the Port may recover from the Contractor all reasonable costs necessarily incurred in effecting the control and cleanup of the spill or discharge. Regardless of who undertakes the cleanup or control of the spill or discharge, the methods used shall be subject to the approval of the Port.

-- End of Section --

SECTION 02 32 00

SUBSURFACE DRILLING, SAMPLING, AND TESTING
05/10

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D1586	(2018) Penetration Test and Split-Barrel Sampling of Soils
ASTM D1587/D1587M	(2015) Thin-Walled Tube Sampling of Soils for Geotechnical Purposes
ASTM D2113	(2014) Rock Core Drilling and Sampling of Rock for Site Investigation
ASTM D2487	(2017) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D2488	(2017; E 2018) Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

OREGON DEPARTMENT OF TRANSPORTATION (ODOT)

ODOT Highway Division	(1987) Soil and Rock Classification Manual

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-1-1804	Geotechnical Investigations
EM 1110-2-1907, Chapter 4	Mud Rotary Borings

Sampling of Soils

ASTM D1587/D1587M	(2015) Thin-Walled Tube Sampling of Soils for Geotechnical Purposes
ASTM D2113	(2014) Rock Core Drilling and Sampling of Rock for Site Investigation
ASTM D2487	(2017) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification

	System)
ASTM D2488	(2017; E 2018) Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

OREGON DEPARTMENT OF TRANSPORTATION (ODOT)

ODOT Highway Division	(1987) Soil and Rock Classification Manual

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-1-1804	Geotechnical Investigations
EM 1110-2-1907, Chapter 4	Mud Rotary Borings

1.2 SYSTEM DESCRIPTION

Provide data to determine the type, nature, and characteristics of subsurface materials and the extent and conditions of the various materials as they exist to the depths and at the locations specified. This is to be accomplished by means of mud rotary borings, drive sample borings undisturbed sample borings, and rock core drilling.

1.2.1 Mud Rotary Borings and Sampling

A mud rotary boring is any boring made through unconsolidated or partly consolidated sediments or decomposed rock soils for the purpose of obtaining samples of subsurface materials using a conventional power-driven rotating drill bit, downward pressure, and an engineered drilling fluid (mud) designed to prevent caving and minimize intrusion of the drilling fluid into the surrounding soil or rock materials. Mud rotary boring and sampling shall be performed in accordance with EM 1110-2-1907, Chapter 4.

1.2.2 Drive Sample Borings and Sampling

A drive sample boring is a boring made through unconsolidated or partly consolidated sediments or decomposed rock by means of a mechanically driven sampler. The purpose of these borings is to obtain knowledge of the composition, the thickness, the depth, the sequence, the structure, and the pertinent physical properties of foundation or borrow materials. Drive sample boring and sampling shall be performed in accordance with EM 1110-1-1804. Standard Penetration Tests (SPT) shall be performed in accordance with EM 1110-1-1804 and ASTM D1586.

1.2.3 Undisturbed Sample Borings and Sampling

An undisturbed sample boring is a boring made to obtain soil samples which, when tested, will show properties as close to the in situ (in place) properties as any sample which can be obtained. All undisturbed sampling shall be accomplished in accordance with EM 1110-1-1804 and ASTM D1587/D1587M.

1.2.4 Core Drilling

Core drilling shall be a minimum of 2-inch Diameter. Core Drilling of cores shall be in accordance with ASTM D2113. The method used shall

provide equally good recovery of cores from both hard and soft rocks.

1.2.5 Sequencing and Scheduling

1.2.5.1 Schedule of Drilling, Sampling, and Testing

Prior to starting work, submit a Subsurface Exploration Plan for drilling, sampling, testing, and safety. The plan shall include, but shall not be limited to, the proposed method of drilling and sampling including a description of the equipment and sampling tools that will be used, a listing of any sub-contractors to include a description of how the sub-contractors will be used and a description of all methods and procedures that will be utilized to ensure a safe operation and to protect the environment. No work shall be performed until this plan has been approved and no deviation from the approved plan will be permitted without prior approval by the OIPCB.

1.2.5.2 Order of Work

The order in which the work is to be accomplished will be determined in the Subsurface Exploration Plan.

1.2.5.2.1 Numerical Sequence

It is intended that the drilling be accomplished in the numerical sequence indicated in the Subsurface Exploration Plan discussed in 1.3.5.1; however, the OIPCB may vary the order whenever and in whatever manner is deemed best for accomplishing the work.

1.2.5.2.2 Reporter

Provide a qualified, licensed Geologist or Geotechnical/Engineer experienced in subsurface exploration for each drill unit to oversee all drilling, sampling, and field-testing operations. This individual shall be responsible for the preparation of a separate log and/or report for each boring. This individual shall also be responsible for the preparation of all soil and rock samples for delivery to the designated point.

1.2.5.2.3 OIPCB Oversight

The presence of an OIPCB representative or the keeping of separate drilling records by the OIPCB shall not relieve the Contractor of the responsibility for the work specified in this specification.

1.3 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Subsurface Exploration Plan; O

SD-02 Shop Drawings

Drilling Log; O

SD-03 Product Data

Permits, Certifications, and Licenses
Schedule of Drilling, Sampling, and Testing; O

1.4 QUALITY ASSURANCE

Comply with all Federal, State and local laws, regulations and ordinances relating to the performance of this work. Procure all required permits, certifications and licenses required by Federal, State, and local law for the execution of this work. Submit copies of all permits, certifications, and licenses prior to starting work. This submittal shall also include a statement of the prior experience, in the type of work described in these specifications, of the person or persons designated to perform the work specified herein.

1.5 DELIVERY, STORAGE, AND HANDLING

1.5.1 General

The Contractor is solely responsible for keeping all samples in good condition. Samples shall be kept from freezing and from undue exposure to the weather and shall keep all descriptive labels and designations on sample jars, tubes, and boxes clean and legible until final delivery of samples to, and acceptance by, the OIPCB. Except as otherwise specified, deliver samples to a lab or storage facility approved by the OIPCB. Rock core sample storage shall include a moisture-controlled environment to prevent drying and slaking of the core samples. Samples shall be delivered within the time limits specified for each type of investigation or in accordance with schedules prepared by the OIPCB.

1.5.2 Undisturbed Samples

Take every precaution to avoid damage to samples as a result of careless handling and undue delay in shipping. Samples shall be shipped in containers approved by the OIPCB and shall be of sufficient durability to protect the samples from any damage during shipment. The sample tubes shall be well packed in vermiculite or other equal material approved by the OIPCB to protect the samples against vibration. Avoid exposing sealed and crated samples to precipitation, direct sunlight, freezing and temperatures in excess of 100 degrees F. Samples permitted to freeze, even partially, shall be replaced by the Contractor. In general, no undisturbed samples shall remain on the site of sampling for more than one week before shipment. Samples shall be stored and shipped with the tube in a vertical position in order to prevent consolidation and segregation or change of water content.

1.6 PROJECT/SITE CONDITIONS

1.6.1 Environmental Requirements

In order to prevent and to provide for abatement and control of any environmental pollution arising from Contractor activities in the performance of this contract, the Contractor and its sub-contractors shall comply with all applicable Federal, State, and local laws, regulations, and ordinances concerning environmental pollution control and abatement.

a. The Contractor is responsible for obtaining all applicable Federal, State, and local permits for overwater drilling activities.

b. The Contractor is responsible for keeping informed of all updates and changes in all applicable laws, regulations, and ordinances.

c. Do not pollute lakes, ditches, rivers, springs, canals, waterways, groundwaters, or reservoirs with drill fluids, fuels, oils, or other materials that may be harmful to the environment or a detriment to outdoor recreation.

1.6.2 Field Measurements

The approximate locations of drill holes will be shown on drawings. The actual locations will be established in the field by the Contractor prior to the start of work. The elevations of the established locations will be provided by the Contractor prior to the start of drilling. Provide access to the locations as necessary for the prosecution of the work. Since no separate payment will be made for access construction, include all costs associated with this in the cost of drilling.

PART 2 PRODUCTS

2.1 CONTAINERS

Furnish jars, tubes, and boxes that meet the following requirements. All such containers will become the property of OIPCB and the cost thereof will be included in the contract price for the applicable item for which payment is provided.

2.1.1 Sample Jars

Sample jars shall be 1 quart capacity, wide-mouth over 2-1/4 inches in diameter plastic jars with moisture-tight screw tops.

2.1.2 Shipping Boxes

Boxes for transporting and shipping sample jars shall be corrugated cardboard boxes that have the capacity to hold no more than 12 sample jars and the strength to contain and protect the jars and their contents under ordinary handling and environmental conditions.

2.1.3 Tubes and Crates

Undisturbed samples shall be shipped in thin-walled Shelby tubes packed in crates.

2.1.4 Core Boxes

Use longitudinally partitioned, hinged top, wooden core boxes constructed of plywood and dressed lumber or other approved materials for all rock cores. As many core boxes as may be required shall be used to box all core. Furnish core boxes completely equipped with all necessary partitions, hinges, and a hasp for holding down the cover. Also provide wood spacers made of surfaced lumber (not plywood) and having dimensions that are 1/8 inch less than the inside dimensions of the individual core box troughs and no less than 3/4 inch thick for blocking the core in the boxes and for providing a marking space to identify core runs and pull depths/elevations. The quantities of these blocks that are required are: ten blocks per core box for 3 inch or smaller core, five blocks per core box for 4 inch and PQ core, and three blocks per core box for 6-inch core. The box should have the following capacities:

Box Capacities	
6-inch core	single row of core
4-inch or PQ core	2 rows of core
3-inch or smaller core	3 or 4 rows of core

The maximum length of a core box shall be 5 feet for 3 inch or smaller core and shall be dimensioned so that a box will hold 10 to 15 feet of core.

2.2 LABELS

2.2.1 Sample Jar Labels

A printed or type-written, fade resistant and waterproof label shall be affixed to the outside of each jar and shall contain the following information:

PROJECT	(such as Table Rock Dam)	LOCATION	(such as Borrow Area B)
HOLE NO.		STATION	
JAR NO.		of	_____ JARS
TOP ELEVATION OF HOLE		DEPTH OF SAMPLE	
DESCRIPTION OF MATERIAL	(such as moist, silty, medium sand)		

2.2.2 Shipping Box Labels

Each box of jar samples shall be identified with weatherproof and wear-proof labels indicating the following:

PROJECT	[_____]
LOCATION	
JAR SAMPLES FROM HOLE OR HOLES	

2.2.3 Core Box Labels

Core boxes shall be identified with stenciled labels. The information on this label shall contain the following:

PROJECT	[_____]
HOLE NO.	

BOX NO.	
TOTAL NUMBER OF BOXES FOR THE HOLE	

2.3 EQUIPMENT AND SUPPLIES

2.3.1 Mug Rotary Boring and Sampling

Furnish the equipment for making mud rotary borings including, but not limited to, power-driven drilling machinery and a drill bit not less than 4 inches in diameter that is mounted on the end of drill rods of a type of types approved by the OIPCB. Drilling machinery shall be of the hydraulic feed type. The mud rotary borings shall be completely equipped with all the accessories necessary for boring and sampling of overburden materials to the depths and diameters specified or shown on the drawings. Supplies shall include, but not be limited to, all casing, drill stem, drill bits, drill fluid and additives, pumps, and power necessary to accomplish the required boring and sampling.

2.3.2 Drive Sample Boring and Sampling

Furnish equipment for making drive sample borings including, but not limited to, standard 2-inch OD split barrel drive samplers and power-driven drilling machinery of a type or types approved by the OIPCB, complete with a drive-hammer of 140-pound weight and all other accessories for taking samples of all types of soils or decomposed rock at the locations and to the depths indicated in the Subsurface Exploration Plan. The drive shoe for the split barrel samplers shall be of hardened steel and shall be replaced or repaired when it becomes dented or distorted. Supplies shall include, but not be limited to, all casing, drill stem, drill bits, drill fluid and additives, pumps, and power necessary to accomplish the required boring and sampling. Drill casing, if used, shall be of such minimum inside diameter as to allow use of the selected sampler.

2.3.3 Undisturbed Sample Boring and Sampling

Furnish equipment for making undisturbed sample borings including, but not limited to, power-driven drilling machinery of an approved type or types complete with the special devices and accessories enumerated and described hereinafter. Drilling machinery shall be of the hydraulic feed type. Supplies shall include, but not be limited to, all samplers, casing, drill stem, drill bits, drill fluid and additives, pumps, and power necessary to accomplish the required boring and sampling. Drill casing, if used, shall be of such minimum inside diameter as to allow use of the selected sampler.

The sampling device used to obtain undisturbed samples shall be a fixed or stationary piston type that uses a 3-inch diameter thin wall Shelby tube. Subject to the approval of the OIPCB, floating or free piston and non-piston type samplers may be used provided adequate means, such as check valve or vacuum system, are provided to prevent loss of samples.

2.3.4 Core Drilling

Core drilling shall be minimum 2-inch Diameter Core. Furnish equipment for core drilling including core-drilling machinery of a type or types

approved by the OIPCB, complete with all the accessories needed to take continuous rock cores of a diameter consistent with bit size to the depths specified. Use, as a minimum, a standard ball-bearing, swivel-head, triple-tube core barrel, or equivalent. The capacity of the core barrel shall not exceed 5 feet of core. Supplies for core drilling shall include, but not be limited to, all casing, drill rods, core barrels, coring bits, piping, pumps, water, tools, and power required for drilling and all boxes and containers required for core samples. Selection of the type of bit shall be at the Contractor's discretion provided that the selected bit produces high quality rock core (see paragraph SUPPLEMENTAL BORINGS).

PART 3 EXECUTION

3.1 MOBILIZATION AND DEMOBILIZATION

3.1.1 Mobilization

Mobilization consists of the delivery to the site of all plant, equipment, barge, materials and supplies to be furnished by the Contractor, the complete assembly in satisfactory working order of all such plant and equipment at the jobsite and the satisfactory storage at the site of all such materials and supplies.

3.1.2 Demobilization

Demobilization consists of the removal from the site of all plant, equipment, barge, materials and supplies after completion of the work and also includes, at the direction of the OIPCB, the cleanup and removal of all scrap, waste backfill material, waste drilling fluid, soil contaminated with engine/hydraulic oil, backfilling all sumps or excavations resulting from the operations and, in general, returning the site as close to its original condition as possible.

3.2 IDENTIFYING SAMPLES

Sample jars, shipping boxes, and labels shall comply with PART 2, paragraphs SAMPLE JARS, SHIPPING BOXES, and LABELS, respectively. Take all precautions required to ensure that the shipping boxes are not subjected to rough handling or damaging environmental conditions.

3.3 MUD ROTARY BORING AND SAMPLING

Samples shall be labeled in accordance with paragraph IDENTIFYING SAMPLES. Samples shall be obtained for each change of overburden material and at maximum vertical intervals of 5 feet. In order to retain the natural moisture content of the material to the fullest extent possible, all samples shall be of sufficient volume to completely fill the sample jars and the samples shall be placed in the sample jars as soon as possible after they are taken from the hole. All sample jars shall be labeled. In general, no sample shall remain on the site of boring for more than 1 week after being taken from the boring and placed in a jar.

3.4 DRIVE SAMPLE BORING AND SAMPLING

Samples shall be labeled in accordance with paragraph IDENTIFYING SAMPLES. Drive sample borings drilled through overburden materials shall be suitably cased to permit obtaining drive samples of the size or sizes specified or as directed. Samples shall be taken at maximum intervals of 5 feet or at a change in materials or as otherwise directed by the OIPCB. The sampler shall be driven with the force of the 140-pound drive hammer

under a free fall of 30 inches. Soil sampling shall be done by such means that will prevent inclusion of drilling fluid in the samples. The samples shall be placed in sample jars as soon as possible after they are taken from the hole and, when possible, the volume of the sample shall be large enough to completely fill the sample jar in order that the natural moisture content of the material may be retained to the fullest extent possible. All samples shall be labeled. No sample shall remain at the site of boring for more than one week after being taken from the hole.

3.5 UNDISTURBED SAMPLE BORING AND SAMPLING

In general, labeling of undisturbed samples shall conform to paragraph IDENTIFYING SAMPLES. Particular care shall be taken to indicate the top and bottom of each sample tube. Tubes and crates for undisturbed samples shall be labeled "DO NOT JAR OR VIBRATE" and "HANDLE, HAUL, AND SHIP IN A VERTICAL POSITION".

3.5.1 Procedure

The procedure for Undisturbed Sample Boring and Sampling shall be the same as outlined in paragraph DRIVE SAMPLE BORING AND SAMPLING, except that the sampling device shall be advanced downward by one continuous, smooth drive using the drill rig's hydraulic feed system. The hydraulic down pressure shall be read and recorded at 6-inch intervals during each sample drive. Driving of any undisturbed sampling device by means such as a drop hammer will not be permitted.

3.5.2 Sealing

The soil sample obtained in a thin wall Shelby tube shall be retained in the tube and sealed on both ends with plastic caps. Sealing tape shall be used to seal the joint between the cap and the tube.

3.6 CORE HOLE OVERBURDEN DRILLING

Samples of overburden materials are required in connection with core drilling and the soil overburden shall be drilled and sampled in accordance with the applicable provisions for the type of samples required.

3.7 CORE DRILLING

Core drilling shall be minimum 2-inch Diameter Core

3.7.1 Procedure

All holes shall be drilled vertically to the bottom elevations or depths specified in the Subsurface Exploration Plan unless directed to be drilled otherwise by the OIPCB. Off-setting of borings from the locations specified in the Subsurface Exploration Plan or as shown on the drawings, will not be permitted without prior approval. Casing through the water and a portion of the overburden will be required. In overwater drilling situations, the casing shall be installed to prevent the release of drilling fluids and cuttings within the surrounding water column and shall be in accordance with the requirements described in 1.7.1 Environmental Requirements.

Operate the drills at required speeds and down pressures to control drill fluid pressures and quantities to ensure maximum core quality and recovery

in whatever kind of rock is encountered. Where soft or broken rock is encountered, reduce the length of runs to less than 5 feet in order to reduce and/or keep core loss and core disturbance to the minimum. Failure to comply with the foregoing procedures will constitute justification for the OIPCB Representative to require redrilling, at the Contractor's expense, of any boring from which the core recovery is unsatisfactory. Exercise particular care in recording zones of water loss, cavities, rod jerks, rough drilling and other unusual and non-ordinary coring experiences that, supplementing the core record, will throw light on the nature and the extent of any fracturing or abnormalities.

3.7.2 Arrangement of Core

Core boxes shall comply with PART 2, paragraph CORE BOXES. All cores shall be arranged neatly in the partitioned boxes in the same sequence in which they occurred before removal from the hole. Facing the open box with the hinged cover above and the open box below, cores shall be arranged in descending sequence beginning at the left end of the trough nearest the hinges and continuing in the other troughs from left to right. The highest part of the core shall be placed in box 1, and the lower portions of the core shall be placed in the other boxes in consecutive order.

3.7.3 Preservation of Core

Representative samples of the core shall be wrapped in thin plastic wrap and then aluminum foil prior to placing the core in the core box. This sealing process shall be accomplished as soon as possible after the core is removed from the core barrel. The minimum length of core that is preserved from each boring shall be no less than 2.5 times the core diameter. Spacer blocks shall be marked and placed in the core box to show where samples have been removed. The full core box shall be photographed with appropriate labels prior to preserving the core samples.

3.7.4 Labeling, Marking and Packing Core

Stenciled labels for core boxes complying with paragraph CORE BOX LABELS shall be placed on the inside and outside of the top cover in addition to each end. In addition, the depths (or elevations) of each core run/pull shall be marked with a black waterproof pen on the spacer blocks that are placed between core pulls. When a box is full, the space between the core and the trough sides shall be filled with foam material or other packing material approved by the OIPCB.

3.7.5 Disposition of Core

While onsite, protect the filled core boxes from direct sunlight, precipitation, and freezing by some form of OIPCB Representative approved shelter that allows ventilation to the boxes. Upon completion of core drilling and sampling operations, core boxes containing cores shall be stored in an area provided by the OIPCB Representative near the site of drilling.

3.8 SUPPLEMENTAL BORINGS

Borings that are abandoned or from which unsatisfactory samples or cores are obtained will be supplemented by other borings adjacent to the original in order that satisfactory samples or the required information

will be obtained. Actual locations of any supplemental borings will be established by the OIPCB Representative. Penetration to the depth where the original was abandoned or to the depths where unsatisfactory samples were obtained may be made by any method selected by the Contractor that in the opinion of the OIPCB Representative will permit satisfactory completion and sampling below the elevation where the last satisfactory sample was obtained in the abandoned or satisfactory sampling in the reaches where satisfactory samples were not obtained in the original borings. No payment will be made for supplemental borings that are required to be drilled to replace borings that were abandoned or from which satisfactory samples were not obtained because of mechanical failure of drilling and sampling equipment, negligence on the part of the Contractor, or other preventable cause for which the Contractor is responsible except that payment will be made for acceptable portions of these supplementary borings below the depths or outside the reaches for which payment was made for the original borings.

3.9 BACKFILLING

3.9.1 Drill Holes

Unless otherwise noted in these specifications or directed by the OIPCB Representative, all drill holes shall be backfilled and abandoned in accordance with all Federal, State, and local laws, regulations and ordinances. Preserve all holes in good condition until final measurement and until the records and samples have been accepted. As a minimum, all holes shall be grouted from the bottom of the hole to within 2 feet of the ground surface using a grout mixture in accordance with State Regulations. All grout shall be pumped through a tremie pipe that is inserted to the bottom of the boring to insure that the grout fills the full extent of the hole. All backfilling operations shall be performed in the presence of the OIPCB Representative and, if required by regulation, Federal, State, and local officials. No separate payment will be made for backfilling drill holes. The cost of this work shall be included in the drilling costs.

3.10 RECORDS

Submit complete, legible copies of DRILLING LOG, and records to the OIPCB Representative within 1 day after a hole is completed. Keep accurate driller's logs and records of all work accomplished under this contract and deliver complete, legible copies of these logs and records to the OIPCB Representative within 1 day after a hole is completed. All such records shall be recorded during the actual performance of the work and shall be preserved in good condition and order until they are delivered and accepted. The OIPCB Representative has the right to examine and review all such records at any time prior to their delivery and has the right to request changes to the record keeping procedure. The following information shall be included on the logs or in the records for each hole:

a. Hole number or designation and elevation of top of hole.

b. Driller's name and Geologist's name.

c. Make, size, and manufacturer's model designation of drilling and sampling equipment.

d. Type of drilling and sampling, operation by depth.

e. Hole diameter.

f. Dates and time by depths when drilling and sampling operations were performed.

g. Time required for drilling each rock core run.

h. Drill action, rotation speed, hydraulic pressure, water pressure, tool drops, and any other unusual and non-ordinary experience which could indicate the subsurface conditions encountered.

i. Depths at which samples or cores were recovered or attempts made to sample or core including top and bottom depth of each run.

j. Classification or description by depths of the materials sampled, or cored, using the Unified Soil Classification System (ASTM D2487) and including a description of moisture conditions, consistency and other appropriate descriptive information described in ASTM D2488. This classification or description shall be made immediately after the samples or cores are retrieved.

k. Classification and description by depths of rock materials sampled or cored using the Oregon Department of Transportation ODOT Highway Division, 1987, Soil and Rock Classification Manual.

l. Indication of penetration resistance such as drive-hammer blows given in blows per foot for driving sample spoons and casing and the pressure in psi applied to push thin-wall samplers.

m. Weight of drive hammer.

n. Percentage of sample or core recovered per run.

o. Depth at which groundwater is encountered initially and when stabilized.

p. Depths at which drill water is lost and regained and amounts.

q. Depths at which the color of the drill water return changes.

r. Type and weight of drill fluid.

s. Depth of bottom of hole.

TABLE 1 - COMMON CORE DIAMETERS

	CORE DIAMETER INCHES	HOLE DIAMETER INCHES
Conventional Core Barrels		
AWG	1.185	1.890
BWG	1.655	2.360
NWG	2.155	2.980
HWG	3.000	3.907

Wireline Core Barrels*		
A	1.064	1.890
B	1.432	2.360
N	1.875	2.980
H	2.450	3.716
	3.345	4.827
Large Diameter Series		
2-3/4" X 3-7/8"	2.690	3.875
4" X 5-1/2"	3.970	5.495
6" X 7-3/4"	5.970	7.750

* No Industry Standard for Wireline Sizes. Diameters shown for wireline core barrels are nominal and vary between manufacturers.

-- End of Section --

SECTION 02 41 00

DECONSTRUCTION
05/10

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

OREGON OCCUPATIONAL SAFETY AND HAZARD DIVISION (OSHD)

OSHD	Oregon OSHD TechnicalManual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 61	National Emission Standards for Hazardous Air Pollutants

1.2 PROJECT DESCRIPTION

1.2.1 DEFINITIONS

1.2.1.1 DECONSTRUCTION

Deconstruction is the process of taking apart a facility with the primary goal of preserving the value of all useful building materials.

1.2.1.2 DECONSTRUCTION PLAN

Deconstruction Plan is the planned steps and processes for dismantling all or portions of a structure or assembly, to include managing sequencing activities, storage, re-installation activities, salvage and disposal mechanisms.

1.2.2 DECONSTRUCTION PLAN

Prepare a Deconstruction Plan and submit proposed deconstruction, and removal procedures for approval before work is started. Include in the plan procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Provide procedures for safe conduct of the work in accordance with OSHD. Plan shall be approved by OIPCB Representative prior to work beginning.

1.2.3 GENERAL REQUIREMENTS

Do not begin demolition or deconstruction until authorization is received from the OIPCB Representative. The work of this section is to be performed in a manner that maximizes the value derived from the salvage and recycling of materials. The work includes deconstruction, salvage of identified items and materials, and removal of resulting rubbish and debris. Remove rubbish

and debris from the channel property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the OIPCB Representative. In the interest of occupational safety and health, perform the work in accordance with OSHD, Section 23, Demolition, and other applicable Sections.

1.3 ITEMS TO REMAIN IN PLACE

Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government. These include the range boards and lights for the fixed aids. Repair or replace damaged items as approved by the OIPCB Representative. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract. Provide new supports and reinforcement for existing construction weakened by demolition, deconstruction, or removal work. Repairs, reinforcement, or structural replacement require approval by the OIPCB Representative prior to performing such work.

1.3.1 EXISTING CONSTRUCTION LIMITS AND PROTECTION

Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove dust, dirt, and debris from work areas daily.

1.3.2 UTILITY SERVICE

Maintain existing utilities indicated to stay in service and protect against damage during demolition and deconstruction operations.

1.4 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.5 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for Contractor Quality Control. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Deconstruction Plan; O
Existing Conditions

SD-07 Certificates

Notification; O

1.6 QUALITY ASSURANCE

Submit timely notification of deconstruction projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61, Subpart M. Notify the U.S. Coast Guard District 13 and the OIPCB Representative in writing 10 working days prior to the commencement of work in accordance with 40 CFR 61, Subpart M. Comply with federal, state, and local hauling and disposal regulations.

1.7 EXISTING CONDITIONS

Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the OIPCB Representative showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs sized 4 inch will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to before starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document. Submit survey results.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

Inspect and evaluate existing structures onsite for reuse. Existing construction scheduled to be removed for reuse shall be disassembled. Dismantled and removed materials are to be separated, set aside, and prepared as specified, and stored or delivered to a collection point for reuse, remanufacture, recycling, or other disposal, as specified. Materials shall be designated for reuse onsite whenever possible.

3.1.1 STRUCTURES

a. Remove existing structures indicated to be removed to grade.

b. Deconstruct structures in a systematic manner from the top of the structure to the ground. Complete demolition work above each tier or floor before the supporting members on the lower level are disturbed.

c. Locate demolition and deconstruction equipment throughout the structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing.

3.1.2 UTILITIES AND EQUIPMENT

3.1.2.1 GENERAL REQUIREMENTS

Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the OIPCB Representative. Do not begin demolition or deconstruction work until all utility disconnections have been made. Shut off and cap utilities for future use, as indicated.

3.1.2.2 DISCONNECTING EXISTING UTILITIES

Remove existing utilities, as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the OIPCB Representative. When utility lines are encountered but are not indicated on the drawings, notify the OIPCB Representative prior to further work in that area.

3.1.3 STRUCTURAL STEEL

Dismantle structural steel at field connections and in a manner that will prevent bending or damage. Salvage for recycling structural steel, steel joists, girders, angles, plates, columns and shapes. Do not use flame-cutting torches.

ATON Structures shall be removed either by extracting the piles, breaking them off at or below the mudline, or by cutting them off at the mudline. Removal shall be attempted in that order.

3.2 DISPOSITION OF MATERIAL

3.2.1 TITLE TO MATERIALS

Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, shall become the property of the Contractor and shall be removed from the Project Site.

3.2.2 STRUCTURE KNOCKDOWN

In the event that a structure has been knocked down, the contractor shall use divers to locate the structure within a 75-yard radius of the original structure location. If any part of the knock-down structure is located, the contractor shall extract the structure off the bottom as directed by the OIPCB Representative. The contractor shall also ensure that no remaining portion of the pile(s) protrudes from the mudline. If so, the pile(s) shall be removed using the methods described in Paragraph 3.1.3 of this Section.

3.3 CLEANUP

Remove debris and rubbish from basement and similar excavations. Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.4 DISPOSAL OF REMOVED MATERIALS

3.4.1 REGULATION OF REMOVED MATERIALS

Dispose of debris, rubbish, scrap, and other non-salvageable materials resulting from removal operations with all applicable federal, state and local regulations.

3.4.2 BURNING ON PROJECT SITE

Burning of materials removed from demolished and deconstructed structures will not be permitted.

3.4.3 REMOVAL FROM PROJECT SITE

Transport waste materials removed from demolished and deconstructed structures, except waste soil, from project property for legal disposal.

-- End of Section --

SECTION 05 12 00

STRUCTURAL STEEL
08/18

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 303	(2022) Code of Standard Practice for Steel Buildings and Bridges
AISC 325	(2023) Steel Construction Manual
AISC 360	(2016) Specification for Structural Steel Buildings

AMERICAN SOCIETY FOR NONDECONSTRUCTIVE TESTING (ASNT)

ANSI/ASNT CP-189	(2016) ASNT Standard for Qualification and Certification of Nondeconstructive Testing Personnel (ANSI/ASNT CP-105-2006)

AMERICAN WELDING SOCIETY (AWS)

AWS A5.5/A5.5M	(2022) Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding
AWS D1.1/D1.1M	(2020) Structural Welding Code - Steel
AWS D1.8/D1.8M	(2016) Structural Welding Code—Seismic Supplement
AWS QC1	(2016) Specification for AWS Certification of Welding Inspectors

ASTM INTERNATIONAL (ASTM)

ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A36/A36M	(2014) Standard Specification for Carbon Structural Steel
ASTM A563	(2021) Standard Specification for Carbon and Alloy Steel Nuts

ASTM A780/A780M	(2020) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A992/A992M	(2011; R 2015) Standard Specification for Structural Steel Shapes
ASTM F1554	(2018) Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength
ASTM F3125/F3125M	(2015a) Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions
ASTM F436/F436M	(2016) Standard Specification for Hardened Steel Washers Inch and Metric Dimensions

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-301-01	(2023; with Change 1) Structural Engineering
UFC 3-310-04	(2013; with Change 1) Seismic Design of Buildings

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR Part 1926, Subpart R	Steel Erection

1.2 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Weld Inspection Reports

SD-07 Certificates

Steel

Bolts, Nuts, and Washers

Galvanizing

Welding Procedures and Qualifications

Certified Welding Inspector

NDT Technician

1.3 WASTE MANAGEMENT

Coordinate with local recycler and set aside scrap to be delivered for recycling into new products.

1.4 ENERGY EFFICIENCY

Energy-using products shall be Energy Star labeled. For product groups where Energy Star labels are not yet available, products shall be in the upper 25 percent of energy efficiency as designated by the Federal Energy Management Program (FEMP).

1.5 QUALITY ASSURANCE

1.5.1 CERTIFICATIONS

1.5.1.1 WELDING PROCEDURES AND QUALIFICATIONS

Prior to welding, submit certification for each welder stating the type of welding and positions qualified for, the code and procedure qualified under, date qualified, and the firm and individual certifying the qualification tests. If the qualification date of the welder or welding operator is more than 6 months old, the welding operator's qualification certificate must be accompanied by a current certificate by the welder attesting to the fact that they have been engaged in welding since the date of certification, with no break in welding service greater than 6 months.

Conform to all requirements specified in AWS D1.1/D1.1M and AWS D1.8/D1.8M.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Provide the structural steel system, including galvanizing, complete and ready for use. Provide structural steel systems including design, materials, installation, workmanship, fabrication, assembly, erection, inspection, quality control, and testing in accordance with AISC 303, AISC 360, UFC 3-301-01 and UFC 3-310-04 except as modified in this contract.

2.2 STEEL

2.2.1 STRUCTURAL STEEL

Wide flange and WT shapes, ASTM A992/A992M. Angles, Channels and Plates, ASTM A36/A36M.

2.3 BOLTS, NUTS, AND WASHERS

Submit the certified manufacturer's mill reports which clearly show the applicable ASTM mechanical and chemical requirements together with the actual test results for the supplied fasteners.

2.3.1 HIGH-STRENGTH BOLTS

High strength bolts and nuts must be shipped together in the same shipping container. Fasteners indicated to be galvanized shall be tested by the supplier to show that the galvanized nut with the supplied lubricant

provided may be rotated from the snug tight condition well in excess of the rotation required for pretentioned installation without stripping. The supplier shall supply nuts that have been lubricated and tested with the supplied bolts.

2.3.1.1 BOLTS

ASTM F3125/F3125M, Grade A325M A325 [A490M A490], Type 1 3 Heavy Hex Head Style, plain finish hot dipped zinc coating.

2.3.1.2 NUTS

ASTM A563, Grade and Style as specified in the applicable ASTM bolt standard.

2.3.1.3 WASHERS

ASTM F436/F436M, plain carbon steel.

2.3.2 FOUNDATION ANCHORAGE

2.3.2.1 ANCHOR RODS

ASTM F1554 Gr 36, Class 1A. Hot dip galvanized steel.

2.4 GALVANIZING

Shapes, plates and bars shall be hot dip galvanized in accordance with ASTM A123/A123M.

2.5 FABRICATION

Fabrication must be in accordance with the applicable provisions of AISC 325. Fabrication and assembly must be done in the shop to the greatest extent possible. Punch, sub punch and ream, or drill bolt and pin holes perpendicular to the surface of the member.

PART 3 EXECUTION

3.1 ERECTION

Erection of structural steel, except as indicated in item b. below, must be in accordance with the applicable provisions of AISC 325, AISC 303 and 29 CFR Part 1926, Subpart R.

3.1.1 STORAGE

Store the material out of contact with the ground in such manner and location as to minimize deterioration.

3.2 CONNECTIONS

Except as modified in this section, design connections indicated in accordance with AISC 360. Build connections into existing work. Do not tighten anchor bolts set in concrete with impact torque wrenches. Holes must not be cut or enlarged by burning. Bolts, nuts, and washers must be clean of dirt and rust, and lubricated immediately prior to installation.

3.2.1 HIGH-STRENGTH BOLTS

Provide direct tension indicator washers in all ASTM F3125/F3125M, Grade A325 and Grade A490 bolted connections. Bolts must be installed in connection holes and initially brought to a snug tight fit. After the initial tightening procedure, fully tension bolts, progressing from the most rigid part of a connection to the free edges.

Fastener components shall be protected from dirt and moisture in closed containers at the site of the installation. Fastener components that are not incorporated into the work shall be returned to protected storage at the end of the work shift.

3.3 GALVANIZING

a. All steel, ladder stanchions and sections shall be hot dip galvanized after fabrication. Bolts shall be galvanized after threading. Nuts shall be tapped oversize by a diametrical amount sufficient to permit assembly on the galvanized bolt thread and shall be clearance tapped after galvanizing. The minimum weight of coating is 2.0 oz/SF of surface.

b. Repair damage to galvanized coatings using ASTM A780/A780M zinc rich paint for galvanizing damaged by handling, transporting, cutting, welding, or bolting. Do not heat surfaces to which repair paint has been applied.

3.4 WELDING

Steel welding shall be performed by certified welders, as qualified in accordance with AWS D1.1/D1.1M for full penetration groove welding in all positions, using the procedures, materials, and equipment of the type required for the work. All welding shall conform to AWS D1.1/D1.1M. Nickel (2%) in the welding rod in accordance with AWS A5.5/A5.5M shall be used to produce cathodic welds on carbon steel. E70 type of welding rod shall be used.

3.5 FIELD QUALITY CONTROL

Perform field tests, and provide labor, equipment, and incidentals required for testing. Notify the OIPCB Representative in writing of defective welds, bolts, nuts, and washers within 7 working days of the date of the inspection.

3.5.1 WELDS

3.5.1.1 VISUAL INSPECTION

AWS D1.1/D1.1M. Furnish the services of AWS-certified welding inspectors for fabrication and erection inspection and testing and verification inspections. A Certified Welding Inspector must perform visual inspection on 100 percent of all welds. Document this inspection in the Visual Weld Inspection Log. Submit certificates indicating that certified welding inspectors meet the requirements of AWS QC1.

3.5.1.2 NONDECONSTRUCTIVE TESTING

Nondestructive testing must be in accordance with AWS D1.1/D1.1M and AWS D1.8/D1.8M. Ultrasonic testing must be performed in accordance with Table 6.2 of AWS D1.1/D1.1M. Test locations must be selected by the OIPCB Representative. All personnel performing NDT must be certified in accordance with ANSI/ASNT CP-189 in the method of testing being performed. Submit certificates showing compliance with ANSI/ASNT CP-189 for all NDT technicians. If more than 20 percent of welds made by a welder contain defects identified by testing, then all groove welds made by that welder must be tested by ultrasonic testing, and all fillet welds made by that welder must be inspected by magnetic particle testing (MT) or dye penetrant testing (PT) as approved by the OIPCB. When groove welds made by an individual welder are required to be tested, magnetic particle or dye penetrant testing may be used only in areas inaccessible to ultrasonic testing. Retest all repaired areas. Submit weld inspection reports.

-- End of Section --

SECTION 05 50 13

**MISCELLANEOUS METAL FABRICATIONS
05/17**

PART 1 GENERAL

1.1 PROGRAM OVERVIEW

Provide all labor, materials, and equipment needed to fabricate steel hardware to construct the aids listed in Section 01 10 10.00 25 CONTRACTOR'S OPERATIONS AND REQUIREMENTS. Aids require fabrication of the 10 feet x 10 feet platform, the sectional tower assembly, the upper platform, upper lantern stand, and tower ladder.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2020) Structural Welding Code - Steel
AWS D1.2/D1.2M	(2014) Structural Welding Code - Aluminum

ASME INTERNATIONAL (ASME)

ASME B18.2.2	(2022) Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series)

ASTM INTERNATIONAL (ASTM)

ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153/A153M	(2023) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A307	(2021) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM A36/A36M	(2014) Standard Specification for Carbon Structural Steel
ASTM A563	(2021) Standard Specification for Carbon and Alloy Steel Nuts
ASTM F436	(2019) Hardened Steel Washers
ASTM F593	(2017) Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

ASTM F594 (2022) Standard Specification for Stainless Steel Nuts

OREGON OCCUPATIONAL SAFETY AND HAZARD DIVISION (OSHD)

OSHD Oregon OSHD Technical Manual

1.3 QUALIFICATION OF WELDERS

Qualify welders in accordance with AWS D1.1/D1.1M. Use procedures, materials, and equipment of the type required for the work.

1.4 DELIVERY, STORAGE, AND PROTECTION

Protect from corrosion, deformation, and other types of damage. Store items in an enclosed area free from contact with soil and weather. Remove and replace damaged items with new items.

PART 2 PRODUCTS

2.1 MATERIALS

Provide exposed fastenings of compatible materials (avoid contact of dissimilar metals). Coordinate color and finish with the material to which fastenings are applied. Submit the manufacturer's certified mill reports which clearly show the applicable ASTM mechanical and chemical requirements together with the actual test results for the supplied materials.

2.1.1 STRUCTURAL CARBON STEEL (SHAPES, RODS, AND BARS)

Provide in accordance with ASTM A36/A36M.

2.1.2 STEEL PLATE

Provide in accordance with ASTM A36/A36M.

2.1.3 ANCHOR BOLTS

2.1.3.1 BOLTS, NUTS, STUDS AND RIVETS

Provide in accordance with ASME B18.2.2 or ASTM A307.

2.1.3.2 WASHERS

Provide plain washers in accordance with ASTM F436.

2.2 FABRICATION FINISHES

2.2.1 GALVANIZING

Hot-dip galvanized items specified to be zinc-coated, after fabrication where practicable. Provide galvanizing in accordance with ASTM A123/A123M. Bolts, Nuts, Washers and Lock Washers shall be hot dip galvanized in accordance with ASTM A153/A153M. Field treatment in accordance with Section 05 12 00 STRUCTURAL STEEL.

2.3 PIPE PILE PLATFORMS ASSEMBLIES

Complete platform assemblies which consist of the platform, seven foot ladder section, set screws, and lantern stand, all bolted together and ready for installation. Ladders shall be installed in the field. Bolt holes shall be field drilled so that the platform ladder and the pile ladder side rails match up.

2.3.1 ALUMINUM PLATE AND SHAPES

Shall be fabricated from type 6061-T6 aluminum (except aluminum channel for platform ladder-this will be 6063-T52) and welded in accordance with AWS D1.2/D1.2M.

2.3.2 NUTS, BOLTS, WASHERS AND HARDWARE

ASTM F594 and ASTM F593, Type 316 stainless steel.

2.4 SECTIONAL STEEL TOWER (INCLUDING TOP PLATFORM)

Steel shapes, steel plate, rod and bar shall be in accordance with ASTM A36/A36M. Bolts shall be carbon steel and shall be in accordance with ASTM A307. Nuts shall be carbon steel and shall be in accordance with ASTM A563. Galvanizing:

a. Shapes, plates, bars and strip for sectional steel tower shall be hot dip galvanized in accordance with ASTM A123/A123M.

b. Hardware, nuts and bolts shall be hot dip galvanized in accordance with ASTM A153/A153M.

c. Field treatment in accordance with Section 05 12 00 STRUCTURAL STEEL.

2.5 ALUMINUM PLATFORM LADDER AND PLATFORM LADDER SUPPORT BRACKETS

Shall be fabricated from 3" x 1" type 6063-T52 aluminum channel and welded in accordance with AWS D1.2/D1.2M.

2.6 STEEL EXTENSION LADDERS AND EXTENSION LADDER SUPPORT BRACKETS

Shall be in accordance with ASTM A36/A36M. Galvanizing:

a. Hot dip process after fabrication.

b. Field treatment in accordance with Section 05 12 00 STRUCTURAL STEEL.

2.7 SAFETY CLIMBING GEAR

Four (4) cable grab climbing devices will be supplied to the Coast Guard that meet OSHD requirements and are compatible with safety climbing system required above. Cable grab device must be able to be removed with one hand at any point on the lifeline. DBI-SALA, or equal, manufactured cable grab device is acceptable.

PART 3 EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

Install items at locations indicated in accordance with manufacturer's instructions. Verify all field dimensions prior to fabrication. Include materials and parts necessary to complete each assembly, whether indicated or not. Miss-alignment and miss-sizing of holes for fasteners is cause for rejection. Conceal fastenings where practicable. Joints exposed to weather must be watertight.

3.2 WELDING

Use continuous welds on all exposed connections. Grind visible welds smooth in the finished installation. Provide in accordance with the safety requirements of OSHD.

3.2.1 STEEL WELDING

Steel welding shall be performed by welders certified by the State of Oregon as being qualified in accordance with AWS D1.1/D1.1M for full penetration groove welding in all positions, using the procedures, materials, and equipment of the type required for the work. All welding shall conform to AWS D1.1/D1.1M.

3.2.2 ALUMINUM WLEDING

Aluminum welding shall be performed by welders certified by the State of Oregon as being qualified in accordance with AWS D1.2/D1.2M for full penetration groove welding in all positions, using the procedures, materials, and equipment of the type required for the work. All welding shall conform to AWS D1.2/D1.2M.

3.3 CONSTRUCTION FABRICATION

3.3.1 QUALITY OF WORK

Quality of workmanship and finish shall be equal to the best general practice in modern fabricating shops.

3.3.2 FITTINGS

Bolt holes shall be drilled or punched 1/16 inch larger in diameter than the nominal diameter of the bolt unless otherwise noted on the drawings. Burrs on the outside surfaces of drilled holes shall be removed.

3.3.3 PLATFORM

Platforms shall be level and ready to receive the ATON equipment which will be OIPCB furnished.

-- End of Section --

SECTION 31 62 16.16

STEEL PILES
11/11

PART 1 GENERAL

1.1 SUMMARY

This section applies to all work required to install marine piles for ATON structures.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2020) Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM A252	(2019) Standard Specification for Welded and Seamless Steel Pipe Piles
ASTM A53/A53M	(2018) Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless

1.3 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Pile placement; O

SD-03 Product Data

Pile driving equipment; O

Submit descriptions of pile driving equipment at least 30 days prior to commencement of work.

Pile driving records; O

Submit the proposed form for compiling pile driving records 30 days prior to commencement of work.

Delivery, storage, and handling;

Submit delivery, storage, and handling plans for piles at least 30 days prior to delivery of piles to the job site.

Pile tests; O

Submit pile load test plan at least 30 days prior to installing any test piles. Approval of the plan shall not relieve the Contractor of the responsibility for structural and operational adequacies of the testing system.

SD-04 Samples

Test piles; O

SD-06 Test Reports

Pile driving tests; O

Submit pile driving test data within one (1) week after each test is completed.

SD-11 Closeout Submittals

Pile driving records.

Submit complete and accurate job pile driving records as specified in paragraph entitled "Pile Driving Records" of this section, within 15 calendar days after completion of driving.

1.4 DELIVERY, STORAGE, AND HANDLING

Conform all delivery, storage, and handling of materials to the requirements specified herein. Develop and submit plans for the delivery, storage, and handling of piles.

1.4.1 DELIVERY AND STORAGE

Stack piles during delivery and storage so that each pile is maintained in a straight position and is supported every 10 feet or less along its length (ends inclusive) to prevent exceeding the maximum camber or sweep. Do not stack piles more than 5 feet high.

1.4.2 HANDLING

Lift piles using a cradle or multiple pick-up points to ensure that the maximum permissible camber or sweep is not exceeded due to insufficient support, except that a one-point pick-up may be used for lifting piles that are not extremely long into the driving leads. Point pick-up devices must be of the type that clamp to both pile flanges at each pick-up point. Holes may be burned in the flanges or webs of piles above the cutoff length for lifting piles into the leads. Do not drag piles across the ground.

Inspect piles for excessive camber and sweep and for damage before transporting them from the storage area to the driving area and immediately prior to placement in the driving leads. Camber, curvature in the pile in the direction normal to the pile flanges, must be measured with the pile flange base laying on a flat surface and is the distance between the flange

base at the mid-length of the pile and the flat surface. Sweep, curvature in the pile in the direction parallel to the pile flanges, must be measured with the pile flange tips laying on a flat surface and is the distance between the flange tips at the mid-length of the pile and the flat surface. The maximum permissible camber and sweep is 2 inches over the length of the pile. Piles having excessive camber or sweep will be rejected.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 PIPE PILES

Eighteen inch outside diameter, three-eighths inch wall thickness, straight or spiral seam or seamless welded pipe in approximately forty-foot lengths conforming to ASTM A252 Grade 2 or 3, or ASTM A53/A53M Grade B, with factory beveled ends. Provide test piles identical to those used elsewhere in the project.

2.1.2 STEEL WELDING

Steel welding shall be performed by welders certified by the state in which the ATON construction is taking place. Welders shall be qualified in accordance with AWS D1.1/D1.1M for full penetration groove welding in all positions, using the procedures, materials, and equipment of the type required for the work. All welding shall conform to AWS D1.1/D1.1M.

PART 3 EXECUTION

3.1 PILE DRIVING EQUIPMENT

Select the proposed pile driving equipment, including hammers and other required items, and submit complete descriptions of the proposed equipment in accordance with paragraph "Submittals." Final approval of the proposed equipment is subject to the satisfactory completion and approval of pile tests. Changes in the selected pile driving equipment will not be allowed after the equipment has been approved except as directed. No additional contract time will be allowed for Contractor proposed changes in the equipment.

3.1.1 PILE DRIVING HAMMERS

Provide vibratory type pile driving hammers.

3.1.1.1 VIBRATORY HAMMERS

All piles shall be driven using vibratory equipment. Final approval of the proposed hammer and other driving equipment is subject to the satisfactory completion and approval of the pile tests. The size or capacity of hammers must be as recommended by the hammer manufacturer for the total pile weight and the character of the soil formation to be penetrated. The hammer must provide for maintaining a rigid connection between the hammer and the pile. In accordance with paragraph "Submittals," submit the following information for each vibratory hammer proposed:

a. Make and model.

b. Eccentric moment (inch-pounds).

c. Dynamic force (tons).

d. Steady state frequency or frequency range (cycles per minute).

e. Vibrating weight (pounds).

f. Amplitude (inches).

g. Maximum pull capacity (tons).

h. Non-vibrating weight (pounds).

i. Power pack description.

A silt curtain shall be used when driving piles.

3.2 INSTALLATION

Inspect piles when delivered and when in the leads immediately before driving according to the requirements of Paragraph 2.1.1, Pipe Piles. Handle piles so as to protect pile coatings. Repair damage or defects in pile coatings as specified. Cut piles at cutoff grade by an approved method. Where cutoff is below existing ground or mudline elevation, complete excavation, sheeting, and dewatering before driving pile to cutoff elevation.

3.2.1 LENGTHS OF JOB PILES

Drive piles to the penetration depth specified in the Plans. Provide the specified length of pile above the datum as specified in the Plans. If there is any question to what height the piles shall be driven, contact the OIPCB Representative immediately. When a question arises with any aspect of installation, the contractor shall seek technical assistance from the OIPCB Representative. Determine and use the appropriate procedure required by the subsurface conditions and nature of the bottom at the site.

3.2.2 PILE DRIVING RECORDS

Develop a form for compiling pile driving records, which must be approved, for recording pile driving data.

Compile and submit accurate records of the pile driving operations on the approved form in accordance with paragraph "Submittals." Include in driving records for each pile date driven, pile identification number, cross section shape and pile dimensions, location, deviations from design location, original length, ground elevation, top elevation, tip elevation, description of hammer used, total driving time in minutes and seconds, and any other pertinent information as required or requested such as unusual driving conditions, interruptions or delays during driving, damage to pile resulting from driving, heave in adjacent piles, redriving, weaving, obstructions, jetting, predrilling, and depth and description of voids formed adjacent to the pile.

Additional data required to be recorded for vibratory hammers includes hammer power pack description, make, size, horsepower applied to pile, and hammer operating frequency.

3.2.3 PILE PLACEMENT AND TOLERANCES IN DRIVING

Develop and submit a pile placement plan which shows the installation sequence and the methods proposed for controlling the location and alignment of piles. Accurately place piles in the correct location and alignments, both laterally and longitudinally, and to the vertical lines indicated. Establish a permanent base line to provide for inspection of pile placement by the OIPCB Representative during pile driving operations prior to driving job piles and maintain during the installation of the job piles.

A final lateral deviation from the correct location at the cutoff elevation of not more than 4 inches will be permitted for vertical piles. A variation of not more than 0.25 inch per foot of pile length from the vertical for vertical piles nor more than 0.50 inch per foot of pile length from the required angle for batter piles will be permitted. A final variation in rotation of the pile about the center line of the web of not more than 7.5 degrees is permitted. Inspect piles for heave. Redrive heaved piles to the required tip elevation. Maintain the correct relative position of all piles by the use of templates or by other approved means. Piles damaged or not located properly or exceeding the maximum limits for rotation, lateral and vertical deviation, variation in alignment must be pulled and new piles re-driven, or provide additional piles, at a location directed at no additional cost to OIPCB.

3.2.3.1 SURVEY DATA

After the driving of each pile group is complete and before superimposed concrete is placed, provide the OIPCB Representative with an as-driven survey showing actual location and top elevation of each pile. Do not proceed with ATON construction until the OIPCB Representative has reviewed the survey and verified the safe load for the pile group driven. Present a survey in such form that it gives deviation from plan location in two perpendicular directions and elevations of each pile to nearest half inch. Survey must be prepared and certified by a licensed land surveyor.

3.2.4 PILE PENETRATION CRITERIA

The penetration shall be within 5 feet of the specified penetration depth. If the penetration obtained is not within 5 feet of the specified penetration depth, notify the OIPCB Representative of the failure to obtain full penetration upon completion of the structure. The required depth of penetration will be confirmed subsequent to the analysis of pile tests as specified in paragraph "Pile Tests."

3.2.5 PILE DRIVING

Notify the OIPCB Representative 30 days prior to the date pile driving is to begin. Do not drive piles within 100 feet of concrete less than 7 days old. Drive job and test piles with hammers of the same model and manufacturer, same energy and efficiency, and using the same driving system. Operate hammers at all times at the speed and under the conditions recommended by the manufacturer. Prior to driving and with the pile head seated in the hammer, check each pile to ensure that it has been aligned correctly and

that the orientation of the web about the centerline is as shown. Once pile driving has begun, keep conditions such as alignment constant. Drive each pile continuously and without interruption until the required depth of penetration has been attained. Deviation from this procedure will be permitted only when driving is stopped by causes that reasonably could not have been anticipated. A pile that cannot be driven to the required depth because of an obstruction, must be pulled and re-driven or cut off and abandoned, whichever is directed. After piles are driven, cutoff square as required at the indicated cutoff elevation. Backfill any voids around piles or abandoned holes for pulled piles with sand and compact to the same density as the surrounding soil. If, in driving, it is found that pile is not of sufficient length to give the capacity specified, notify the OIPCB Representative, who will determine the procedure to be followed.

3.3 PILE TESTS

Pile Tests - Perform pile driving tests as specified and as shown. The OIPCB Representative will confirm the correlation between pile length and pile capacity during the pile driving tests for the selected pile driving system.

Based on the correlations developed, the OIPCB Representative will determine the pile length for the job piles. Changes in the approved pile driving system during or after completion of tests will not be allowed unless additional tests are performed as directed to establish the correlation between driving resistance and pile capacity for the proposed changed system. For changes in the approved pile driving system proposed by the Contractor, perform required additional pile driving tests at the Contractor's expense. No additional contract time will be allowed.

Approval of the plan does not relieve the Contractor of the responsibility for structural and operational adequacies of the testing system.

3.3.1 TEST PILES

Provide 2 test piles of the same size and type as specified for job piles. Furnish test piles 5 feet longer than length specified for job piles and drive the additional depth, if directed. Provide test piles of the indicated lengths and place at the indicated locations. Drive test piles with the same equipment specified in paragraph "Pile Driving Equipment" and in the same manner specified in paragraph "Pile Driving" for job piles. Record the driving record data for each test pile driven as specified in paragraph "Pile Driving Records." If approved after test completion, include properly located test piles in the finished work.

3.3.2 PILE DRIVING TESTS

Perform 2 pile driving tests. The OIPCB Representative will be present during each pile driving test. Complete all pile driving tests without interruption. Any pile driving test not accomplished in accordance with this specification must be redone at no additional cost to the OIPCB.

-- End of Section --

SECTION 35 20 23

DREDGING
04/06

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

STATE OF OREGON, OREGON ADMINISTRATIVE RULES (OARs)

OAR 125 249 0910 Department of Administrative Services, changes to the work and Contract Amendments

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-1-1000 (2015) Photogrammetric and LiDAR Mapping

EM 1110-1-1002 (2012) Survey Markers and Monumentations

EM 1110-1-1003 (2011) NAVSTAR Global Positioning System Surveying

EM 1110-1-1005 (2007) Control and Topographic Surveying

EM 1110-2-1003 (2013) Hydrographic Surveying

EM 1110-1-2909 (2012) Geospatial Data and Systems

UNITED STATES COAST GUARD

33 CFR 88.15 (2014) Inland Navigation Rules

1.2 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Dredge and Disposal Plan; O

Hydrographic Surveyor Firm; O

Relocation of Navigation Aids

SD-04 Samples

Field Calibration Records

SD-07 Certificates
Protection Plan; O
Scow Certification Checklist Form

SD-09 Reports

Ocean Disposal Verification Spreadsheet (Reference Paragraph "Verification Spreadsheet")

Nearshore Placement Records

1.3 MATERIAL TO BE REMOVED

The material to be removed is a combination of sediment and rock. The material varies from sand deposits to varying types of rock.

It is the responsibility of the bidders to analyze the associated geotechnical information (ATTACHMENTS) to determine for themselves the character and dredgeability of the materials, the volumes of different types of materials, and the difficulties of performing the work. The Contractor is responsible for properly preparing their equipment to deal with the existing geologic conditions at the project site.

Drilling and Blasting is prohibited on this contract.

1.3.1 SEDIMENT

Sediment is defined as material that consists of unconsolidated silty sand and muds, as well as sand deposits.

1.3.2 ROCK

Rock underlies portions of the Coos Bay Channel. Geotechnical borings have identified sandstone and siltstone formations.

This contract includes the removal of various types of rock.

1.4 ARTIFICIAL OBSTRUCTIONS

Bidders should expect to encounter some debris during dredging operations such as, but not limited to, logs, trees, wood debris, misplaced riprap, misplaced stone, chains, buoy anchors, miscellaneous trash, and other natural or artificial obstructions.
Debris removed from the dredged area shall be removed from the water. Disposal shall be the responsibility of the Contractor and disposal shall be to a licensed landfill or other licensed facility. In case the actual conditions differ from those stated or shown, or both, an adjustment in contract price or time of completion, or both, will be made in accordance with OAR 125 249 0910 Changes to the Work and Contract Amendments.

1.5 QUANTITY OF MATERIAL

The total estimated amount of material to be removed from within the specified limits, including side slopes, and overdepths, is shown in the BIDDING SCHEDULE.

1.6 OVERDEPTH DREDGING

To cover unavoidable inaccuracies of dredging processes, material actually removed to a depth of 1 foot below the depth specified and within the dredging limits will be measured and paid for at full contract price. This paid overdepth is shown on the plans for this contract.

This contract provides an additional 1 foot non-paid overdepth below the paid overdepth limits. This non-paid overdepth is shown on the plans for this contract.

1.7 SIDE SLOPES

Dredging of side slopes is required. Material actually removed from the required side slope section shown on the contract drawing will be computed and paid for at the dredging unit cost per cubic yard for that acceptance sections. For the purpose of dredging, the side slopes constitute a design criteria. Side slopes may fall falter than those shown on the contract drawings. However, no payment will be made for material removed outside these specified lines. Side slopes shall be excavated beginning at the top of the slope in bench cuts no thicker than four (4) feet lifts. Contractor shall not undercut slopes at the toe without first removing the upper slope material. Should the slopes in areas where infrastructure is within fifty (50) feet of infrastructure, such as pipelines, revetments, seawalls, etc. that could experience slope failure, the Contractor shall cease operations until procedures have been developed (such as shallower cuts) to relieve the slope instability.

1.8 EXCESSIVE DREDGING

Materials dredged from below the depth limit or beyond the dredge limits, which result in extra costs is the responsibility of the Contractor. The OIPCB Representative may halt performance at no cost to the OIPCB when progress surveys reveal repeated, continuous, or intentional dredging below the allowable overdepth or beyond the dredge limits. Upon submittal of a corrective action plan acceptable to the OIPCB Representative, the work will be permitted to resume.

Material that sloughs from side slopes shall not be considered excessive dredging. This material shall be treated in accordance with the provision of the paragraph SHOALING.

1.9 PERMIT

The Contractor shall comply with conditions and requirements of the Corps of Engineers Permit and other State or Federal Permits. The OIPCB will secure the permit for dredging and disposal of material as indicated.

1.10 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain during the life of the contract, environmental protective measures. Also, provide environmental protective measures

required to correct conditions, such as oil spills or debris, that occur during the dredging operations. Comply with Federal, State, and local regulations pertaining to water, air, and noise pollution.

All dredging shall be performed in accordance with Specification 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS AND PERMITS.

1.11 BASIS FOR BIDS

For unit price bid, see paragraph entitled "Basis of Bids, Measurement, and Payment" in Section 01 20 00.00 20 PRICE AND PAYMENT PROCEDURES.

Payment will be at the contract unit price per cubic yard, multiplied by total cubic yards of acceptable dredging. Include a bid unit price per cubic yard of dredging based on the quantity. If the OIPCB requires an increase or a decrease in total volume of dredging, the contract price will be adjusted in accordance with the OAR 125 249 0910. Dredging conditions specified and indicated describe conditions which are known. However, the Contractor is responsible for other conditions encountered which are not unusual when compared to conditions recognized in the dredging business as usual in dredging activities such as those required under this contract.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 DREDGING AND DISPOSAL PLAN

The Contractor shall submit a Dredge and Disposal Plan indicating the methods and equipment proposed to be used to dredge, position and dispose. The plan shall be submitted to OIPCB for approval at least 14 days prior to the start of dredging operations and shall also include as a minimum, the following information:

a. Method of dredging and disposal, and name of dredge

b. Order of dredging operations and layout of dredging and placement areas, and anticipated time progress of dredging on a weekly basis. At a minimum, the sequencing shall include:

(1) When pre-and post-dredge surveys are performed.

(2) When reaches are dredged, including sand removal over rock and rock dredging.

(3) Maintenance dredging in years 2 and 3.

c. Method for capturing any debris. For scows when loading with a mechanical dredge, indicate grate size and configuration.

d. Method and equipment for transporting and placing material at the placement site.

e. A copy of the Daily Report Form to be used for dredging operations.

f. Lighting plan for night work.

g. Layout of dredge, including: dimensions, location of engines, fuel storage, electrical/transformer rooms, description of engine types, and horsepower ratings, types and size of generating equipment, fuel storage capacity, and vertical clearance. A copy of this information shall be provided to the local firefighting agency.

h. Layout of pipelines, buoys, anchors, and ancillary equipment.

i. Scow dimensions, capacities, load levels, names of scows and acceptable operating sea conditions.

j. Scow certification checklist form.

k. Operational weather and sea state conditions that do not interfere with safe transportation and will not create risk for spillage, leak, or other loss of dredged material during transit to and disposal at:

(1) the North Spit Littoral Site.

(2) ODMDS L. Disposal sites are identified in plans.

l. Volume to be placed in each cell within the disposal sites.

3.1.1 DISPOSAL OF DREDGED MATERIAL

3.1.1.1 GENERAL

Provide safe transportation and disposal of dredged materials. Dredged material shall be transported and deposited within the disposal limits indicated on the drawings. Any dredged material that is deposited other than in the areas indicated on the drawings, or as approved by the OIPCB Representative, will not be included in the measurement, and the Contractor may be required to remove such misplaced material and deposit it where directed at their own expense. Debris and other unsuitable materials encountered shall become the property of the Contractor and shall be removed from the site at their own expense. Remove debris and other unsuitable materials encountered in accordance with SECTION 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS AND PERMITS.

a. Disposal Operations

Disposal plans shall divide the placement areas into cells no greater than 500 feet by 500 feet. Placement shall distribute material evenly throughout all cells within the placement sites.

Place the dredge material in the North Spit Littoral Site when weather and sea conditions permit, as defined in Subsection 3.1(k). No disposal vessel trips shall be initiated when the National Weather Service has issued a gale warning for local waters during the time period necessary to complete dumping operations.

b. Disposal Tracking

The Contractor shall obtain, operate, and maintain a primary disposal tracking system for recording ocean disposal operations data that is disposal vessel (e.g., hopper or scow) based. An appropriate Global Positioning System (GPS) shall be used to indicate the position of the disposal vessel with a minimum accuracy of 10 feet during all transportation and disposal operations in accordance with EM 1110-1-1003. This primary disposal tracking system shall indicate and automatically record both the position and the draft of the disposal vessel at a maximum 1-minute interval while outside the disposal site boundary, and at a maximum of 15-second interval while inside the disposal site boundary. This primary system shall also indicate and record the time and location of each disposal event (e.g., the opening and closing of the hull doors of the disposal vessel). Finally, the primary system shall include a real-time display, in the wheelhouse or otherwise for the helmsman, of the position of the disposal vessel relative to the boundaries of the Disposal Site and its SDZ, superimposed on the appropriate NOS chart, so that the operator can confirm proper position within the disposal area before discharging the dredged material.

The Contractor shall complete an EPA and U.S. Army Corps of Engineers (USACE) approved Scow Certification Checklist Form that documents: the amount of material dredged and loaded into each barge for disposal; the location from which the material in each barge was dredged; the weather report for and sea-state conditions anticipated during the transit period; the time that each vessel departs for, arrives at and returns from the disposal site; the exact coordinates and time of each disposal; and the volume of material disposed at the disposal site during each disposal trip. The contractor's proposed Scow Certification Checklist must be approved and submitted to the OIPCB Representative prior to the commencement of any ocean disposal operations.

The Contractor shall provide timely initial notification of any potential or actual violation of the above requirements to the OIPCB Representative to enable the OIPCB Representative to provide notification to the U.S. Army Corps of Engineers and the EPA Regional Administrator within 24 hours of Contractor discovery of such a situation. Timely identification and reporting of potential problems can be facilitated by use of a near real-time web-based tracking and monitoring system. However, whether or not such a system is used, it is the Contractor's responsibility to initially report any apparent problems immediately to enable the OIPCB Representative to make the necessary notifications within 24 hours of Contractor discovery of a potential or actual violation.

The Contractor shall collect and submit to the OIPCB Representative, for each ocean disposal trip, both automatically recorded electronic data and printouts from the primary disposal tracking system showing transit routes, disposal vessel draft readings, disposal coordinates, and the time and position of the disposal vessel when dumping was commenced and completed. These daily records shall be compiled, and provided in Ocean Disposal Reports to the OIPCB Representative at a minimum for each month during which ocean disposal operations occur. These reports shall include the automatically recorded electronic navigation tracking and disposal vessel draft data on CD-ROM or other approved media, as well as hard copy reproductions of the Scow Certification Checklists and printouts indicated above. The reports shall also include a cover letter describing any problems complying with the ocean disposal requirements, the cause(s) of the problem(s), any steps taken to rectify the problem(s), and whether the

problem(s) occurred on subsequent disposal trips. The scow certification checklist form will document:

1. Project Name (Coos Bay Channel Modification Project).
2. Contract Number.
3. Ocean Disposal Trip Number.
4. Disposal site used.
5. Departure & Return Date to Disposal Site.
6. Departure & Return Time to Disposal Site.
7. Departure Location.
8. Scow Name.
9. Scow Bin Capacity.
10. Tug Name.
11. Tug Captain's Name.
12. Dredged Material Source (by Station).
13. Bin Cubic Yards Hauled.
14. Loaded Scow Fore Draft Avg./Aft Draft Avg.
15. Loaded Average Draft.
16. A-B Line (not to be exceeded).
17. Bin Freeboard of Material and/or Water Surface.
18. NWS Coastal Marine Forecast (wind and swell in formation to 60 nm, note reporting area and appropriate forecast period).
19. Scow Tracking System Functioning.
20. Helmsman Display Functioning on Tug.
21. GPS Functioning on Tug.
22. The decision to proceed to the ocean disposal site, based upon all available data including that recorded on this form, is also subject to the professional judgment of the tug captain as to the safety of the crew and vessel. Include signatures by the Contractor, Independent Inspector and Tug Captain. Notate communication with USCG.
23. Dump Information: Date/Time of Dump, Duration of Dump, Scow Latitude and Longitude, Tug Latitude and Longitude.

3.1.1.2 VERIFICATION SPREADSHEET

The Contractor shall maintain an electronic Ocean Disposal Verification Spreadsheet data record of ALL ocean dumping project information. The spreadsheet shall be prepared in a form readily exportable to Microsoft Excel 2013.

This spreadsheet shall be updated and submitted weekly in digital (electronic file) format to the OIPCB Representative or more frequently as requested by the OIPCB Representative.

The form spreadsheet shall contain at a minimum:

* Placement number,
* Date,
* Time at the commencement and completion of dredging, recorded to the nearest minute,
* Time at the commencement and completion of placement, recorded to the nearest minute,
* Depth of water in which placement is made (feet),
* Placement cell(s) into which the load was deposited,
* Quantity of placement (cubic yards) into each placement cell,

* Cumulative quantity in each placement cell,
* Area from which the load was dredged (by station),
* Sea conditions (wave height, period, and direction) during placement,
* Wind conditions (wind speed and direction) during placement,
* Annotate reasons for break in dredging operations.

The spreadsheet shall be emailed to the OIPCB Representative daily with cc: XXX.

3.1.1.3 NORTH SPIT LITTORAL SITE DISPOSAL

Place the dredge material identified for nearshore placement in the designated nearshore placement area. Deposit the dredge material in such a manner so as to create a berm approximately parallel to the shoreline. Locate the mound approximately between the contours as indicated. Conduct placement in the nearshore area only when operational technique, under keel clearance or equipment considerations permit safe operations.

Record Nearshore Placement Records in spreadsheet form and submit on a daily basis when nearshore placement occurs. List the following information:
* Placement number,
* Date,
* Time at the commencement and completion of placement, recorded to the nearest minute,
* Depth of water in which placement is made (feet),
* Easting and northing of placement,
* Quantity of placement (cubic yards),
* Cumulative quantity,
* Area from which the load was dredged (i.e. River Mile),
* Annotate reasons for break in dredging operations Placement of material in the North Spit Littoral Site should adhere to thin layer placement. This means that the average depth of placement in each cell should not exceed two (2) feet.

No more than one disposal vessel may be present within the North Spit Littoral Site at any time.

3.2 INSPECTION

Inspect the work, keep records of work performed, and ensure that gages, targets, ranges, and other markers are in place and usable for the intended purpose. Furnish, at the request of the OIPCB Representative, boats, boatmen, laborers, and materials necessary for inspecting, supervising, and surveying the work. When required, provide transportation for the OIPCB Representative and inspectors to and from the disposal area and between the dredging plant and adjacent points on shore.

3.3 CONDUCT OF DREDGING WORK

3.3.1 ORDER OF WORK

The Contractor must complete dredging of all material, as defined in the contract drawings. The OIPCB Representative may alter the order of work, and if necessary, may direct the Contractor to move at no additional cost to OIPCB. Dredging order shall be listed in a work plan for performing the work to be submitted by the Contractor. The plan shall include a schedule, equipment list and description, and description of how the work is to be

accomplished. The work plan shall be submitted for OIPCB acceptance a minimum of 14 days before any construction is to be performed.

The order of work shall include the following restrictions:

1. Installation of the rock apron is required prior to dredging at any station for which rock apron construction shall occur.

2. The Contractor shall dredge the portion of the channel downstream of RM 1.0 to required grade prior to TBD.

3. Dredging above RM 7.0 shall not occur during recreational salmon fishing season (August 15 through November 15).

Dredging areas can be assigned based on Project Channel stationing.

3.3.2 INTERFERENCE WITH NAVIGATION

Minimize interference with the use of channels and passages. The OIPCB Representative will direct the shifting or moving of dredges or the interruption of dredging operations to accommodate the movement of vessels and floating equipment, if necessary.

3.3.2.1 COMPENSATION FOR INTERUPTION OF OPERATIONS

If dredging operations are interrupted due to the movement of vessels or floating equipment other than normal berthing operations, an adjustment in the contract price or time for completion, or both, will be made as provided by the contract. The OIPCB Representative will notify the Contractor 7 days prior to ship movements that will affect dredging operations. Interruption of dredge work due to passing of vessels during berthing operations will not be a basis for additional compensation.

3.3.3 LIGHTS

Each night, between sunset and sunrise and during periods of restricted visibility, provide lights for floating plants, pipelines, ranges, and markers. Also, provide lights for buoys that could endanger or obstruct navigation. When night work is in progress, maintain lights from sunset to sunrise for the observation of dredging operations. Lighting shall conform to United States Coast Guard requirements for visibility and color.

3.3.4 RANGES, GAGES AND LINES

Furnish, set, and maintain ranges, buoys, and markers needed to define the work.

3.3.5 PLANT

Maintain the plant, scows, coamings, barges, pipelines, and associated equipment to meet the requirements of the work. Promptly repair leaks or breaks along pipelines. Remove dredged material placed due to leaks and breaks. The plant shall be subject to inspection by the OIPCB, U.S. Army Corps of Engineers, and the U.S. Coast Guard at all times. The plant list is the minimum which the Contractor agrees to place and maintain on the job unless otherwise determined by the OIPCB, and it’s listing thereon is not to

be construed as an agreement on the part of OIPCB that it is adequate for the performance of the work.

3.3.5.1 EQUIPMENT AND MACHINERY

A complete listing of all dredging plant and machinery to be used in the work, including booster pumps, barges, skiffs, and other related equipment, shall be submitted with the Dredge and Disposal Plan prior to beginning work. The plant list shall include manufacturer and year of manufacture, operational capacities, safety features, operating and licensing requirements for operators, and a description of where and how the item of equipment or plant is to be employed in the work.

3.3.5.2 CAPACITY OF PLANT

No reduction in the capacity of the plant employed on the work shall be made except by written permission of the OIPCB Representative. The measure of the "capacity of the plant" shall be its actual performance on the work to which these specifications apply.

3.3.5.3 WALKWAYS AND GUARDRAILS

All floating plant and pipelines used as access ways or working platforms shall be equipped with walkways and guardrails conforming to OAR 125 249 0910 and meet OSHD requirements for worker safety.

3.3.5.4 SIGNAL LIGHTS

The Contractor shall display signal lights and conduct their operations in accordance with the General Regulations of the Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65 feet in length moored or anchored in a fairway or channel, and the passing by of other vessels of floating plant working in navigable channels, as set forth in Commandant U.S. Coast Guard Instruction M16672.2, Navigation Rules: International-Inland (COMDTINST M16672.2), or 33 CFR 81 Appendix A (International) and 33 CFR 84 through 33 CFR 89 (Inland) as applicable.

3.3.5.5 COMMUNICATIONS

The Contractor will be required to furnish, maintain, and operate one FM narrow-band radio transmitter-receiver with a capacity of not less than (1) watt, equipped for operating on maritime channels 13 and/or 16 at 156.65 Hz. This frequency shall be used for communications with passing vessels, harbor pilots, and bridge operators and has been approved by the Federal Communications Commission for this purpose. It is not required that this frequency be disabled after termination of the contract. Contractor will be required to maintain a Contractor owned cellular phone for communication with OIPCB personnel.

3.3.5.6 AUTOMATIC IDENTIFICATION SYSTEM

The Contractor is required to have the Automatic Identification System (AIS). The Contractor shall have AIS transponders on all floating plants at

all times when working in Coos Bay Ship Channel. The AIS provides a means for ships to electronically exchange ship data including: identification, position, course, and speed with other nearby ships and VTS stations. AIS is intended to assist the vessel's watch standing officers and allow maritime authorities to track and monitor vessel movements.

3.3.5.7 PIPELINES

The Contractor will be responsible to ensure that all pipelines are properly maintained during this contract. All pipelines for hydraulic machines must be kept in good condition at all times and any leaks or breaks along their length must be promptly and properly repaired. Dredge pipelines that are floating, to include rubber discharge hoses, or supported shall display lights at night and in periods of restricted visibility in accordance with U.S. coast Guard regulations (the Contractor is responsible for obtaining the local U.S. Coast Guard regulations) and 33 CFR 88.15.

3.3.5.7.1 SUBMERGED PIPELINES

If a leak occurs in the discharge pipeline, immediately discontinue using the line until leaks are repaired. Remove material placed due to leaks or breaks.

3.3.5.8 PLANT REMOVAL

Upon completion of the work, the Contractor shall promptly remove all plant, including all pipelines, buoys, piles, and other markers or obstructions.

3.3.6 NAVIGATIONAL AIDS

The USCG requires notification sixty days in advance to remove or relocate any navigation aids to facilitate dredging operations. Due to time constraints OIPCB will notify the USCG in advance of an estimated time and location that dredging operations will be accomplished. However, after award and prior to commencement of dredging it is the responsibility of the Contractor to coordinate with the USCG for the actual removal or relocation of any navigation aids within or near the areas to be dredged. The Contractor will also notify the OIPCB Representative in advance of the time and location of the aids that will require relocation. The Contractor shall coordinate the removal or relocation of navigation aids with the following:

Additional information to be added for final design.

3.3.6.1 TEMPORARY RELOCATION OF NAVIGATION AIDS FOR DREDGING

Any dredging activity within 50 feet of existing buoy anchors requires that the buoy be temporarily removed while dredging occurs. Removal of buoys shall occur within 24 hours prior to dredging adjacent to the buoy. Buoys shall be replaced in the same location within 24 hours after completion of dredging within 50 feet of the buoy. All buoy movements require coordination with the U.S.Coast Guard.

3.3.6.2 AIDS TO NAVIGATION WITHIN THE DREDGING AREAS

The Contractor shall be responsible for any damage to aids to navigation within the dredging areas or areas adjacent to caused by their operations.

Contractor shall photographically document ATON conditions prior to the start of work and prior to removal.

3.3.6.3 FINAL RELOCATION OF NAVIGATION AIDS

Final relocation of aids shall not occur until channel dredging of each reach is complete and accepted.

3.3.7 NAVIGATION WARNINGS

Furnish and maintain navigation warning signs along the pipeline. Coordinate with local Coast Guard command and issue Local Notice to Mariners in accordance with Coast Guard regulations.

3.3.8 MISPLACED MATERIAL

Any material that is deposited or allowed to flow elsewhere than in places designated or approved by the OIPCB Representative will be considered as misplaced material and will not be paid for.

3.3.8.1 DREDGED MATERIAL

Should the Contractor deposit any material outside the designated disposal areas approved by the OIPCB Representative, the Contractor shall give immediate notification of the location of the misplaced material and when required, mark or buoy this location. If in the opinion of the OIPCB Representative this misplaced material will in any way be a hazard to navigation and requires removal, the Contractor shall be required to remove the misplaced material immediately and deposit said material in an area designated by the OIPCB Representative at no additional cost to OIPCB.

3.3.8.2 EQUIPMENT

Should the Contractor, during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, plant, machinery, or appliance, which in the opinion of the OIPCB Representative may be dangerous to or obstruct navigation, the Contractor shall recover and remove the same within the timeframe directed by the OIPCB Representative. The Contractor shall give immediate notice, with description and location of such obstructions, to the OIPCB Representative or Quality Assurance Representative, and when required shall mark or buoy such obstructions, until the same are removed. Should they refuse, neglect, or delay compliance with the above requirements, such obstructions may be removed by the OIPCB Representative, and the cost of such removal may be deducted from any money due or to become due the Contractor or may be recovered under their bond. The liability of the Contractor for the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Sections 15,19, and 20 of the River and Harbor Act of March 3, 1899 (33 U.S. C. 410 et seq.).

3.3.9 SALVAGED MATERIAL

Anchors, chains, firearms, and other articles of value, which are brought to the surface during dredging operations, shall remain or become the property of the OIPCB and shall be deposited on shore at a convenient location near the site of the work, as directed.

3.3.10 SAFETY OF STRUCTURES

The prosecution of work shall ensure the stability of piers, bulkheads, and other structures lying on or adjacent to the site of the work, insofar as structures may be jeopardized by dredging operations. Repair damage resulting from dredging operations, insofar as such damage may be caused by variation in locations or depth of dredging, or both, from that indicated or permitted under the contract.

3.4 CONTRACTOR SURVEYS

3.4.1 SURVEY FIRM

All surveys must be performed by a Survey Firm, independent of the Contractor. The firm must have a minimum of 3 years of qualifying experience in hydrographic surveying of navigable channels and a current Oregon Land Surveyor's license.

Submit documentation for:

a. Modern, electronic surveying equipment and processing software to be used for all surveys. Documentation must include: name, model, and year of manufacture of the electronic equipment and software.

b. Credentials and qualifications verifying qualified, experienced staff are available and will be used for the operation of the electronic positioning and surveying equipment and processing software. Include records of training.

3.4.2 SURVEY CONTROL AND DATUM

Perform all surveys using the control network as provided in project plans. The network uses coordinates and units as described in the plans. All survey and mapping deliverables must be delivered in the datum, projection and units of the control provided. Replace or relocate any survey control which is displaced or damaged during construction, based on the original and primary survey control points.

3.4.3 SURVEY STANDARDS

Perform all surveys and prepare final digital survey material in accordance with the applicable criteria and standards publications and manuals. The following technical references (or most recent version) are available online at https://www.publications.usace.army.mil/ unless listed otherwise:

a) EM 1110-1-1000, "Photogrammetric and LiDAR Mapping"
b) EM 1110-1-1002, "Survey Markers and Monumentations"
c) EM 1110-1-1003, "Navstar Global Positioning System Surveying"
d) EM 1110-1-1005, "Control and Topographic Surveying"
e) EM 1110-1-2909, "Geospatial Data and Systems"
f) EM 1110-2-1003, "Hydrographic Surveying"

3.4.4 SURVEY POSITIONING SYSTEM

Perform surveys using proven, modern electronic surveying equipment such as RTK GPS, automated Total Station or similar systems with positional accuracy

equal to or exceeding the requirements of EM 1110-1-1003 and EM 1110-1-1005. Do not use antiquated equipment and emerging technology unless approved.

3.4.5 FIELD CALIBRATIONS

Perform field calibration to known benchmarks as specified on CONTRACT DRAWINGS prior to each survey. Calibration shall show the level of accuracy as required in Sections 3.6.2.2 and 3.6.2.3. Submit Field Calibration Records conforming to the description in Section 3.5.6(3) below.

3.4.6 SUBMITTALS

Use a Data Processing System to process the survey data. Processed survey data must then be imported into the Data Processing System where the data is compared to design templates and tolerances are measured. The software must be capable of digital terrain modeling and will produce, at a minimum, topographic survey sheets, cross section profiles, and 3-dimensional area profiles.

Each survey submittal must consist of one set of the applicable files on electronic media:

1) ACAD file with contours generated from the DTM. All ACAD files must include the proper Geographic Coordinate System and working units settings. Each digital file must immediately reference to another, in its proper orientation (if there is more than one file). CAD files must use symbology in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.0.

2) A Civil 3D GeoPack TIN file.

3) ASCII mass point's file with a data header. The header lines must be preceded by an asterisk (*), which indicates a comment line. All CD's, DVD's, hard drives, data files (i.e. points file) and drawings (i.e. DGN files) will be labeled with a header or title block showing, at a minimum, the following project information:

* Project Name (i.e. Coos Bay, OR Navigation Channel Modification)
* Date of Survey (DD-MMM-YYYY)
* Surveyor's Name and Company (Include license type & number)
* Area(s) Surveyed (i.e. Area A)
* Type of Survey (i.e. Pre-Dredge, Condition, or Post-Dredge)
* Method of Survey (i.e. multibeam)
* Unit of Measure (U.S. Survey Feet)
* Vertical Datum (include geoid model if applicable)
* Horizontal Datum (include coordinate epoch)
* Projection
* Control Used (Include primary NGS control points(include PID) and local monuments established)
* Data Format (use: Easting, Northing, Elevation, Point Description (if applicable))

3.5 MEASUREMENT

Contractor shall take soundings or sweepings before and after dredging.

3.5.1 METHOD OF MEASUREMENT

The material removed will be measured by cubic yard in place, by means of soundings taken before and after dredging. The drawings represent existing conditions based on current available information, but will be verified and corrected, if necessary, by soundings taken before dredging in each locality. Results of soundings by the Contractor will be the basis for payment. Areas sounded more than 30 days prior to dredging will be re-sounded by the Contractor.

3.5.2 SURVEY DATA

a. Final payment computations shall be based upon Independent Contractor's original and final surveys. Progress payments or evidence (condition surveys) supporting extreme weather (storm) related shoaling, will be based upon Contractor's hydrographic surveys. The Contractor's survey shall provide full coverage of the dredge area for which progress payment or evidence of storm-related shoaling is being submitted.

b. It is further emphasized that only condition surveys supporting extreme weather (storm)-related shoaling will be considered for payment in addition to the Contractor's surveys, provided that the Contractor's surveys clearly show the condition before and after each shoaling event and the condition after removal of material from the shoaled area. Survey data which does not meet all applicable requirements and quality assurance verifications will not constitute a valid request for payment of shoaling.

c. Contractor's hydrographic surveys shall be performed electronically (automated) and the data shall be provided and submitted to OIPCB on an electronic media (IBM compatible, ASCII format) in delimited files of easting, northing, and elevation (x,y,z), where the elevation is indicated as negative if recorded below MLLW. The first lines of the data file will list the information as follows:

1. Project Name (Coos Bay, OR Navigation Channel Modification)
2. Surveyor's Name and Company
3. Area Surveyed (Stationing)
4. Type of Survey and Date of Survey (i.e., pre-dredge, 10/22/2021)
5. Indicate method of survey, i.e., multi-beam. List bin size.
6. Vertical datum/control utilized
7. Horizontal datum
8. Tide gauge location

These first eight (8) lines will be preceded by an asterisk (*), which indicates a comment line.

A plot of sounding shall accompany the XYZ data.

3.5.2.1 SOUNDING DATA STANDARDS

The Contractor's hydrographic surveys for final and progress payment or evidence supporting extreme(storm) weather-related shoaling shall be multi-beam and shall meet or exceed the survey standards listed in EM 1110-2-1003 (Hydrographic Surveying). Surveys shall be in the State Plane Coordinate System of 1983 - feet, Oregon South, and be performed by an independent hydrographic survey contractor with at least three years of experience in hydrographic surveying of navigable channels and have either a current Land Surveyor's or a Professional Engineer's license, authorized to certify

surveys in the State of Oregon. The Hydrographic Surveyor firm selected by the Contractor must be approved by the OIPCB Representative prior to performing surveys for this contract.

3.5.2.2 HORIZONTAL POSITIONING SYSTEM

Horizontal positioning for hydrographic surveys shall be conducted using a Differential Global Positioning System (DGPS). Horizontal positional accuracy shall meet or exceed the minimum performance standards for navigation and dredging support surveys as set forth in EM 1110-2-1003 "Hydrographic Surveying". Surveys shall be in the State Plane Coordinate System of 1983 - feet, Oregon South.

3.5.2.3 VERTICAL POSITIONING SYSTEM

Vertical positional accuracy shall meet or exceed the minimum performance standards for navigation and dredging support surveys as set forth in EM 1110-2-1003 "Hydrographic Surveying". Surveys shall be reported relative to Mean Lower Low Water (MLLW) at the Charleston, OR tidal gauge.

3.5.2.4 SURVEY FIRM ACCEPTANCE

For the OIPCB Representative to approve the selected survey firm, the Contractor must provide documentation indicating that modern electronic horizontal positioning and sounding system equipment will be used for the surveys to be performed as well as documentation verifying the experience of the operators using the equipment. Typical information that will be required, as a minimum, includes the name, model, and year of manufacture of the electronic equipment, the electronic frequencies of the horizontal positioning equipment and sounding equipment, and the manufacturer's stated positioning and sounding accuracies, and capability of the equipment proposed for usage. In addition, the Contractor must provide information that a safe and suitable vessel meeting U.S. Coast Guard requirements is available and will be used for operation in the waters where the surveys are to be performed. The Contractor shall submit credentials / qualifications as evidence that qualified, experienced staff are available and will be used for the operation of the vessel as well as for the electronic positioning and sounding equipment.

3.5.2.5 DATA PROCESSING

The Contractor shall use a Data Processing System to map the sounding data and calculate quantities. Reduced sounding data shall then be imported into the Data Processing System where cross-sections are compared to dredge templates and volume quantities are calculated. The software shall be capable of digital terrain modeling and shall produce, as a minimum, sounding sheets, cross section profiles, three-dimensional area profiles, and quantity volume calculations using the Triangulated Irregular Network (TIN) method.

3.5.3 MONTHLY ESTIMATES

Monthly estimates of work completed will be based on the result of soundings taken during the progress of the work or, at the option of the OIPCB Representative, on 85 percent of the scow or barge measurement. Deductions will be made for dredging and disposal not in accordance with the specifications.

3.6 PRE-DREDGE AND FINAL SURVEYS

The Contractor shall notify the OIPCB Representative not less than fifteen calendar days prior to the scheduled commencement of dredging. The Contractor will perform a pre-dredge survey as close to commencement of dredging as possible. For the post-dredge survey, the Contractor shall notify the OIPCB Representative not less than fourteen calendar days prior to completion of the entire work. The Contractor will perform the final survey as soon as possible after completion of the entire work, generally within ten calendar days. All areas found to be in compliance with the contract requirements will be accepted and measured for payment in accordance with Section 01 20 00.00 20 PRICE AND PAYMENT PROCEDURES.

Pre and post dredge surveys shall also be conducted of the nearshore fill areas, any of the mitigation sites, and any areas that will include placement of slope protection within 60 days of placement.

3.7 METHODS OF SOUNDING

The material removed will be measured by cubic yard in place, by means of soundings taken before and after dredging. The Contractor shall perform pre-dredge and post-dredge surveys utilizing multi-beam swath methods. However, OIPCB reserves the right to take independent soundings by any methods, including: Lead line, trigonometric leveling (total station)/differential leveling, 200 kHz single-beam acoustic methods, acoustic multi-beam swath methods. If the independent survey reveals substantial differences, the Contractor shall resurvey the area at no additional cost to OIPCB. Results of soundings by any of these methods, singularly or in combination, will be the basis for payment. The Contractor has the option of being present when such soundings are made.

3.8 REPORTING REQUIREMENT

The Contractor shall prepare and maintain a Daily Report of Operations and furnish copies thereof to the OIPCB Representative's representative. The daily reports shall document dredging operations for all shifts in a 24-hour Period. Further instruction on the preparation of the report will be furnished at a pre-construction conference. Copies of sample submittals are provided at the end of the Contractor's Quality Control section.

3.9 SHOALING

a. Progress payments or evidence (condition surveys) supporting extreme weather (storm) related shoaling, must be based upon Contractor supplied hydrographic surveys. The survey must provide full coverage of an entire separate area identified in the plans for which progress payment or evidence of storm-related shoaling is being submitted.

b. Only condition surveys supporting extreme weather (storm) - related shoaling will be considered for payment in addition to OIPCB surveys, provided that the Contractor's surveys clearly show the condition before and after each shoaling event and the condition after removal of material from the shoaled area. Survey data which does not meet all applicable requirements and quality assurance verifications will not constitute a valid request for payment of shoaling.

c. If, before the Contract is completed, shoaling occurs in any section (area) previously accepted, including shoaling in the finished channel, because of the natural lowering of the side slopes or from sediments transported inside the project area, re-dredging at Contract price, within the limit of available funds, may be done if agreeable to both the Contractor and the OIPCB Representative.

3.10 FINAL EXAMINATION AND ACCEPTANCE

As soon as practicable after the completion of areas, which in the opinion of the OIPCB Representative, will not be affected by further dredging operations, a final examination of the work using independent Contractor surveys will be conducted by OIPCB. Each area will be examined by OIPCB by soundings of sweepings, or both. Should any shoals, lumps, or other lack of contract depth be disclosed by this examination, the Contractor will be required to remove the material by dredging at the contract rate for dredging. The Contractor will be notified when soundings or sweepings are to be made and will be permitted to accompany the survey party and to inspect the data and methods used in preparing the final estimate. When areas are found to be in a satisfactory condition, the work therein will be accepted as complete. Final estimates will be subject to deductions or correction of deductions previously made because of excessive overdepth, dredging outside or authorized areas, or disposal of material in an unauthorized manner.

Final acceptance of the whole or a part of the work and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error, and the acceptance of a completed section shall not change the time of payment of the retained percentages of the whole or any part of the work.

Final acceptance will be based on multi-beam survey once the Contractor’s after dredge survey shows the project clear to the targeted depth using the authorized depth contour created from the 3’x 3’ minimum soundings. The 3’ x 3’ average soundings will be used for the volume calculation. This calculation will be used to determine the amount of compensation due to the Contractor.

3.11 RESTRICTIONS

Additional information to be added after permits have been authorized.

-- End of Section --

SECTION 35 25 00

**AIDS TO NAVIGATION
10/13**

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2020) Structural Welding Code - Steel

UNITED STATES COAST GUARD

Spec 450-F	(May 2009 Rev. F) Specification for Fabrication of Ionomer Foam Buoys
COMDTINST M16500.1C	Aids to Navigation Manual, Positioning
COMDTINST M16510.2A	Aids to Navigation Visual Signal Design Manual
COMDTINST M16500.7A	Short Range Aids to Navigation
COMDTINST M10360.3B	(January 2014) Coatings and Color Manual

1.2 SYSTEM DESCRIPTION

1.2.1 NAVIGATION BUOYS

Conform to Spec 450-F, COMDTINST M16500.1C, COMDTINST M16510.2A, COMDTINST M16500.7A, and COMDTINST M10360.3B. The navigation buoy system consists of one green/red junction 5x9LNFR foam buoys, three green 5x9LNFR foam buoy, and all appurtenances to include, anchors, chains with attached link zinc anodes, chain joining links, concrete sinker, and identification tags. The Contractor is responsible for procuring the 5x9LNFR type navigation buoys and is responsible for providing all labor, construction materials, construction equipment, and rigging to install the buoys in accordance with the contract drawings and project specifications.

1.3 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Navigation Aid System Installation Equipment; O

Navigation Aid Execution Plan; O

Survey control; O

Key personnel; O

SD-02 Shop Drawings

Navigation aids configuration; O

SD-07 Certificates

Material certifications

Daily production log

Welding procedures and qualifications

SD-11 Closeout Submittals

As-Built Locations; O

Inventory and damage report

1.4 QUALITY ASSURANCE

1.4.1 NAVIGATION AIDS CONFIGURATION

The Contractor shall provide 1 full size set of shop drawings for the Navigation Aids. The shop drawings shall be certified by a Professional Engineer registered in any jurisdiction of the United States. At a minimum, navigation aid information shall include:

a. Anchor.

b. Chains.

c. Detailed Bill of Material to include component specifications.

d. Profile view of the navigation aid mooring system at MLLW and MHHW conditions.

e. Design coordinates for anchors and buoy.

f. Calculations of anchor holding capacity for the navigation aid mooring system.

1.4.2 MATERIAL CERTIFICATIONS

Provide material and proof test certifications for Contractor Furnished Mooring Materials.

PART 2 PRODUCTS

2.1 HANDLING OF NAVIGATION AIDS

The Contractor shall be responsible for handling of existing buoy devices. Buoys shall be handled in a way that causes no damage to these devices. Any damage to existing buoys shall be corrected at no cost to OIPCB.

All relocated buoys shall be surveyed by the OIPCB Representative. If any noticeable damage is observed, or if the buoys do not operate correctly, the Contractor shall be responsible for replacing the buoys at no cost to OIPCB.

2.2 CONTRACTOR FURNISHED MATERIAL (NAVIGATION BUOYS ONLY) (CFM)

Navigation aid mooring components shall be sized to withstand the 100 year storm at the project site. The Contractor shall provide the following material for the navigation buoy installation:

a. USCG Navigation Buoy type 5x9LNFR Foam Buoy in both color green and red manufactured by one of the listed firms below:

Curd Enterprises, Incorporated 476 Long Point Road Mt. Pleasant, SC29464-8206 (800) 968-3091 www.curdbuoy.com	Gilman Corporation - Softlite 1 Polly Lane Gilman, CT06336-0062 (860) 887-7080 www.gilmancorp.com
Jovanovich Supply Company 15636 Des Moines Memorial Drive Sea-Tac, WA98148 (800) 933-5596	Pacific Industrial Supply 1231 S Director Street Seattle, WA 98108 (206) 682-2100 www.pacificindustrial.com
Polyform U.S., Ltd. 7030 S 224th Street Kent, WA98032 (253) 872-0300 www.polyformus.com	Premier Materials Technology, Incorporated P.O. Box 120118 Minneapolis, MN55112 (800) 262-2275 www.premiermaterials.com
Roylan Buoys W68N158 Evergreen Blvd Cedarburg, WI53012 (888) 269-2869 www.rolyanbuoys.com	Topper Industries 1333 Glenwood St. Woodland, WA98674 (360) 516-1359 www.topperfloats.com

b. Self-Contained Light Emitting Diode (LED) Buoy Lantern.

c. Chain.

d. Anchor and/or Sinker as required by manufacturer.

2.2.1 SELF-CONTAINED LED BUOY LANTERN

This section only applies if the Contractor damages an existing navigation buoy and is required by the OIPCB Representative to replace the damaged buoy.
A self-contained lantern is a lantern that integrates into a single package all components necessary to independently power and operate the lantern over an extended period of time. A self-contained lantern integrates all

components into a single, cohesive package. When installed on a buoy, a self-contained lantern does not need to be connected to any other equipment. Some of the components that comprise a self-contained LED lantern are LEDs, electronic power/timer controllers, solar power generation and energy storage devices (i.e. solar panels and batteries), and a housing which incorporates light lensing.

2.2.1.1 SIGNAL COLOR

Contractor shall provide two lanterns; one that produces a red light and one that produces a green light, both using LEDs as a light source. The chromaticity of the colors provided by the lantern shall lie within the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) general region. The light source shall have a minimum peak intensity of 44cd and a minimum range of four nautical miles.

2.2.1.2 OPTIC HEAD POWER AND CONTROL

Power and control systems shall be integrated into the lantern such that no other devices shall be necessary to produce a complete marine aid-to-navigation light signal.

2.2.1.3 FLASH CHARACTERISTIC CONTROL SYSTEM

The lantern shall be capable of producing all standard U.S. Coast Guard characteristics, as outlined below, and shall include control circuitry to permit field selection of any desired characteristic. The controls needed to set or change the characteristic shall be incorporated into the lantern and shall not require any additional device. The various characteristics which the lantern must be capable of displaying are:

Characteristic	Timing ON/OFF (seconds)	Duty Cycle (%)
FL: Fl 2.5(0.3)	0.3/2.2	12
Fl 4(0.4)	0.4/3.6	10
Fl 6(0.6)	0.6/5.4	10

Prior to installation, the contractor shall program the lantern characteristic for Fl 4(0.4).

2.2.1.4 INTERGRATED SOLAR POWER SYSTEM

The lantern shall include any and all devices required for power generation and energy storage necessary to produce and emit the required light signals. The solar power system's ability to provide enough energy to the optic head for a specific aid to navigation will be greatly dependent on the amount of solar radiation at the aid's geographic location and on the duty cycle of the light.

2.2.1.5 BATTERY

The battery shall be maintenance-free and shall be commercially available so that it can be purchased and replaced. It shall mount in the lantern in a manner that will allow replacement of the battery. The battery shall not leak when stored for an extended period of time.

2.2.1.6 SERVICE LIFE AND MAINTENANCE

The lantern shall have a service life, based on producing a characteristic with a 30% duty cycle, of not less than six) years. The lantern and all of its components shall not require preventive maintenance, other than periodic cleaning of external surfaces. The design of the lantern shall be such as to restrict the ability of birds to roost on the lantern or any of its components.

2.2.1.7 WIND SPEED

The lantern shall be designed for exposure to wind speeds up to 140 knots.

2.2.1.8 MOUNTING PROVISIONS

The lantern shall be designed so that it can be attached to the buoy using three (3) bolts, equally spaced on a 200-mm diameter bolt circle.

2.2.1.9 SALT AIR AND SEAWATER SPRAY

The lantern shall be designed for continuous exposure to salt air and seawater spray.

2.2.1.10 ULTRAVIOLET EXPOSURE

All of the external components of the lantern shall operate under and withstand continuous exposure to ultraviolet light for the duration of the advertised service life of the lantern.

2.2.1.11 SHOCK AND VIBRATION

The lantern shall be constructed to operate under and withstand continuous exposure to the shock and vibration experienced on marine navigation buoys. The lanterns shall be tested in accordance with Test Condition H, Method 213B of MIL-STD-202F, Shock. The lantern shall be tested in accordance with MIL-STD-202, Method 204, Test Condition B, with peak G-value reduced to 5G and the number of cycles performed in each of the three mutually perpendicular directions reduced from 12 to 3.

2.2.1.12 VERTICAL DIVERGENCE

The lantern shall be designed with a vertical divergence greater than 7° (to 50% max intensity).

2.2.1.13 ELECTROMAGNETIC INTERFERENCE

The lantern shall be tested for electromagnetic radiation immunity in accordance EN 61000-4-3. The tested frequency range shall be 100 MHz to 12 GHz. The test field strength and modulation shall be as follow:

Frequency	Test Field Strength*	Modulation
100 Mhz to 1 GHz	10V/m	80% amplitude modulation @ 1kHz
1GHz to 12GHz	200 V/m	none

*The test field strength is the field strength of the unmodulated signal.

2.2.1.14 LIST OF MANUFACTURERS

The contractor shall provide the self-contained LED lanterns from one the manufacture's listed below:

Carmanah
Model Number: M650
Technologies Inc., 250 Bay Street,
Victoria, British Columbia, Canada, V9A 3S5,
Website: http://www.carmanah.com.

Tideland Signal Corporation
Model Number: SolaNova-65
Corporate HeadQuarters (Houston, Tx)
TEL:1-713-681-6101
Website: www.tidelansignal.com

CR Control Systems, Inc.
Model Number: CR6000
85 Mechanic Street Suite C1-S1
Lebanon, NH 03766
Tel: 1-603-727-9149
Website: www.crconsys.com

2.2.2 CHAIN

Chain shall be domestic and shall conform to ABS2 or Chain, US Coast Guard Buoy Type. The size and length of the chain shall be determined by the Contractor and indicated on the shop drawings under section 1.3.1.1.

2.2.3 ANCHOR

The size and type of anchor and/or sinker shall be determined by the Contractor and indicated on the shop drawings under section 1.3.1.1.

PART 3 EXECUTION

3.1 GENERAL INSTALLATION OPERATIONS

Describe in detail equipment, methods and procedures for installation of navigation aids. Describe any special precautions or other procedures employed to minimize the susceptibility of equipment and procedures to mechanical failure, loss of key personnel, weather downtime, etc.

3.2 NAVIGATION AID EXECUTION PLAN

Schedules requiring OIPCB approval shall be submitted no later than 45 calendar days prior to mobilization. The Contractor shall position the buoy and fixed aid location using Global Positioning System (GPS) per the locations shown on the plans. The location shall be verified by the Government Representative prior to final placement of the anchor in the case of buoys, and after the installation of the structure in the case of fixed aids. Moreover, for buoys:

a. The Contractor shall set the anchor position after location has been approved by OIPCB Representative.

b. Drag test buoy anchor and record results.

c. Install chains, turn buckles and zinc anodes per manufacturer's instructions.

d. Install and test the buoy light assembly.

e. Record the final buoy location during periods of high and low tide within the following coordinate system:

1. Horizontal and vertical control based on Guam Geodetic Network (GGN) No. 2146 (Northing and Eastings).

2. Latitude and Longitude, Geodetic Coordinates, based on the World Geodetic System 1984 (WGS-84).

3.3 SURVEY CONTROL

Contractor shall furnish the location and elevation of benchmarks and survey stations and vertical datum to be used for buoy anchor or fixed aid structure installation positioning. State datum used for survey operations. Describe positioning control for installation of the reconfigured moorings and pull testing of ground leg anchors. Provide a list of survey software, hardware, type and location of GPS receivers, antennas to be used during mooring installation and anchor pull testing. State the accuracy levels for positioning equipment. Describe control measures to be used in keeping the ground leg aligned with its design path during anchor pull testing.

3.3.1 SURVEY CONTROL DURING NEW MOORING INSTALLATIONS

The Contractor shall provide a survey control system on the installation platform that has sub-meter accuracy and tracks the real-time location of the installation platform during the installation of the new mooring systems. The survey system shall provide a visual display, similar to WINOPS or HYPACK that shows and tracks the real-time location and heading of the floating crane barge and attached material barge, as well as the boom tip of the working hook. The visual display shall include an AutoCAD site plan of the Inner Apra Harbor boundary, the site plan for the new moorings to be installed and the existing moorings adjacent to the new moorings. The display shall be made available to the OIPCB Technical Representative as well as project installation personnel to include the crane operator.

3.3.2 SURVEY DATUM

AutoCAD site plan drawings used by the OIPCB for Coos Bay are indicated on project drawings.

Provide as-built data for anchors and buoys in the datums shown on Drawing XXX, sheet X-yy in reference drawings.

3.3.3 SURVEY AND PROJECT ACCURACIES

a. Anchors shall be placed at the target location within +/- 5 feet.

b. Buoys shall be installed within +/- 25 feet of its design location.

c. Survey systems and equipment shall have a minimum accuracy of less than 1.5 feet.

3.4 RECORDS

The Contractor shall keep a complete and accurate record of each navigation buoy or fixed aid platform installed. Records shall include As-Built Locations, and the Daily Production Log. The Daily Production Report is required for each day conducting mooring removals, reconfigurations, installations, pull testing or other mooring operations performed over the water. Record the weather at the site, tidal data, personnel, vessels and major pieces of equipment, actions completed during the workday, planned actions for the next workday and any problems encountered.

3.4.1 INVENTORY AND DAMAGE REPORT

The Contractor shall provide written notice of any existing damage or discrepancies in material quantities of GFM designated for this project that are being provided from CONUS inventory stock points. Upon completion of the installation of new mooring systems, provide a list of remaining spare and excess components from the old mooring systems. Provide this list in two categories; items in good condition to be shipped back to stateside CONUS inventory stock points and items in poor condition to be turned in for disposal.

3.4.2 AS-BUILT LOCATIONS

As-built coordinates shall be determined under the direct supervision of and certified by a licensed surveyor registered in any jurisdiction of the United States. The as-built location of the anchors and buoys shall be calculated and documented. The Contractor shall provide in tabulated form the water depths at the as built locations for anchors, buoys, and fixed aid platforms. Water depths shall be referenced to Mean Lower Low Water (MLLW). The Contractor shall also provide in tabulated form, surveyed as-built anchor and buoy location coordinates in the following coordinate system:

a. Horizontal and vertical control based on local control (Northing and Eastings).

b. The design coordinate system as shown on the plans.

c. Latitude and Longitude, Geodetic Coordinates, based on the World Geodetic System 1984 (WGS-84)

d. Northings and Eastings, Universal Transverse Mercator, Zone 10, feet based on WGS-84.

3.4.3 DAILY PRODUCTION LOG

Submit to the on-site OIPCB Representative a Daily Production Log providing, as a minimum, the information as described in Section 3.4 Submit the Daily Production Log NLT 1000 the following workday.

3.5 NAVIGATION AID SYSTEM INSTALLATION EQUIPMENT

The Contractor shall comply with all existing state, federal, local, and U.S. Coast Guard regulations governing the conduct of marine construction operations. Installation vessels and equipment to be used by the Contractor shall possess current load line and lifting capacity certificates certified by the American Bureau of Shipping. The Contractor shall not exceed the certified load or lifting capacities of marine equipment in the performance of marine operations. All vessels shall be equipped with Coast Guard approved lights, bells, horns, life preservers, fire extinguishers and other equipment appropriate to their class and type of operation. The Contractor shall list equipment proposed for use. The Contractor shall provide the following information for the following pieces of equipment:

a. Crane Barge to include plan and profile views, load chart, boom length, mooring and anchoring equipment. Stability calculations and modified load charts for 0,1,2 and 3 degrees of list shall be provided for Crane and barge configurations. A manufacturer's specifications sheet that provides the information requested is acceptable.

b. Tugs: number, size and capacity.

c. Material Barge(s): length, width, draft, and capacity.

d. Manufacturer's specifications for positioning equipment. Anchors to be used and configuration.

3.5.2 KEY PERSONNEL

The Contractor shall provide resumes for the key personnel (including subcontractors) who will be directly involved in this project. Resumes should indicate the individual's experience in work similar to this project. At a minimum, resumes shall be included for: Project Manager, Project Superintendent, Project Surveyor, and Barge Foreman.

3.5.3 WELDING PROCEDURES AND QUALIFICATIONS

All Welding shall be performed by certified welders qualified in accordance with AWS D1.1/D1.1M.

-- End of Section --

SECTION 35 31 19

**STONE, CHANNEL, SHORELINE/COASTAL PROTECTION FOR STRUCTURES
01/08**

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C127	(2015) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C535	(2016) Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C5240	(2013) Standard Test Method for Evaluation of Durability of Rock for Erosion Control Using Sodium Sulfate or Magnesium Sulfate
ASTM 3740	(2012a) Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as used in Engineering Design and Construction
ASTM D4992	(2022) Evaluation of Rock to be Used for Erosion Control
ASTM D5313/D5313M	(2021) Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions

1.2 DEFINITIONS

1.2.1 ROCK APRON

The term "rock apron" refers to a layer or layers of stone, concrete or other material placed at the base of a structure to protect the structure's toe against scour.

1.3 SYSTEM DESCRIPTION

1.3.1 FACTORS USED FOR CONVERTING IN-PLACE VOLUME TO WEIGHT

The following factors were used in converting the in-place volume to the quantities shown in the BIDDING SCHEDULE.

- Specific Gravity (SSD) = 2.65

- Percent Voids = 30%

1.3.1.1 REVISION OF BIDDING SCHEDULE QUANTITIES

The estimated quantities of stone listed in the BIDDING SCHEDULE were computed on the basis of stone having a percentage of voids and a bulk specific gravity (saturated surface dry (SSD) basis) as shown in the above section based on water having a unit weight of 62.4 pounds per cubic foot. When the bulk specific gravity (SSD) of the stone to be used in the work is other than that shown in the above table, the estimated quantities will be revised by multiplying them by the fraction which results when the bulk specific gravity (SSD) of the stone furnished is divided by the value shown in the above table for each respective stone gradation. Revision for the percentage of voids will likewise be made. The OIPCB Representative will issue a modification to the contract in accordance with the Contract Clause, Contract Modifications in Section 01 20 00.00 20 PRICE AND PAYMENT PROCEDURES to adjust the estimated quantities in the BIDDING SCHEDULE. The revised quantities will then be the quantities from which the allowable fifteen percent (15 percent) variation in estimated quantity, for payment purposes, will be determined as defined Section 01 20 00.00 20 PRICE AND PAYMENT PROCEDURES.

1.3.1.2 REVISION OF ESTIMATED QUANTITIES

If during the progress of the work it is determined that the delivered stone actually placed has a percentage of voids or a bulk specific gravity range different from that on which the BIDDING SCHEDULE is based, the BIDDING SCHEDULE will be further revised in accordance with paragraph REVISION OF BIDDING SCHEDULE QUANTITIES.

1.4 SUBMITTALS

OIPCB approval is required for submittals with an "O" designation; submittals not having an "O" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Rock Placement Plan; O

SD-03 Product Data

Armor Stone; O

SD-04 Samples

Stone; O

SD-06 Test Reports

Gradation Test

Evaluation Testing of Stone

Bulk Specific Gravity

SD-07 Certificates

Stone

Laboratory; O

1.5 QUALITY ASSURANCE

1.5.1 STONE

Submit suitable stone samples prior to delivery of any such material to the worksite, if the stone is not from one of the stone sources listed at the end of this section.

1.5.1.1 GENERAL

All stone shall be durable material as approved by the OIPCB Representative. Stone shall be of a suitable quality to ensure permanence in the structure and in the climate in which it is to be used. It shall be free from cracks, blast fractures, bedding, seams and other defects that would tend to increase its deterioration from natural causes. Inspections for cracks, fractures, seams and defects shall be made by visual examination. If, by visual examination, it is determined that 20 percent or more of the stone produced contains hairline cracks, then all stone produced by the means and measures which caused the fractures shall be rejected. A hairline crack that is defined as being detrimental shall have a minimum width of 4 mil and shall be continuous for one-third the dimension of at least two sides of the stone. The stone shall be clean and reasonably free from soil, quarry fines, and shall contain no refuse.

1.5.1.2 SOURCES

The Contractor shall provide documentation that rock from these sources meets the requirements of these specifications at least 60 workdays before stone leaves the quarry. The OIPCB reserves the right to reject stone from sources that does not meet these specifications. It is the Contractor's responsibility to determine that sources can produce the specified quality, quantity, and gradations of rock. Satisfactory service records on other work may be acceptable. In order for stone to be acceptable on the basis of service records, stone of a similar size must have been placed in a similar thickness and exposed to weathering under similar conditions as are anticipated for this contract and must have satisfactorily withstood such weathering for a minimum of 20 years. If no such records are available, the Contractor will conduct tests to assure the acceptability of the stone.

a. Selection of Source. Designate in writing only one source or one combination of sources from which they propose to furnish stone and submit to the OIPCB Representative at least 30 workdays before the stone leaves the quarry. It is the Contractor's responsibility to determine that the stone source or combination of sources selected is capable of providing the quality, quantities and gradation needed and at the rate needed to maintain the scheduled progress of the work. If a source for stone so designated by the Contractor is not accepted for

use by the OIPCB Representative, the Contractor shall propose other sources.

b. Acceptance of Materials. Acceptance of a source of stone is not to be construed as acceptance of all material from that source. The right is reserved to reject materials from certain localized areas, zones, strata, or channels, when such materials are unsuitable for stone as determined by the OIPCB Representative. The OIPCB Representative also reserves the right to reject individual units of produced specified materials in stockpiles at the quarry, all transfer points, and at the project construction site when such materials are determined to be unsuitable. During the contract period, both prior to and after materials are delivered to the job site, visual inspections and measurements of the stone materials may be performed by the OIPCB Representative. If the OIPCB Representative, during the inspections, finds that the stone quality, gradation, or weights of stone being furnished are not as specified or are questionable, re-sampling and re-testing is required. Sampling of the delivered stone for testing and the manner in which the testing is to be performed shall be as directed by the OIPCB Representative. This additional sampling and testing shall be performed at the Contractor's expense when test results indicate that the materials do not meet specified requirements. When test results indicate that materials meet specified requirements, an equitable adjustment in the contract price will be made for the sampling and testing. Any material rejected shall be removed or disposed of as specified and at the Contractor's expense.

1.5.1.3 EVALUATION TESTING OF STONE

Submit a copy of the laboratory inspection report along with actions taken to correct deficiencies and a copy of the test reports, prior to delivery of such material to the worksite, since quality test on the stone in accordance with PART 2 paragraph EVALUATION TESTING OF STONE is the responsibility of the Contractor.

1.6 CONSTRUCTION TOLERANCES

The finished surface and stone layer thickness shall not deviate from the lines and grades shown by more than the tolerances listed below. Tolerances are measured perpendicular to the indicated neatlines. Extreme limits of the tolerances given shall not be continuous in any direction for more than five times the nominal stone dimension nor for an area greater than 1000 square feet of the structure surface.

- Above neatline: 24 inches
- Below neatline: 12 inches

The intention is that the work shall be built generally to the required elevations, slope and grade and that the outer surfaces shall be even and present a neat appearance. Placed material not meeting these limits shall be removed or reworked as directed by the OIPCB Representative. Payment will not be made for excess material which the OIPCB Representative permits to remain in place.

PART 2 PRODUCTS

2.1 STONE

2.1.1 GENERAL

2.1.1.1 EVALUATION TESTING OF STONE

The tests to which the stone may be subjected will include petrographic analysis, specific gravity, unit weight, absorption, wetting and drying, and such other tests as may be considered necessary to demonstrate that the stone is of a satisfactory quality which is at least equivalent to stone from the sources listed at the end of this section. The laboratory to perform the required testing shall be validated based on relevant paragraphs of ASTM D3740, and no work requiring testing shall be permitted until the laboratory has been inspected and validated.

Test results shall be submitted to OIPCB at least 30 calendar days in advance of shipment of stone to the work site.

a. Bulk Specific Gravity, saturated surface dry (SSD) and Absorption. Stone shall have a bulk specific gravity, saturated surface dry, (SSD), greater than 2.5. The stone shall have an absorption less than 2 percent unless other tests and service records show that the stone is satisfactory. The method of test for bulk specific gravity (SSD) and absorption will be ASTM C127.

b. Petrographic Examination. Stone shall be evaluated in accordance with ASTM C295/C295M which shall include information required by ASTM D4992, paragraph 10. COE CRD-C 148 shall be used to perform Ethylene Glycol tests required on rocks containing Smectite as specified in ASTM D4992 and on samples identified to contain swelling clays.

c. Resistance to Abrasion. Stone shall have a maximum loss of 50 percent after 1000 in accordance with ASTM C535.

d. Sulfate Soundness. Stone shall have a maximum loss of 10 percent after 5 cycles in accordance with ASTM D5240.

e. Resistance of Rock to Wetting and Drying. Stone shall have a maximum loss of 1 percent when determining the durability of stone when subject to wetting and drying in accordance with ASTM D5313/D5313M, except the surface area of one side of the sample shall be between 0.092 and 1.486 square meters.

f. Samples. Samples shall be taken by a representative of the quarry under the supervision of the OIPCB for testing and acceptance prior to delivery of any stone from this source to the site of the work. Samples shall consist of at least three pieces of stone, roughly cubical in shape and weighing not less than 150 pounds each from each unit that will be used in the production of the required stone.

g. Tests. The tests will be conducted in accordance with applicable Corps of Engineers methods of tests given in the Handbook for Concrete and Cement or ASTM methods of tests.

2.1.1.2 GRADATION TEST

Perform a gradation test or tests on the stone at the quarry in accordance with paragraph GRADATION TEST METHOD FOR STONE. Take the sample in the presence of the OIPCB Representative. Notify the OIPCB Representative not less than 3 days in advance of each test. Submit the gradation tests using the GRADATION TEST DATA SHEET enclosed at end of this section for riprap or stone. In the event of unavailability of the OIPCB Representative, perform the tests and certify to the OIPCB Representative that the stone complies with the specifications. At least one gradation test(s) shall be performed per 30,000 tons of stone placed, but not less than one test shall be performed. The gradation tests shall be reported using the forms, GRADATION TEST DATA SHEET and ENG FORM 4794-R, attached at end of this section. Designate on the test form that portion in tons of the lot tested which is applicable to this contract. Any deviation from the reported tonnage shall be corrected and recorded on a revised GRADATION TEST DATA SHEET. The sample shall consist of between 30 to 35 pieces of armor stone. A minimum of two tests are required for acceptance of armor stone. The weight of the individual pieces of armor stone and jetty stone, representing the minimum, maximum and 50 percent greater than sizes for the specified armor stone and jetty stone gradation, shall be printed on each stone and be placed in a location adjacent to the work site in order to provide a basis for visual comparison during placement of the armor stone and jetty units. These stones shall be used as the last order of work. Failure of the test on the initial sample and on an additional sample will be considered cause for rejection of the quarry and/or quarry process, and all stone represented by the failed tests shall be set aside and not incorporated into the work. Any additional tests required because of the failure of an initial test sample will not be considered as one of the other required tests. If collected by the truckload, each truckload shall be representative of the gradation requirements. The OIPCB Representative may direct additional testing of the quarry run and armor stone at the project site if the quarry run and armor stone appears, by visual inspection, to be out of gradation. The unacceptable stone shall either be reworked to bring the stone within the specified gradation or the stone shall be removed from the project site as determined by the OIPCB Representative. The OIPCB Representative may direct this testing under the Contract Clause INSPECTION OF CONSTRUCTION. Provide all necessary screens, scales and other equipment, and operating personnel, to grade the sample. Certification and test results shall represent quarry run and armor stone shipped from the quarry. Certification and tests results must be received by the OIPCB Representative at the jobsite before the quarry run and armor stone is used in the work.

2.1.1.3 STONE STOCKPILE

Storage of stone at the worksite is not to be confused with off-site stockpiling of stone. If the Contractor elects to provide off-site stockpiling areas, the OIPCB Representative shall be notified of all such areas.

a. Worksite Stockpile. Stone delivered to the work sites, which requires temporary storage shall be placed in a container suitable for storing the stone without waste. The container shall be subject to approval prior to delivery of the stone. Upon completion of the work, the storage areas shall be cleaned of all storage residues and returned to their natural condition.

b. Off-site Stockpile. In areas where stone is stockpiled for placement, the area shall have excess rock removed prior to completion of work.

All rock and spalls greater than 3 inches in diameter shall be removed. Where rocks may have become buried due to soft ground or operation of the equipment, the rock shall be put in a disposal area. After the rock has been removed, the storage area shall be graded, dressed, and filled to return the ground surface as near as practical to the condition that existed prior to construction.

2.1.2 ARMOR STONE

Only quarried stone shall be used. The stones furnished for armor stone shall weigh between 1,000 pounds and 12,000 pounds each and shall be free of fines. Stone shall be graded such that Seventy-five percent (75 percent) of the stones (by weight) shall weigh greater than 3,000 pounds each.

PART 3 EXECUTION

3.1 ROCK PLACEMENT PLAN

The Contractor shall submit a Rock Placement Plan indicating the methods and equipment proposed to be used to place the rock apron. The plan shall be submitted to OIPCB for approval at least 14 days prior to the start of rock placement operations and shall also include as a minimum, the following information:

a. Method of placing rock, including all equipment.

b. Method and expected accuracy of geospatial positioning, including all equipment.

c. Operational sea state conditions for rock placement.

d. Equipment moves and temporary storage.

e. Order of placement operations and anticipated time progress of placement on a weekly basis.

f. Plans for offloading, handling, hauling to quarantine stockpile, and hauling to job-site or other temporary stockpile.

3.2 STONE WORK

1,000 to 12,000 -pound stone shall be used for the rock apron to protect the existing North Jetty for constructing or repairing drains; for making stone fills, both above and below the water surface; and for constructing overbank spurs. Stone shall be placed on the bank or overbank area by crane or dragline equipped with skip, grapple, clamshell, or rock bucket; by front-end loader; or by trucks or other methods approved by the OIPCB Representative. Unless otherwise approved by the OIPCB Representative, the maximum capacity of dragline buckets used to place stone paving on the bank will be limited to 3 cubic yards.

3.2.1 PLACEMENT

Place stone in the locations and at the thickness shown without deviating from the lines and grade shown, including allowance for tolerances. Stones shall be randomly selected to retain a wide gradation along adjacent stones. Stones shall be placed in a manner to avoid displacing underlying materials

or placing undue impact force on underlying material that would cause the breaking of stones. Unless otherwise specified, stone shall not be dropped from a height greater than ten feet. The equipment used in placing the stone shall be suitable for handling materials of the sizes required including the ability to place the stone over its final position. The finished work shall be a well distributed mass, free of pockets of either smaller or larger stone, having a minimum of voids and with the maximum of interlocking of stones.

Stone shall be placed evenly at a rate of up to 20 tons per square (100 square feet) per pass. Prior to starting work, submit the proposed method of placing riprap under water. Stone placement shall be done during periods of calmest weather during the months of June through November.

3.3 TESTS AND INSPECTIONS

3.3.1 PRE-PRODUCTION

3.3.1.1 BULK SPECIFIC GRAVITY

Submit, at least 120 calendar days in advance of shipment of stone to the work site, a copy of bulk specific gravity test results for each gradation range of stone proposed to be furnished. The information shall be furnished prior to preparation of pre-production demonstration stockpiles. Quantity determinations are contingent upon the range of bulk specific gravity (saturated surface dry (SSD) basis) of stone to be supplied. Therefore, during the process of selecting a source or sources of stone for the project, make an investigation to determine the lowest and highest bulk specific gravity (SSD) of stone available at the source or sources proposed to be utilized for each gradation range of stone. Tests shall be performed at a testing laboratory subject to OIPCB approval. The testing results shall be submitted in accordance with paragraph SUBMITTALS. Test results which display an extraordinarily wide range of values may necessitate additional testing to determine whether the source contains strata with stones of an acceptable range of bulk specific gravity. For Category I sources which have been acceptably tested not more than two years earlier, and the material is of an acceptable quality and bulk specific gravity, the OIPCB Representative may waive the requirement for bulk specific gravity testing.

3.3.2 PLACEMENT CONTROL

3.3.2.1 QUALITY CONTROL MEASURES

Establish and maintain quality control for all work performed at the job site under this section to assure compliance with contract requirements. Maintain records of the quality control tests, inspections and corrective actions. Quality control measures shall cover all construction operations including, but not limited to, the placement of all materials to the slope and grade lines shown and in accordance with this section.

3.3.2.2 CHECK SURVEYS

Surveys made by the Contractor are required on each material placed for determining that the materials are acceptably placed in the work. Make checks as the work progresses to verify lines, grades and thicknesses established for completed work. At least one check survey as specified below

shall be made for each twenty-five foot section as shown as practicable after completion. Following placement of stone, the cross section of each step of the work shall be approved by the OIPCB Representative before proceeding with the next step of the work. Approval of cross sections based upon check surveys shall not constitute final acceptance of the work. Cross sections shall be taken on lines 25 feet apart, measured along the structure reference line, with readings at 5 foot intervals and at beaks along the lines. However, other cross section spacing and reading intervals may be used if determined appropriate by the OIPCB Representative. Additional elevations and soundings shall be taken as the OIPCB Representative may deem necessary or advisable. The surveys shall be conducted in the presence of an authorized representative of the OIPCB Representative, unless this requirement is waived by the OIPCB Representative.

a. Below Water: For portions of the work that are under water, sounding surveys shall be performed either by means of a single beam or multi-beam device. The following procedures shall be used:

    (1) The depth recorder shall be calibrated and adjusted for the gage, with check bar, at least six times within a normal eight-hour workday.

    (2) Normal calibration times shall be at the beginning of the workday, mid-morning, close of morning's work, start of afternoon's work, mid-afternoon, and the end of the day.

    (3) Further calibrations shall be performed whenever there is any malfunction within the depth recorder or transducer which might affect the soundings, a major gage change, or change in water temperature due to industrial discharge or other causes.

    (4) The check bar shall be set at approximately the deepest sounding in the area to be sounded.

    (5) The depth recorder shall be calibrated to read at low water datum.

    (6) When checking the calibration at mid-morning, end of morning, mid-afternoon and end of work, the same setting used for the previous calibration shall be used.

    (7) If the calibration check does not agree with the previous calibration, the depth recorder shall be calibrated to the proper setting.

    (8) Under no circumstances shall the setting of the depth recorder be changed between calibrations.

b. Electronic Depth Recorder: The survey depth recorder used must be a standard model acceptable to the OIPCB Representative using a sounding chart that can be read directly to the nearest foot and estimated to the nearest tenth (0.1) of a foot. Accuracy shall be better than 1/2 of 1 percent.

c. Predetermined Transit Angle Method or Ranges Method: The interval between predetermined angles or ranges along a sounding line shall not exceed 200 feet along the entire length of the sounding line. No

predetermined angle shall form an intersection with the sounding line of less than 45 degrees.

d. Speed of the Sounding Boat: When sounding, the speed of the sounding boat shall be as constant as possible, preferably between 180 and 220 feet per minute.

e. Checking Gage: The gage shall be checked prior to each calibration and recorded on the sounding chart or in the field notes.

3.3.3 GRADATION TESTS FOR STONE

3.3.3.1 STANDARD TEST METHOD FOR STONE

a. Select a representative sample (Note No. 1), weigh and dump on hard stand.

b. Select specific sizes (see example) on which to run "individual weight larger than" test. (See Note No. 2). The procedure is similar to the standard aggregate gradation test for "individual weight retained".

c. Determine the largest size stone in the sample. (100 percent size)

d. Separate by "size larger than" the selected weights, starting with the larger sizes. Use reference stones, with identified weights, for visual comparison in separating the obviously "larger than" stones. Stones that appear close to the specific weight must be individually weighed to determine size grouping. Weigh each size group, either individually or cumulatively.

e. Paragraph d above will result in "individual weight retained" figures. Calculate individual percent retained (heavier than), cumulative percent retained, and cumulative percent passing (lighter than). Plot percent passing, along with the specification curve on ENG Form 4794-R.

NOTE NO. 1: Sample Selection: The most important part of the test and the least precise is the selection of a representative sample. No "standard" can be devised; larger quarry run stone is best sampled at the shot or stockpile by given direction to the loader; small graded stone is best sampled by random selection from the transporting vehicles. If possible, all parties should take part in the sample selection and agree before the sample is run that the sample is representative.

NOTE NO. 2: Selection of Size for Separation: It is quite possible and accurate to run a gradation using any convenient sizes for the separation, without reference to the specifications. After the test is plotted on a curve, then the gradation limits may be plotted. Overlapping gradations with this method are no problem. However, it is usually more convenient to select points from the gradation limits, such as the minimum 50 percent size, the minimum 15 percent size, and one or two others, as separation points. For these types of stone gradations, the separation points need to be selected as the smallest size stone at each break in the gradation specified.

F O R

E X A M P L E

O N L Y

EXAMPLE GRADATION SPECIFICATIONS	
PERCENT LIGHTER BY WEIGHT	STONE WEIGHT IN LBS
100	400 - 160
50	160 - 80
15	80-30

EXAMPLE WORKSHEET				
STONE SIZE LBS	INDIVIDUAL WT. RETAINED	INDIVIDUAL PERCENT RETAINED	CUMULATIVE RETAINED	PERCENT PASSING
400	0	0	0	100
160	9600	30	30	70
80	11,200	35	65	35
30	8000	25	90	10
<30	3200	10	100	-
TOTAL	32,000 pounds			
NOTE: Largest stone 251 pounds				

G R A D A T I O N T E S T D A T A S H E E T	
Quarry _____	Type of Stone Tested _____
Date of Test _____	Testing Rate _____

T E S T R E P R E S E N T S		
Contract No.	District	Tons
	TOTAL	

G R A D A T I O N					
			Cumulative		
Stone Size (lbs)	Weight Retained	Individual % Retained	Percent Retained	Percent Passing	Specification % Finer by Wt
Total Weight					
Max Size Stone					
Remarks:					

I certify that the above stone sample is representative of the total tonnage covered by this test report.

Contractor Representative _____
Government Representative _____

STONE SOURCES		
LATITUDE/LONGITUDE	QUARRY LOCATION, ADDRESS, & TELEPHONE	MAIN OFFICE ADDRESS & TELEPHONE NUMBER
[STATE]		
[STATE]		

-- End of Section --