PORT GAMBLE BAY CLEANUP PROJECT

Technical Specifications

Prepared/Designed By:
Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, Washington 98101

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These Technical Specifications were prepared under
the supervision of a registered Professional Engineer.

8/11/15

John Laplante, P.E. (WA License No. 38792)
Anchor QEA, LLC

PROCUREMENT AND CONTRACTING REQUIREMENTS

Division 00 – Procurement and Contracting Requirements

TECHNICAL SPECIFICATIONS

Division 01 – General Requirements

Appendix K – 2008 Construction Completion Report Port Gamble Interim Remedial Action Wood Waste Removal Project

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END OF SECTION

PART 1 – GENERAL

1.01 SCOPE

A. The work under this Contract is to provide all labor and to furnish and/or install all materials and equipment, as may be required, to complete the work as described in these documents.

B. Pope Resources, LP/OPG Properties, LLC (Owner) requires demolition and disposal of structures, removal and disposal of creosote-treated piles, and remediation of contaminated sediment within portions of Port Gamble Bay (Sediment Management Area [SMA]-1 through SMA-3 and adjacent areas as shown on the Drawings) as part of the Port Gamble Bay Cleanup Project located in Port Gamble, Kitsap County, Washington.

C. The accompanying Drawings and these Specifications show and describe the location and type of work to be performed under this project. Work for this project includes:

1. Development of Contractor work plans.

2. Equipment mobilization and demobilization.

3. Site preparation including material offload area, material processing area, and stockpiling area of the Former Mill Site.

4. Stockpile management of materials for testing and disposal characterization.

5. Demolition and disposal of all structures and associated decking and beams marked for demolition, as shown on the Drawings.

6. Removal, processing (e.g., cutting if necessary), transportation, and disposal of all visible creosote-treated piles, and additional creosote-treated piles and associated timbers encountered during excavation and dredging, from the areas shown on the Drawings.

7. Removal of approximately 21,900 cubic yards (CY) of contaminated sediment and shoreline debris by excavation “in the dry” as shown on the Drawings. Excavation will occur in the dry during low tides as necessary down to 0 feet mean lower low water.

8. Removal of approximately 46,800 CY of contaminated sediment by subtidal dredging as shown on the Drawings.

9. Placement of intertidal and shallow subtidal capping materials over approximately 27,500 square yards (SY), subtidal capping material over approximately 38,350 SY, enhanced monitored natural recovery (EMNR)

material over approximately 329,600 SY, dredging residuals management cover (RMC) over approximately 19,850 SY, and approximately 2,500 CY of eelgrass construction materials.

D. In-water work must be performed during prescribed work windows. The in-water work windows for this project are as follows:

1. Demolition and removal of structures and creosote-treated piles, intertidal excavation, intertidal and subtidal capping, and subtidal EMNR placement: July 16 to January 14 of any year.

2. Demolition and removal of structures and creosote-treated piles in intertidal areas outside of SMA-1 and SMA-2: July 16 to October 14 of any year.

3. Subtidal dredging and subtidal RMC placement: November 1 to January 14 of any year.

E. All work must be performed in compliance with project permits. See Section 014126 – Permits.

1.02 ACCESS TO SITE

A. The Contractor will have access to the work area via the uplands through the main entrance at NE View Drive in Port Gamble, Washington.

B. The Contractor will have access to the work area via the water from Hood Canal, subject to the Vessel Management Plan (see Appendix E to the Specifications) protocols and access areas as described in these Specifications and as shown on the Drawings.

1.03 ENGINEERING AND INSPECTION

A. The Owner and/or its designated Representative(s) will perform the necessary inspection work except as otherwise specified in the Contract Documents. Refer to Section 014500 – Quality Control for general requirements.

B. Representatives of regulatory agencies and Owner's Representatives shall be allowed on the work area and on Contractor equipment to inspect the work at any time.

1.04 COORDINATION

A. Coordinate marine activity and vessel movements with the U.S. Coast Guard, as required, and in accordance with the Vessel Management Plan (see Appendix E to the Specifications).

B. Coordinate construction activities with the Owner and the Tribes so that interference with Owner and Tribal fishing activities will be minimized to the maximum extent practicable.

C. All costs associated with coordination of the work shall be considered incidental to the prices set forth in the Bid Proposal.

1.05 CURRENT CONDITIONS

A. The work under this Contract includes excavation and dredging of contaminated soils and sediments with low to moderate contamination levels of chemicals of concern including metals, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and dioxins/furans. As summarized in the Remedial Investigation, the following chemicals exceed cleanup standards, and their range of concentrations in site sediments are:

1. Cadmium – ranging from 0.3 to 3.1 mg/kg in subtidal sediments, and 0.1 to 1.1 mg/kg in intertidal areas

2. cPAH toxic equivalency quotient (TEQ) – ranging from 5.2 to 280 µg/kg in subtidal sediments and 1.51 to 340 µg/kg in intertidal sediments

3. Dioxin/furan TEQ – ranging from 0.34 to 6.5 ng/kg in subtidal sediments, and 0.162 to 16 ng/kg in intertidal sediments

B. Elevated dioxin/furan concentrations have been measured in upland soils. Along the shoreline, dioxin/furan TEQ levels range from 0.0754 to 226 ng/kg, with an average of 16.4 ng/kg.

C. Additional details on site conditions are provided in the Engineering Design Report and Remedial Investigation/Feasibility Study conducted for the Site, which are available at the Washington State Department of Ecology's Toxics Cleanup Website (https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=3444). The information indicates that dredged material and excavated soils and sediments are not designated Dangerous Waste or Hazardous Waste.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section describes the uses and restrictions for the premises, Staging and Stockpile Areas, parking, vehicle and equipment access, work hours, and inadvertent discovery of archaeological materials.

1.02 USE OF PREMISES

A. Use of the Former Mill Site premises is limited to work in areas indicated on the Drawings. Do not disturb portions of Port Gamble Bay outside of the Site Boundary as shown on the Drawings. Disturbance outside the Dredge/Excavation Limits (as shown on the Drawings) is only to designated access points and storage areas as shown on the Drawings or specified herein.

1. Limits: Confine upland and in-water construction operations to limits as shown on the Drawings. In those locations where existing eelgrass is to remain, the Contractor must work around and protect the material from damage.

2. Occupancy: Allow for the Owner and Owner's Representatives access to the work area, but the public shall be restricted.

3. Driveways and Entrances: Keep entrances serving premises clear and available to emergency vehicles at all times. Do not use these areas for parking or storage of materials.

4. Move any stored products under Contractor's control that interfere with the other activities and the Former Mill Site.

5. Install and maintain temporary security fencing to secure entrance to the Former Mill Site work areas.

1.03 STAGING AND STOCKPILE AREAS

A. Staging and Stockpile Areas are limited to the areas shown on the Drawings. Contractor's use of the designated Staging and Stockpile Areas shall be limited to purposes directly related to the construction of the project.

B. Contractor shall leave an approximate 8,000 square foot area of the Former Mill Site adjacent and into the western hillside accessible to the Owner for other potential work not part of this contract. The Contractor shall leave this location accessible to the Owner and equipment. The location shall be confirmed in the field with Tom Daley, Port Gamble Townsite Manager (360) 239-4731.

C. Contractor may provide staging off site at Contractor's discretion. If the Contractor opts for providing off-site staging areas, it shall:

1. Provide Owner with locations for approval.

2. Be prepared to demonstrate, if requested by the Owner, that the off-site area is properly permitted for the Contractor's intended use.

1.04 RESTORATION CLAUSE

A. Unless otherwise designated, protect all existing site features to remain from potential Contractor damage above and below grade. If avoidable damage occurs, notify the Owner immediately. The Owner will direct the Contractor as to how the Contractor is to replace or repair the damage at the Contractor's expense.

1.05 PARKING

A. Parking for personnel performing the work will be limited to an area within the work area boundaries as shown on the Contract Documents or at other off-site locations arranged by the Contractor. The Contractor will be responsible for ensuring that no nuisance is created through use of the streets for parking or workers' access.

1.06 TRUCK AND EQUIPMENT ACCESS

A. Limit the access of trucks and equipment to the haul routes shown on the Drawings.

1.07 INADVERTENT DISCOVERY OF ARCHAEOLOGICAL MATERIALS

A. An Inadvertent Discovery Plan (IDP) governing actions to be taken if archaeological resources are discovered during construction is included as Appendix F.

B. The IDP shall be available at the work location whenever ground-disturbing activities are underway.

C. If archaeological materials are discovered, stop work in accordance with the IDP and Washington law (Revised Code of Washington 27.50).

1.08 WORK HOURS

A. Work shall be accomplished during the work hours listed below:

1. Regular weekday and weekend hours are between 7:00 am and 10:00 pm.

2. Work may occur up to 24 hours/day to meet the required project schedule; however, the Contractor must abide by all noise requirements of the Kitsap County Code (Chapter 10.28).

B. Submit a schedule of working hours to the Owner at the Pre-construction Meeting in accordance with Section 013300 – Submittal Procedures.

1.09 PERMIT RESTRICTIONS AND REGULATORY REQUIREMENTS

A. Comply with all conditions in approved permits in Appendix A and subsequently obtained by the Owner and Contractor. See Section 014126 – Permits, and Section 014500 – Quality Control. In the event of discrepancy between the Permits and the Contract Documents, the more stringent requirements shall prevail.

1.10 ACCESS TO CONTRACTOR'S EQUIPMENT

A. Grant reasonable access to the Contractor's dredge derrick, barge(s), tug(s), and all other equipment mobilized for the work for inspection purposes, to the Owner or to any Owner-designated representative. Regulatory agency staff may also require access to equipment and will be escorted by Owner-designated representatives at all times. Assess conditions of the site and assess specific elements that are necessary to provide safe access to in-water equipment. Comply with all health and safety regulations pertaining to access to in-water equipment.

1.11 MISPLACED MATERIAL

A. Should the Contractor, during the execution of the work, lose, dump, throw overboard, sink, or misplace any material, dredge, barge, machinery, or appliance, promptly recover and remove the same. Give immediate verbal notice, followed by written confirmation, to the Engineer of the description and location of such obstructions and mark and buoy such obstructions until they are removed.

B. Should the Contractor refuse, neglect, or delay compliance with this requirement, such obstructions may be removed by the Owner or its agents, and the cost of such operations may be deducted from any money due to the Contractor, or may be recovered from the Contractor's bond.

C. The liability of the Contractor for the removal of a vessel wrecked or sunk without his fault or negligence shall be limited to that provided in Sections 15, 19, and 20 of the Rivers and Harbors Act of 3 March 1899 (33 U.S.C. 410 et seq.).

D. The Contractor shall be responsible for any fees, fines, penalties, or other costs resulting from misplaced materials.

1.12 SEQUENCING

A. It is the Washington State Department of Ecology's goal to complete work in Sediment Management Area (SMA)-2 within the first construction season. To the extent practicable, the Contractor shall sequence the work according to the following requirements:

1. Start work in SMA-2 in the first construction season. If work cannot be completed in SMA-2 in the first construction season, exposed dredge cuts shall be covered with residuals management cover (RMC) materials during the non-work period.

2. Conduct pile removal in intertidal excavation areas closely sequenced with remedial excavation and capping to control demolition residuals.

3. Conduct pile removal in non-remedial intertidal areas closely followed by placement of Habitat Substrate material to control demolition residuals.

4. Sequence intertidal excavation and capping so that excavation and capping can be completed for an area during a single low-tide cycle.

5. Place the Eelgrass Mitigation Area material as soon as possible following mobilization to allow for settlement before eelgrass transplant.

6. Accommodate eelgrass transplant by the Owner in the Contractor's schedule. Do not dredge eelgrass areas until eelgrass has been removed by the Owner.

7. Conduct demolition before Subtidal Dredging and capping.

8. Conduct Subtidal Dredging before capping.

B. Proposed deviations from this sequence shall be subject to the approval of the Engineer.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section describes the procedures and timing for requesting a substitution of materials, equipment, and methods that may be required in the Contract Documents.

1.02 QUALITY ASSURANCE

A. The Contract is based upon products and standards established in Contract Documents without consideration of proposed substitutions.

B. Products specified define standard of quality, type, function, dimension, appearance, and performance required.

C. The Owner will consider proposals for substitutions of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data as required by the Owner to evaluate the proposed substitution.

D. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this work by the Owner.

E. Do not substitute products unless substitution has been accepted and approved in writing by the Owner.

1.03 TIME OF SUBSTITUTION REQUESTS

A. Requests for substitutions must be made during the bidding period. Written requests by prime bidders for substitutions may be considered if received by the Owner up to 7 days before bids are due. The Owner may, in its sole discretion, defer the consideration of a proposed substitution until after Contract award.

B. Each substitution request shall, in accordance with the applicable provisions of Section 013300 – Submittal Procedures, describe the proposed substitution in its entirety, including the name of the material or equipment, drawings, catalog cuts, performance or test data, and all other information required for an evaluation. The submittal shall also include a statement noting all changes required in adjoining, dependent, or other interrelated work necessitated by the incorporation of the proposed substitution. The bidder shall bear the burden of proof to show that the proposed substitution meets or exceeds the required function and is equal or superior to the Specification.

C. The Owner may require that samples be submitted or demonstration made prior to approval. The Owner's decision of approval or disapproval of a proposed substitution shall be final.

D. Approval of substitutions will be made by addenda. When, in the sole opinion of the Owner, the product is equivalent in all respects to the product specified, it will be approved subject to Contract requirements and the Contractor's assumption of all responsibility therefore.

E. After written approval, this submission shall become a part of the Contract, and may not be deviated from except upon written approval of the Owner.

F. Catalog data for equipment approved by the Owner does not, in any case, supersede the Contract Documents. The approval by the Owner shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, unless the Contractor has, in writing, called the Owner's attention to such deviations at the time of the submission; nor shall it relieve the Contractor from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the catalog data with the Contract Documents for deviations and errors.

G. It shall be the responsibility of the Contractor to ensure that items to be furnished fit the space available. Make necessary field measurements to ascertain space requirements, including those for connections, and order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Drawings and Specifications.

H. Where equipment requiring different arrangement of connections from those shown as approved is used, it shall be the responsibility of the Contractor to install the equipment to operate properly and in harmony with the intent on the Drawings and Specifications, and to make all changes in the work required by the different arrangement of connections together with any cost of redesign necessitated thereby, all at Contractor's expense.

I. Where the phrase "or equal" or the phrase "or equal as approved by the Owner" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved as equal by the Owner unless the item has specifically been approved as a substitution for this work by the Owner.

J. The decision of the Owner shall be final.

1.04 SUBSTITUTION PROCEDURES

A. Limit each request to one proposed substitution.

B. Submit substitution requests in sufficient detail (with attachments as necessary) to fully document proposed substitution.

C. Document each request with supporting data substantiating compliance of proposed substitution with Contract Documents, including:

1. Manufacturer's name and address, product, trade name, model or catalog number, performance and test data, and reference standards.

2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance, and other pertinent characteristics.

3. Reference to article and paragraph numbers in Specifications section.

4. Cost data comparing proposed substitution with specified product and amount of net change to Bid Price.

5. Changes required in other work.

6. Availability of maintenance service and source of replacement parts, as applicable.

7. Certified test data to show compliance with performance characteristics specified.

8. Samples, when applicable or requested.

9. Other information as necessary to assist Owner's evaluations.

D. A request for substitution constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it is equal or superior in all respects to specified product.

2. Will provide identical or better warranty as required for specified product.

3. Will coordinate installation and make changes to other work that may be required.

4. Waives claims for additional costs or time extension that may subsequently become apparent.

5. Certifies that proposed product will not affect or delay Construction Progress Schedule.

6. Will pay for changes to engineering design, detailing, and construction costs caused by the requested substitution.

E. Substitutions will not be considered when:

1. Indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with this section.

2. Submittal for substitution request has not been reviewed and approved by Owner.

3. Acceptance will require substantial revision of Contract Documents or other items of the work.

4. Submittal for substitution request does not include point-by-point comparison of proposed substitution with specified product.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes the required attendees, suggested agendas, and locations for the Pre-construction Meeting and progress meetings.

1.02 PRE-CONSTRUCTION MEETING

A. Notification

1. Following Notice of Award, the Owner will notify the selected bidder of the location, time, and date of a Pre-construction Meeting.

B. Attendance

1. The following parties are requested to attend:

a) Owner's Representatives:

1) Engineer.

2) Contract Administrator.

3) Consultants.

4) Inspectors.

5) Other Owner personnel.

b) Contractor's Representatives:

1) Project Manager (Superintendent).

2) Contract Administrator.

3) Major Subcontractors.

4) Major Suppliers.

c) Third Party Representatives:

1) Washington State Department of Ecology (Ecology) representatives.

2) Tribal representatives.

3) U.S. Army Corps of Engineers representatives.

4) Other regulatory agency representatives.

2. Suggested Agenda

a) The Engineer will summarize the Contract Document requirements such as:

1) The work: sequence, phasing, and occupancy.

2) Job communications.

3) Contractor's use of the premises.

4) Special procedures.

5) Procedures and processing:

i. Field decisions.

ii. Submittals.

iii. Change orders.

iv. Application for payment.

6) Record Documents.

7) Construction facilities, controls, and construction aids.

8) Temporary utilities.

9) Security procedures.

10) Safety and first-aid procedures.

11) Housekeeping procedures.

12) Other.

b) The Contractor will present and distribute information indicating:

1) List of major subcontractors and suppliers.

2) Preliminary construction schedule.

3) Schedule of Working Hours.

4) Draft Schedule of Values.

5) Staging and Stockpiling Area proposal.

1.03 PROGRESS MEETINGS

A. The Engineer will schedule and administer weekly progress meetings throughout progress of the work.

B. The Engineer will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes, and distribute copies within 10 working days to the Contractor, meeting participants, and others affected by decisions that are made.

C. Attendance is required for the Contractor's job superintendent, major subcontractors and suppliers, the Engineer, Designer, and other Owner's Representatives, and Ecology or other regulatory agencies or their representatives, as appropriate to the agenda topics for each meeting.

D. Standard Agenda

1. Review of minutes from previous meeting.

2. Review of work progress.

3. Review of field observations, problems, and decisions.

4. Identification of problems that impede planned progress.

5. Progress schedule (3 weeks ahead; 1 week back).

6. Effect of proposed changes on progress schedule and coordination.

7. Corrective measures to regain projected schedules.

8. Planned progress during succeeding work period.

9. Safety issues.

10. Maintenance of quality and work standards.

11. Demonstration that the site record drawings are up-to-date.

12. Pay request (as required).

13. Other business relating to the work.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes construction scheduling procedures.

1.02 CONSTRUCTION SCHEDULE

A. Prepare a construction schedule as part of the Construction Work Plan in accordance with Section 013300 – Submittal Procedures, which will show specific tasks, dates, and the critical path necessary for completion of the project within the contract time limits. Submit the preliminary schedule at the Pre-construction Meeting in accordance with Section 013300 – Submittal Procedures.

1.03 ON-SITE DOCUMENTS

A. Maintain at the site, in good order for ready reference by the Owner, one complete record copy of the Contract Documents, including the Addenda, Change Orders, and Permits; all working drawings; Progress Schedule; and other approved submittals. Generate and keep on site all documents and reports required by applicable permit conditions.

B. Mark the Contract Record Drawings to record all changes made during construction. The location of all existing or new underground piping, valves and utilities, and obstructions, as located during the work, shall be appropriately marked on the ground until the Contractor incorporates the actual field location dimensions and coordinates into the Record Drawings for the site. Update the project's Record Drawings on a weekly basis and before elements of the work are covered or hidden from view. After the completion of the work or portions of the work and before requesting final inspection, give the Record Drawings to the Owner. The Owner reserves the right to withhold progress payments until such time as the Record Drawings are brought current.

1.04 DOCUMENTATION OF PROGRESS AND DAILY QUANTITIES

A. Provide Daily and Weekly Construction Reports in accordance with Section 013300 – Submittal Procedures.

B. Meet with the Engineer daily to agree upon the quantities of materials or work completed during the day. Both parties shall initial the Project Daily Quantities Report that shows there is agreement (or a lack of agreement) over the amount of work performed that day.

C. Prepare a Daily Construction Report, which will include the following items:

1. Date.

2. Weather conditions.

3. Period covered by the report and hours worked.

4. Equipment used.

5. Staff on site.

6. Description of activity as identified by stationing and offset.

7. Area and quantity of demolished material that day and cumulatively.

8. Area and quantity of material dredged or excavated that day and cumulatively.

9. Quantity of material offloaded that day and cumulatively.

10. Quantity of material disposed of off site that day and cumulatively.

11. Area and quantity of material placed that day and cumulatively.

12. Progress survey data.

13. Weight tickets and/or barge displacement measurements.

14. Downtime and delays to the operation.

15. Health and safety status.

16. Other relevant comments concerning conduct of the operation.

D. The Contractor's Superintendent or Quality Control Supervisor shall sign the Daily Construction Report.

E. Submit the Daily Construction Report to the Engineer on the morning following completion of the work for that day.

F. Submit to the Engineer copies of all Certificates of Disposal no later than 3 calendar days after the material has been delivered to the off-site disposal facility(ies).

1. Records shall include copies of all manifests, weight tickets, and other documentation.

2. Documentation shall track the material from the point of leaving the site to final disposal at the disposal facility(ies).

3. Submit empty barge displacement measurements following offload of each barge and corresponding tonnage of material offloaded from the barge.

G. Weekly Construction Report: Summarize the week's work in a Weekly Construction Report to be submitted to the Engineer on the following Monday morning. The Weekly Construction Report shall identify work completed to date, anticipated work to be completed in the present week, and the latest progress survey information. The Weekly Report shall include a written Environmental Protection Inspection Report summarizing the daily inspections, condition of the environmental protection equipment and materials, Temporary Erosion and Sedimentation Control facilities, and repairs or modifications to environmental protection means and methods.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes the content, procedures, and format for preparing and transmitting submittals.

1.02 SUBMITTALS LIST

A. Individual submittals are required in accordance with the pertinent sections of these Specifications. Other submittals may be required during the course of the project and are considered part of the normal work to be completed under the Contract.

B. This summary list is presented for the Contractor's convenience only, but no warranty is given to its accuracy or completeness. In the event of any discrepancies with the requirements of the individual Specification sections, those individual Specification sections apply.

SECTION NUMBER	DESCRIPTION
012973	• Schedule of Values
013200	• Construction Schedule
	• Project Daily Quantities
013300	• Construction Work Plan
013529	• Health and Safety Plan (HASP)
014500	• Construction Quality Control (CQC) Plan
	• Daily Construction Reports
	• Test Reports
	• Field Superintendent Qualifications
015000	• Temporary Facilities and Control Plan
015719	• Environmental Protection Plan (EPP)
	• Silt Curtain Installation, Operations, and Maintenance Plan
	• Weekly Environmental Protection Inspection Reports
	• Spill Prevention, Control, and Countermeasures (SPCC) Plan
	• Construction Stormwater Pollution Prevention Plan (SWPPP)
	• Temporary Erosion and Sediment Control Plan
017000	• Project As-Built Drawings
	• Warranty

SECTION NUMBER	DESCRIPTION
017123	• Survey Plan • Progress Surveys • Pre-construction Baseline Survey • Acceptance Surveys • Record Document Survey
017419	• Waste Management, Transportation, and Disposal Plan
024100	• Demolition and Pile Removal Plan
352023	• Dredging/Excavation, Haul Barge Transport, and Dewatering Work Plan • Daily Reports • Weekly Reports
352026	• Engineered Sediment Capping and Material Placement Plan • Borrow Source Characterization Report • Material Barge Information

1.03 PRE-CONSTRUCTION MEETING SUBMITTALS

A. Prepare a preliminary construction schedule showing specific tasks, dates, and the critical path necessary for completion of the project within the contract time limits. Submit the preliminary schedule at the Pre-construction Meeting; the Owner shall approve or return for correction within 5 working days of the Pre-construction Meeting. Within 5 working days, revise the preliminary schedule in accordance with the Owner's corrections and submit the revised schedule for acceptance.

B. Prior to mobilization, submit a proposal at the Pre-construction Meeting for review by the Owner of Staging and Stockpiling Areas indicating specific use, access, restoration, and anticipated duration of use. No use of the designated Staging and Stockpiling Areas is permitted until the Owner provides written approval of Contractor's proposal.

C. Submit a schedule of working hours to the Owner at the Pre-construction Meeting for acceptance prior to the start of any work in the Dredge/Excavation Limits. Do not perform any activities outside of these hours without prior approval of the Engineer. Said approval shall be requested at least 48 hours prior to the proposed work outside of these hours.

D. Submit for approval a Schedule of Values for the major components of the work at the Pre-construction Meeting in accordance with Section 012973 – Schedule of

Values, and Section 013100 – Project Management and Coordination. The listing shall include, at a minimum, the proposed value for the major work components as described in Article 3.01 of Section 012973 – Schedule of Values. The summary of detail provided in the Schedule of Values shall separately include materials costs (as appropriate by unit), installation costs (labor and equipment components), and other incremental breakouts. The detail summary total shall match the Contractor's bid amount for each bid item.

E. Submit for approval a list of major subcontractors and suppliers at the Pre-construction Meeting in accordance with Section 013100 – Project Management and Coordination.

1.04 CONSTRUCTION WORK PLAN

A. Submit a Construction Work Plan that describes the Contractor's means and methods for completing the various parts of the work.

B. Submit the following individual elements of the Construction Work Plan within 7 calendar days following the Contractor's receipt of the signed contract for early review to allow for a Limited Notice to Proceed:

1. Construction Work Schedule as specified in paragraph 1.04.C.1.

2. Demolition and Pile Removal Plan as specified in paragraph 1.04.C.3.

3. CQC Plan as specified in paragraph 1.04.C.7.

4. HASP as specified in paragraph 1.05.C.8.

5. Temporary Facilities and Controls Plan as specified in paragraph 1.04.C.10.

6. EPP as specified in paragraph 1.04.C.11.

C. Submit all elements of the Construction Work Plan for Engineer review and approval within 28 calendar days after Notice of Award. The plans listed under this article shall comprise the Contractor's Construction Work Plan.

1. Construction Work Schedule in a Gantt chart format, which shows the critical path of work and which will:

a) Identify the work clearly, showing the detailed items of work, specific tasks, dates, and the critical path necessary for completion of the project within the contract time limits.

b) Show all significant design, manufacturing, construction, and installation activities.

c) Include sufficient time for cleaning, punch list review, and completion of punch list items prior to the Substantial Completion Date.

d) Clearly show the relationship between the work items and the starting and completion dates, as well as include all details of the work within the timeframe shown.

2. Survey Plan, including:

a) The name, address, telephone number, and qualifications of the surveyor, crew chief, superintendent, and all other persons who are proposed to perform survey or survey-related duties.

b) Procedures and equipment for performing topographic and hydrographic surveys.

c) Methods for establishing survey control, benchmarks, tide gage(s) and layout of the work.

3. Demolition and Pile Removal Plan, including:

a) Work sequence.

b) Number, types, and capacity of equipment to be used, including names of marine vessels to be used.

c) Hours of operation.

d) Methods of operation, estimated production rates, and the time required to complete each activity.

e) Means, procedures, and controls for overwater structure demolition, pile removal including management of excavated material around piles and material attached or adjacent to piles, and demolition material transport.

f) Methods for protection of the environment, including:

1) Details on proposed debris containment boom and oil containment boom.

2) Procedures and equipment for collecting and handling submerged and floating debris encountered during dredging operations.

3) Methods to prevent spillage of demolition debris back into the water during haul barge transport and cleanup of the barge.

4. Dredging/Excavation, Haul Barge Transport, and Dewatering Plan, including:

a) Work sequence.

b) Number, types, and capacity of equipment to be used, including names of dredge(s) and other marine vessels to be used.

c) Hours of operation.

d) Methods of operation, estimated production rates, and the time required to complete each activity.

e) Notification and procedures to be used for notifying the U.S. Coast Guard and moving equipment to accommodate commercial and tribal vessel traffic using the surrounding waterway.

f) Means and methods for Dredging/Excavation and haul barge transport.

g) Means and methods for horizontal and vertical control of the work.

h) Methods of operation including area and depth limitations of the Primary Technology (i.e., hydraulically actuated fully enclosed Young or similar bucket; see Section 352023 – Dredging and Excavation).

i) Methods for protection of the environment and existing facilities, including:

1) Procedures for preventing unfiltered release of water from the dredge material barge.

2) Methods, procedures, and controls to protect existing facilities against damage.

3) Methods, procedures, and controls to protect existing and constructed eelgrass beds.

4) Measures to prevent and capture spillage during offloading, rehandling, and transport of sediment, including the use of spill aprons and other measures necessary to fully contain dredged material.

5) Methods, procedures, and equipment to be used to dewater dredged material (if necessary) and to treat the effluent to meet water quality criteria and permit conditions.

6) Best management practices (BMPs) proposed by the Contractor to minimize the potential for water quality exceedance.

7) Procedures and equipment for collecting and handling submerged and floating debris encountered during excavation and dredging operations.

j) Methods, procedures, and controls to be used to segregate, handle, and transport debris to the approved transloading facility in accordance with applicable regulations.

k) Means and methods for operating the Staging and Stockpiling Area, including:

1) Description of stockpiling operations, including measures to prevent loss of sediment or associated water during stockpiling and rehandling within the Staging and Stockpiling Area. Show proposed location and size of stockpile.

2) Methods, procedures, and equipment for preventing untreated sediment and effluent release from the site Staging and Stockpiling Area into receiving waters.

5. Waste Management, Transportation, and Disposal Plan, including:

a) A list of wastes that will be generated and the proposed recycling facility or disposal site for each waste stream.

b) Methods, procedures, and equipment for transloading and disposal of creosote-treated piles and debris to the off-site disposal facilities as appropriate.

c) Documentation that facilities proposed for off-site disposal or recycling of waste materials are in compliance with applicable regulations. Include copies of permits for waste sites and recycling operations.

d) A list of all subcontractors to be employed in transportation, types of trucks, containers, and liners to be used, inspection procedures prior to transport, and BMPs to prevent any leakage or spillage.

e) A description of all haul routes, transfer facilities, estimated hours and days of operation, estimated number of trucks per day, and on-site traffic control measures.

6. Capping and Material Placement Plan, including:

a) Work sequence.

b) Number, types, and capacity of equipment to be used, including names of all marine vessels to be used.

c) Hours of operation.

d) Methods of operation, estimated production rates, and the time required to complete each activity.

e) Means and methods for horizontal and vertical control of the work.

f) Notification and procedures to be used for moving equipment to accommodate commercial and tribal vessel traffic using the surrounding waterway.

g) List of the sources (quarries) of all capping materials, including name, location, ownership, material supplied, and contact information.

h) List of the laboratory(ies) that will be conducting the testing of all engineered sediment capping materials, including name, location, ownership, laboratory certifications, list of tests to be performed, list of analysis methods and standards, and contact information.

i) Methods for protection of the environment and existing facilities, including:

1) Methods, procedures, and controls to protect existing facilities against damage.

2) Methods, procedures, and controls to protect existing and constructed eelgrass beds.

3) BMPs proposed by the Contractor to minimize the potential for water quality exceedance.

j) Methods for estimating average thickness of cap material placed.

k) Material barge information:

1) Certified tonnage versus displacement curve for all material barges.

2) Name of barge.

3) Length, beam, and molded depth of each barge.

4) Material capacity of barge.

5) Hydrostatic data certified by a naval architect for determining barge displacement in short tons, per each 1 foot of displacement between loaded and light drafts. The barge shall have clear and distinct draft marks.

6) Expected draft of barge loaded to capacity with cap material.

7. CQC Plan, including:

a) Organization chart showing the various Quality Control (QC) team members, along with their designated responsibilities and lines of authority.

b) The name, qualifications, duties, responsibilities, and authorities of each person assigned a primary QC function.

c) Acknowledgement that the QC staff will conduct inspections for all aspects of the work specified, and shall report to the QC Supervisor, or someone of higher authority in the Contractor's organization.

d) Procedures for scheduling and managing submittals, including those of subcontractors, off-site fabricators, and material suppliers.

e) Testing methods, schedules, and procedures used to report QC information to the Owner, including samples of the various reporting forms.

8. HASP, including:

a) Anticipated chemical and/or physical hazards associated with the work.

b) Hazardous material inventory and Material Safety Data Sheets for all chemicals that will be brought into the site.

c) Engineering controls/equipment to be used to protect against anticipated hazards.

d) Personal protective equipment and clothing including head, foot, skin, eye, and respiratory protection.

e) Work area housekeeping procedures and personal hygiene practices.

f) Personnel and equipment decontamination plan.

g) Administrative controls.

h) Emergency plan, including locations of and route to nearest hospital and key phone numbers.

9. Record keeping, including:

a) Documentation of appropriate employee training.

b) Name and qualification of person preparing the HASP and person designated to implement and enforce the HASP.

c) Signatory page for work area personnel to acknowledge receipt, understanding, and agreement to comply with the HASP.

10. Temporary Facilities and Controls Plan, including:

a) Layout of all proposed temporary facilities, including but not limited to, on-site Contractor's office, employee parking, materials delivery area(s), equipment/material lay-down and storage areas, fueling facility, fencing, entry and exit locations, and on-site and off-site transload facility(ies).

b) Utility connections.

c) Methods for temporary facilities maintenance and security.

d) Methods for traffic control, where and when needed.

11. EPP, including:

a) Organization chart and names of persons responsible for EPP compliance.

b) A list of key personnel, including phone numbers (home and office), qualified to act as the emergency coordinator.

c) Location of equipment and personnel decontamination areas.

d) Exclusion zones, contaminant reduction zones, and other zones specified in the Contractor's site-specific HASP.

e) Wastewater collection and storage areas or treatment facilities as necessary.

f) Identify the procedures that the Contractor shall implement if the Contractor encounters suspected hazardous waste during construction.

12. SPCC Plan including:

a) Name of the individual who will be responsible for implementing and supervising spill containment and cleanup.

b) The name and phone number of the Contractor's 24-hour/on-call spill response subcontractor.

c) Identification of potentially hazardous substances to be used on the job site. Identify intended actions to prevent introduction of such materials into air, water, or ground, and identify provisions for complying with federal, state, and local laws, ordinances, and regulations for storage and handling of these materials.

d) Controls and supplies for preventing environmental spill.

e) Controls and supplies for containing and cleanup of a spill should such occur.

f) Methods to protect groundwater from contamination, and methods to protect monitoring wells, as applicable.

g) On-site upland and in-water fueling procedures.

h) Oil spill prevention and response procedures, including the Contactor's notification procedures, to be used in the event of a spill of a regulated substance.

13. SWPPP, including:

a) Potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharge from the work site.

b) Methods to manage stormwater at the site and Contractor's on- and off-site transload facility(ies), and on-site Staging and Stockpiling

Area(s) to comply with all applicable laws, regulations, and permit requirements.

c) Methods that will be used for erosion control and to reduce the pollutants in the stormwater discharge associated with excavation, and in placing clean soil at the site.

d) Methods to direct surface waters that have not contacted potentially contaminated materials to existing surface drainage systems.

e) Methods to contain and collect water from sediment dewatering and/or stockpile areas and decontamination facilities and properly dispose of collected water.

14. Air Pollution and Odor Control Plan, including:

a) Describe air pollution control procedures and air permit application for on-site crushing operations, as applicable.

b) Describe dust minimization practices.

c) Describe contingency actions to address odor from sediment stockpiles if necessary. Describe methods and materials that may be used should odor control be required.

15. Marine Water Quality Criteria Compliance Plan, including:

a) BMPs, specialized equipment (e.g., silt curtains, environmental buckets), means, methods, and procedures used to prevent marine water quality criteria exceedances during completion of in-water activities.

b) Contingency actions that will be taken to restore compliance with marine water quality criteria should water quality exceedances occur during any in-water activities.

c) Methods that will be used to monitor haul barges for leakage, and to repair leaky barges.

16. Sediment Recontamination Control Plan, including:

a) Methods to control the dispersion of suspended solids from the point of dredging.

b) Supplier, model number, and dimensions of the silt curtain, debris boom, and oil boom (containment system).

c) Containment system layout, dimensions, and how the system will operate with the Contractor's equipment.

d) Containment system anchoring plan.

e) Methods and procedures for Contractor inspection, maintenance, and repair of containment system during construction.

1.05 ADMINISTRATIVE

A. Submit to the Engineer all submittals required for review as described in these Specifications. Submit promptly and in an orderly sequence so as to not cause a delay in work. Failure to submit in ample time is not considered sufficient reason for extension of Contract duration and no claim for extension by reason of such default will be allowed.

B. Allow necessary time for the following:

1. Review of product and sample data.

2. Review of re-submissions as necessary.

3. Ordering of accepted materials and/or products.

C. Allow a minimum of 7 calendar days for Engineer review of each submittal and an additional 7 calendar days for Engineer review of re-submittals. Unless stated otherwise in the Specifications, the Contractor shall be allowed 7 calendar days for revising initial submittals and providing re-submittals to the Engineer. The Contract time shall not be extended on the basis that the Contractor experienced delays due to rejection of submittals.

D. Do not proceed with work affected by a submittal until Engineer review and approval, if appropriate, is complete.

E. Review submittals prior to submission to the Engineer. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of work and Contract Documents. Submittals with content that does not meet the requirements of the Specifications, or not signed, dated, and identified as to the specific project, will be returned without being examined and considered rejected. Engineer review time starts only when a complete submittal is received.

F. Notify the Engineer, in writing at the time of submission, identifying deviations from requirements of Contract Documents and stating reasons for deviations.

G. The Contractor's responsibility for errors and omissions in its submissions is not relieved or diminished by the Engineer's review and acceptance of the

Contractor's submissions. The Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Engineer's review and acceptance of submittals.

H. Revise all submittals that are determined by the Engineer to be inadequate or non-compliant with the Contract Documents or permit conditions.

I. Re-submittals are the responsibility of the Contractor and shall be compensated at no additional costs to the Owner. Submittals shall be completed to the satisfaction of the Engineer.

J. Keep one reviewed, and approved, if appropriate, copy of each submission at the work site.

PART 2 – PRODUCTS

2.01 SAMPLES

A. The sample submitted shall be the exact or precise article proposed to be furnished.

2.02 SUBSTITUTIONS

A. Refer to Section 012500 – Substitution Procedures.

B. Catalog data for equipment approved by the Owner does not in any case supersede the Contract Documents. The approval by the Owner shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, unless the Contractor has in writing called to the Owner's attention such deviations at the time of the submission; nor shall approval relieve the Contractor from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the catalog data with the Contract Documents for deviations and errors.

PART 3 – EXECUTION

3.01 TRANSMITTALS

A. Submittals typically provided on paper may be submitted electronically as PDFs. This is the preferred method for the Owner.

B. Preparation: A separate submittal form shall be prepared for each product or procedure and shall be further identified by referencing the Specification section and paragraph number; each submittal shall be numbered consecutively.

C. Whenever materials or equipment are described by using the name of a proprietary item or the name of a particular supplier, the naming of the item is

intended to establish the type, function, and quality required. If the name is followed by the words "or equivalent," indicating that a substitution is permitted, materials or equipment of other suppliers may be accepted by the Owner. Sufficient information shall be submitted by the Contractor to allow the Owner to determine that the material or equipment proposed is equivalent to that named, subject to the following requirements:

1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the Contractor.

2. The Owner will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the Owner's decision shall be final.

3. The Owner may require the Contractor to furnish, at the Contractor's expense, additional data about the proposed substitution.

4. Acceptance by the Owner of a substitute item proposed by the Contractor shall not relieve the Contractor of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.

3.02 COORDINATION

A. Submit shop and detail drawings in related packages. All equipment or material details that are interdependent or are related in any way must be submitted indicating the complete installation. Submittals shall not be altered once approved for Construction. Revisions shall be clearly marked and dated. Major revisions must be submitted for approval.

B. Thoroughly review all shop and detail drawings, prior to submittal, to ensure coordination with other parts of the work. The Contractor's failure to do this will be the cause for rejection. Submittals shall bear approval stamp and initials.

C. Components or materials that require shop drawings and which arrive at the job site prior to approval of shop drawings shall be considered as not being made for this project and shall be subject to rejection and removal from the premises.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes the requirements for health and safety provisions necessary for all work at the site.

B. The work also includes compliance with all laws, regulations, and ordinances with respect to safety, noise, dust, fire and police action, civil disobedience, security, and traffic.

1.02 SUBMITTALS

A. Prior to the start of any work, provide a site-specific Health and Safety Plan (HASP) as part of the Construction Work Plan in accordance with Section 13300 – Submittal Procedures. The HASP shall meet all the requirements of local, state, and federal laws, rules, and regulations and the pertinent regulations listed in the Contract Documents, and shall address all requirements for general health and safety.

1.03 PRESENT SITE CHARACTERIZATION

A. Chemicals that exceed site-specific cleanup levels in sediment and excavated materials include cadmium, carcinogenic polycyclic aromatic hydrocarbon (cPAH) toxic equivalency quotient (TEQ), and dioxin/furan TEQ as described in Section 011000 – Summary.

B. The nature of the materials and substances present at the Site are described in more detail in the Engineering Design Report and Remedial Investigation/ Feasibility Study conducted for the Site, which are available at the Washington State Department of Ecology's Toxics Cleanup Website (https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=3444). The information indicates that dredged material and excavated soils and sediments are not designated Dangerous Waste or Hazardous Waste.

1.04 POTENTIAL PHYSICAL AND OTHER HAZARDS

A. The work of the Contractor is described elsewhere in these Specifications. Precautions to prevent all anticipated physical and other hazards, including heavy equipment and vessels, shall be addressed in the HASP.

B. Specific aspects of construction resulting in physical hazards anticipated for this project include, but are not limited to, the following:

1. Work over water, presenting hazards of falling overboard, hypothermia from exposure to the elements, and drowning.

2. Operation of land-based and marine equipment, including excavators, winches, derricks, and related equipment that present hazards of entrapment, ensnarement, and being struck by moving parts.

C. Other anticipated physical hazards include, but are not limited to, the following:

1. Heat stress, such as that potentially caused by impermeable clothing (may reduce the cooling ability of the body due to evaporation reduction).

2. Cold stress, such as that potentially caused during times of low temperatures and high winds, especially when precipitation occurs during these conditions.

3. Biological hazards, such as insect stings or bites.

4. Trips and falls.

PART 2 – PRODUCTS

2.01 PRODUCTS SPECIFIED FOR HEALTH AND SAFETY

A. Provide the equipment and supplies necessary to support the work as described in the site-specific HASP. Equipment and supplies may include, but are not limited to, the following:

1. Chemicals to be used on site including dust suppressants or wetting agents, cleaning or degreasing agents, or welding and cutting supplies.

2. Hazardous materials inventory and Safety Data Sheets for the chemicals brought on site.

3. Fencing and barriers.

4. Warning signs and labels.

5. Fire extinguishers.

6. Equipment to support “hot” work.

7. Equipment to support “lock out”/”tag out” procedures.

8. Scaffolding and fall protection equipment.

9. Personal protective equipment (e.g., hard hats, foot gear, and skin, eye, and respiratory protection).

10. Area and personnel exposure monitoring equipment.

11. Demolition equipment and supplies.

12. Decontamination equipment and supplies.

13. First aid equipment.

14. Release prevention equipment.

15. Field documentation logs and supplies.

PART 3 – EXECUTION

3.01 GENERAL

A. Comply with health and safety rules; regulations and ordinances promulgated by the local, state, and federal government; the various construction permits; and other sections of the Contract Documents. Such compliance shall include, but not be specifically limited to, the following:

1. Any and all protective devices, equipment, and clothing.

2. Guards.

3. Restraints.

4. Locks.

5. Latches.

6. Switches.

7. Other safety provisions that may be required or necessitated by state and federal safety regulations.

B. Determine the specific requirements for safety provisions and provide inspections and reports by the appropriate safety authorities to be conducted to ensure compliance with the intent of the regulations.

C. Inform employees and subcontractors and their employees of the potential danger in working with any potentially contaminated materials, equipment, soils, and groundwater at the site.

D. Perform whatever work is necessary for safety and be solely and completely responsible for conditions of the work area, including the safety of all persons and property during the Contract period. This requirement applies continuously and is not limited to normal working hours.

E. The Owner's review of the Contractor's performance does not include an opinion regarding the adequacy of, or approval of, the Contractor's safety supervisor, site-specific HASP, safety program, or any safety measures taken in, on, or near the site.

F. Accidents causing death, injuries, or damage must be reported immediately to the Owner in person or by telephone or messenger. In addition, promptly report in writing to the Owner all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

G. If a claim is made by anyone against the Contractor or any subcontractor because of any accident, the Contractor shall promptly report the facts to the Owner in writing within 24 hours after occurrence, giving full details of the claim.

3.02 SITE SAFETY AND HEALTH OFFICER

A. Provide a person designated as the Site Safety and Health Officer, who is thoroughly trained in construction safety, marine construction safety, rescue procedures, and the use of all necessary safety equipment that the work requires. The person must be present at all times while work is being performed.

B. The Site Safety and Health Officer shall be empowered with the delegated authority to order any person or worker at the site to follow the safety rules. Failure to observe these rules is sufficient cause for removal of the person or worker(s) from this project.

C. The Site Safety and Health Officer is responsible for determining the extent to which any safety equipment must be utilized, depending on conditions encountered at the site.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section describes the Contract-applicable permits.

1.02 PERMITS

A. Keep fully informed of all local ordinances, as well as state and federal laws that in any manner affect the work specified herein. Comply with said ordinances, laws, and regulations at all times, and protect and indemnify the Owner and its officers and agents against any claim or liability arising from, or based on, the violation of such laws, ordinances, or regulations. Secure and pay for any permits, licenses, and inspection fees necessary for prosecution and completion of the work that have not otherwise been obtained by the Owner.

B. Comply with all conditions required and response actions attached to applicable county, federal, state, and local permits and project requirements in Appendix A. The permits obtained by the Owner include the following:

1. State Environmental Policy Act Mitigated Determination of Nonsignificance issued by the Washington State Department of Ecology (Ecology).

2. Nationwide Permit 38 issued by the U.S. Army Corps of Engineers, which includes compliance with the following:

    a) Endangered Species Act: Best management practices (BMPs) and conservation measures are outlined in the Biological Assessment, the Port Gamble Bay Cleanup Project Supplemental Information (NWS-2013-1270) Memorandum, National Marine Fisheries Service Biological Opinion, and U.S. Fish and Wildlife Service Letter of Concurrence.

    b) Section 106 of the National Historic Preservation Act: BMPs are outlined in the Cultural Resources Survey Report and the Inadvertent Discovery Plan.

3. National Pollutant Discharge Elimination System Construction Stormwater General Permit issued by Ecology.

4. Right-of-Entry or Easement issued by the Washington State Department of Natural Resources.

1.03 POSTING PERMITS

A. Retain permits at the site of the work.

1.04 INSPECTIONS

A. Make arrangements for all inspections and testing required by the permits and conditions of the permits.

B. Retain inspection reports at the site.

1.05 RESTORATION OF PROPERTY

A. Comply with all property restoration requirements contained in permits and agreements to complete the work.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section describes the Contractor's Construction Quality Control (CQC) requirements, duties, and responsibilities during execution of the work. The intent of this section is to require the Contractor to establish a necessary level of control that will provide sufficient information to assure both the Contractor and the Engineer that the Specification requirements are and have been met.

B. Establish, provide, and maintain the CQC Plan as specified herein, detailing the methods and procedures that will be taken to ensure that all materials and completed construction elements conform to the Drawings, these Specifications, and other requirements. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the Specifications, it is the responsibility of the Contractor to ensure that construction and CQC are accomplished in accordance with the stated purpose and these Specifications as described herein.

C. Be prepared to discuss and present the Contractor's understanding of the CQC requirements at the Pre-construction Meeting. No construction shall begin until the CQC Plan has been reviewed and approved by the Engineer.

1.02 SUBMITTALS

A. Submit the qualifications of the personnel identified in Article 2.01 of this section.

B. Submit the CQC Plan in accordance with Section 013200 – Construction Progress Documentation, and Section 013300 – Submittal Procedures.

C. Submit Daily Construction Reports in accordance with Section 013200 – Construction Progress Documentation, and Section 013300 – Submittal Procedures.

D. Submit Test Reports in accordance with Section 013200 – Construction Progress Documentation, and Section 013300 – Submittal Procedures.

1.03 QUALITY ASSURANCE – CONTROL OF INSTALLATION

A. Monitor QC over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality.

B. Comply with manufacturers' instructions, including each step in a sequence.

C. Should manufacturers' instructions conflict with the Contract Documents, request clarification from the Engineer before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Ensure that work is performed by persons qualified to produce the required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

H. Familiarity with Pertinent Codes and Standards: In procuring all items used in this work, it is the Contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements.

I. Rejection of Non-Complying Items: The Owner reserves the right to reject items incorporated into the work that fail to meet the specified minimum requirements. The Owner further reserves the right, and without prejudice to other recourse, to accept non-complying items subject to an adjustment in the Bid Price as approved by the Owner.

1.04 REFERENCES AND STANDARDS

A. Products or workmanship specified by association, trade, or other consensus standards shall comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes or the Contract Documents.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product Specification sections.

D. Neither the contractual relationships, duties, nor responsibilities of the parties in the Contract, nor those of the Owner, shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

E. All pertinent laws, ordinances, rules, regulations, and codes shall govern construction activities at the site.

F. Construction that is not governed by governmental regulations or the Contract Documents will be governed by the more stringent provisions of the latest published edition or statute adopted edition, at the time of Contract signing, following these applicable codes and standards:

1. Uniform Building Code.

2. National Electrical Code.

3. Uniform Plumbing Code.

4. Uniform Fire Code.

1.05 TESTING SERVICES

A. Necessary materials testing shall be performed by an independent testing laboratory during the execution of the work. Provide access to the area necessary to perform the testing and/or to secure the material for testing.

B. Testing does not relieve the Contractor's obligation to perform work to Contract requirements.

C. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm. Payment for re-testing will be charged to the Contractor by deducting testing charges from payments due to the Contractor.

D. Material testing for initial material approval will be performed by an independent, certified laboratory and paid for by the Contractor. These tests must be dated within 6 months of the submittal date.

E. Subsequent sampling and testing required as the work progresses, to ensure continual control of materials and compliance with all requirements of the Contract Documents, will be the responsibility of the Owner, except as required by other sections of these Specifications.

PART 2 – PRODUCTS

2.01 CONTRACTOR PERSONNEL REQUIREMENTS

A. All Contractor personnel shall be trained, experienced, and qualified to perform the tasks assigned to them.

B. Submit the qualifications of the proposed Field Superintendent to the Owner for review and approval. The proposed Field Superintendent shall have a minimum of 5 years of experience as a Field Superintendent, in addition to having been the Field Superintendent on three projects of similar type and size, described using the form below.

Contractor Personnel

Field Superintendent: The Field Superintendent must have successfully completed three projects of similar type and size (describe below).

Name: _____
Address: _____
Phone: _____
Name of Contractor Employed By: _____

1. Project Name: _____
   Owner: _____ Contact Person: _____
   Name of Contractor Employed By: _____
   Completion Date: _____

2. Project Name: _____
   Owner: _____ Contact Person: _____
   Name of Contractor Employed By: _____
   Completion Date: _____

3. Project Name: _____
   Owner: _____ Contact Person: _____
   Name of Contractor Employed By: _____
   Completion Date: _____

PART 3 – EXECUTION

3.01 CQC PLAN

A. Submit a CQC Plan to the Owner as part of the Construction Work Plan in accordance with Section 013300 – Submittal Procedures. The CQC Plan will be reviewed by the Owner and must be approved before any work can start. The CQC Plan will be used to document inspections, monitoring, surveys, and other actions to be taken by the Contractor to ensure that the work complies with all Contract requirements.

B. Organization

1. CQC Supervisor: Identify an individual within the Contractor's organization, located at the site, who shall be responsible for overall QC management and have the authority to act in all QC matters for the Contractor.

2. Personnel: Maintain a staff member under the direction of the CQC Supervisor to perform all QC activities. The personnel of this staff shall

be fully qualified by experience and technical training to perform their assigned responsibilities and shall be directly hired for the work by the Contractor.

C. The Contractor is encouraged to add any additional elements to the CQC Plan that are deemed necessary to adequately control all production and/or construction processes required by this Contract.

3.02 DOCUMENTATION

A. Specific Contractor QC Records required for the Contract shall include, but are not necessarily limited to, the following records:

1. QC Records are those documents that have been reviewed and accepted by the Contractor as complete, correct, and legible. QC Records shall include documents such as:

a) Drawings, Specifications, procedures used for construction, procurement documents, inspections, and test records.

b) Submittals.

c) Personnel and procedure qualification records.

d) Material, chemical, and physical property test results.

e) Certificates of Compliance and shipment releases.

f) Non-compliance reports and corrective action.

Identify all QC Records in the CQC Plan and maintain them in the Contractor's site files. Provide the Engineer access to these files when requested. Upon completion of the Contractor's contractual activities, turn these files over to the Engineer.

2. Daily CQC Report: Prepare and maintain a Daily CQC Report of operations. The Daily CQC Report shall be attached to the Contractor's Daily Construction Report, submitted in accordance with Section 013200 – Construction Progress Documentation, and Section 013300 – Submittal Procedures.

3. The Daily CQC Report shall include the results of all inspections, surveys, and monitoring activities and shall be signed by the Contractor's Field Superintendent or CQC Supervisor.

B. Document Control: The Contractor's CQC Plan must require that Contractor-generated documents pertaining to quality-related items be controlled. The

following types of documents shall be on controlled distribution to ensure that changes to them are transmitted and received when applicable:

1. Manuals.
2. Instructions.
3. Procedures.
4. Specifications.
5. Drawings.
6. Inspection and test plans.
7. Field change requests.

3.03 CORRECTIVE ACTION REQUIREMENTS

A. The CQC Plan shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control.

3.04 OVERSIGHT BY THE ENGINEER

A. All items of material and equipment shall be subject to oversight by the Engineer at the point of production, manufacture, or shipment to evaluate whether the Contractor, producer, manufacturer, or shipper maintains an adequate QC system in conformance with the requirements detailed herein and the applicable technical Specifications and Drawings. In addition, all items of materials, equipment, and work in place shall be subject to surveillance by the Engineer at the site for the same purpose.

B. To facilitate oversight by the Engineer, allow the Engineer access to the dredge derrick, barge, or other floating equipment at the request of the Engineer while the work is being performed.

C. Oversight by the Engineer does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractors' work.

3.05 NON-COMPLIANCE

A. The Engineer will notify the Contractor of any non-compliance with any of the foregoing requirements. Immediately take corrective action after receipt of such notice. Any notice, when delivered by the Engineer or his/her authorized representative to the Contractor or his/her authorized representative at the site of the work, shall be considered sufficient notice.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section presents requirements for establishment of temporary facilities as part of the work, including but not limited to, Contractor access to the work site, Contractor parking, Contractor offices, locations for materials delivery, security fencing, storage, and utility connections that will be made available during the work.

B. Locations for temporary facilities, Staging and Stockpiling Area(s) and storage, utility connections, and where temporary facilities will be made available to the Contractor at the work site during completion of the work are shown on the Drawings.

C. The work includes compliance with all controls or ordinances with respect to safety, noise, dust, security, and traffic.

D. Install, maintain, and operate all temporary facilities and controls as long as needed for the safe and proper completion of the work.

E. Details regarding environmental protection measures associated with temporary facilities are presented in Section 015719 – Temporary Environmental Controls.

F. Work under this Specification section is paid under Bid Item No. 2 – Site Preparation as shown on the Bid Form and described in Section 012000 – Price and Payment Procedures.

1.02 SUBMITTALS

A. Submit a Temporary Facilities and Controls Plan as part of the Construction Work Plan in accordance with Section 013300 – Submittal Procedures, which provides the site layouts in accordance with requirements of these Specifications.

1.03 ACCESS AND DELIVERY

A. The designated entry and exit of Contractor’s vehicles to the site are shown on the Drawings.

B. Locate all offices, employee parking, and staging and stockpiling operations at the Staging and Stockpiling Area. Use of the Staging and Stockpiling Area(s) shall be only for Contractor access to complete the work and for equipment and materials laydown.

C. The Contractor is required to use only the designated entrance(s) to access the work site, as shown on the Drawings, for deliveries and access to the site:

1. Maintain designated entrances for the duration of the Contract.

2. Repair damage resulting from the Contractor's use.

D. Provide and maintain access roads, sidewalk crossing ramps, and construction runways as may be required for access to the work. All roadways and walkways outside of the Contractor's work site must be kept clear of materials and equipment at all times.

E. Provide and maintain competent flag operators, traffic signals, barricades and flares, lights, or lanterns as may be required to perform work and to protect other users at the work site.

1.04 REMOVAL OF TEMPORARY FACILITIES

A. Remove temporary facilities from the work site, when advised by the Engineer, following completion of cleanup activities. Properly dispose of any waste materials removed during demobilization.

B. Clean and repair damage caused by installation or use of temporary work.

1.05 CLEANUP

A. Conduct all project cleanup activities in accordance with these Specifications.

B. Remove construction debris, waste materials, and packaging material from the work site daily.

C. Clean dirt or mud tracked onto paved or surfaced roadways.

PART 2 – PRODUCTS

2.01 TEMPORARY SIGNAGE

A. Project and Safety Signs

1. Erect signs within 15 days after receipt of the Notice to Proceed.

2. Maintain signs and notices in good condition for duration of the work, and dispose off site on completion of the project or when advised by the Engineer.

2.02 TEMPORARY TRAFFIC CONTROL

A. Haul Roads

1. At Contractor's expense, construct on-site access and haul roads necessary for proper implementation of the work under this Contract.

2. Construct on-site access and haul roads with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic are to be avoided.

3. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic.

4. The method of dust control must be adequate to ensure safe operation at all times.

5. Location, grade, width, and alignment of construction and hauling roads are subject to approval by the Engineer.

6. Lighting must be adequate to ensure full and clear visibility for full width of haul road and work areas during any night work operations.

B. Barricades

1. Erect and maintain temporary barricades to limit public access to hazardous areas.

2. 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.

3. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

2.03 UTILITIES

A. Provide adequate facilities for the Contractor's operation at the Contractor's expense, including:

1. Water

a) Provide fresh drinking water for employees near sanitary containers. Make arrangements to supply construction water for the duration of this Contract.

b) Install backflow preventers between the water utility source and the Contractor's connection to that source.

c) Furnish, install, and remove upon completion of the work all such connections and fittings to the satisfaction of the Owner.

2. Construction Electricity

   a) Make all arrangements for the furnishing of electric power for construction purposes. The power meter shall be registered in the name of the Contractor.

3. Toilet Room Facilities

   a) Install and maintain necessary temporary sanitary toilet facilities with hand washing facilities during the term of this Contract. Regularly maintain all toilet facilities in a sanitary condition. Toilets shall be of a chemical type; they shall be removed at completion of work and the premises disinfected.

4. Communications

   a) Install and maintain the appropriate equipment to allow for the efficient communication with the Owner and with outside parties at all times during the term of this Contract. Remove at completion of work. All accounts shall be registered in the name of the Contractor.

5. Contractor Field Office

   a) Install and maintain necessary field office space during the work. Remove at the completion of work.

6. Engineer's Field Office

   a) Provide a secure field office suitable for use by the Engineer and his/her resident inspection staff. The Engineer's field office shall be plumb and level, a minimum of 200 square feet in size, and shall be separate from the Contractor's field office. It shall be for the exclusive use of the Engineer and his/her staff. The final location of the Engineer's field office shall be approved by the Engineer.

      The field office shall be complete with wireless internet, two 5-foot office desks with three drawers each, two office-type chairs, one layout table of 2.5 by 5 feet, one drafting table of 3 by 6 feet with stool, one four-drawer lockable metal filing cabinet, shelves, one bulletin board, three additional chairs, power, light, ventilation, air conditioning, security barred windows, fire extinguisher, first aid kit, and heat. Provide three sets of keys providing access to the vandal-proof field office door lock.

2.04 USE AND OCCUPANCY

A. The Contractor will be allowed space for the storage of materials, equipment, and employee parking, as shown on the Drawings.

1. Employee parking will be confined to the Staging and Stockpiling Area shown on the Drawings. Employee and equipment parking in the town of Port Gamble is not allowed.

B. Make arrangements with private property owners as desired to secure additional space for material storage, employee parking, or other needs.

1. All space must be within local land use and permitting requirements at the Contractor's expense.

2. Provide the Owner with a copy of the release from the private property owner that all obligations of the property use arrangement have been met before final payment to the Contractor is issued.

C. The work site shall be closed to the public at all times. Abide by any special requests of security personnel and local police and fire departments.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. This section covers preventing environmental pollution during, and as a result of, construction operations. Other Specification sections may also contain specific requirements for environmental protection. Those specific requirements are in addition to the requirements in this section; the more stringent requirements shall control. The control of environmental pollution requires consideration of noise levels, air, water, and land.

B. The Contractor is responsible for environmental protection during all construction activities at all locations it performs work. Work locations include, but are not limited to: the site, on- and off-site transload facility(ies), on- and off-site Staging and Stockpiling Area(s), and during barge transport over water and land-based transportation of all contaminated materials. This section primarily addresses work conducted at the site, but the Contractor is responsible for complying with environmental protection regulations at all locations that are used for the work of this project.

C. Environmental degradation arising from construction activities shall be prevented, abated, controlled, and minimized by complying with all applicable federal, state, and local laws and regulations concerning environmental pollution control and abatement, as well as the specific requirements in the project permits. The Contractor shall comply with all permit conditions.

D. The work includes compliance with all controls or local, state, and federal ordinances with respect to safety, noise, odor, dust, fire and police action, civil disobedience, security, or traffic.

E. The work also includes implementing Temporary Erosion and Sedimentation Control (TESC) measures, including stormwater pollution prevention measures to prevent debris, dredged sediment, excavated soils, and contaminated stormwater from entering Port Gamble Bay.

F. The work also includes providing control measures to prevent or limit, to the extent practicable, recontamination of cleaned-up areas or adjacent non-contaminated areas during construction activities.

G. No separate payment will be made for effort associated with work described in this Specification section. Work required to comply with this Specification section is considered to be incidental to all other activities described in the Contract Documents.

1.02 REFERENCES

A. Comply with all federal, state, and local environmental statutes, ordinances, and regulations that deal with the prevention of environmental pollution and the preservation of public natural resources that affect or may affect this project for the duration of the project.

1.03 SUBMITTALS

A. Prepare and submit an Environmental Protection Plan (EPP), TESC Plan, Spill Prevention, Control, and Countermeasures (SPCC) Plan, and Stormwater Pollution Prevention Plan (SWPPP) as part of the Construction Work Plan in accordance with Section 013300 – Submittal Procedures that presents the procedures by which the Contractor shall establish and maintain quality control for environmental protection during all construction activities.

1.04 ENVIRONMENTAL RESPONSIBILITY

A. Demonstrate in the performance of the work that the Contractor is environmentally responsible by complying with environmental laws, ordinances, and regulations; being observant for, and immediately notifying the Engineer of, any environmental problems that develop at the site or Contractor Facilities; and taking all reasonable and necessary measures in the performance of the work to avoid causing negative impacts to the environment. Where negative impacts occur, the Contractor must immediately advise the Engineer and shall be solely liable to undertake all reasonable and necessary measures to address such negative impacts.

B. Sequence the Contractor's work to prevent or minimize, to the extent practicable, the potential for recontamination of the site or adjacent non-contaminated areas.

C. Maintain key pollution control systems in working condition throughout the project and undertake all works such that there are no unauthorized discharges of liquids or solids to the marine environment, or of gas to the atmosphere.

D. Maintain a neat work area free of unnecessary debris, tools, equipment, or materials; dispose of sewage, refuse, and chemical wastes in compliance with the applicable regulations and permit requirements for this work; and remove all tools, equipment, supplies, and wastes from the site upon completion of the work.

E. Maintain all equipment and machinery in good working order and free of leaks or excess oil, grease, and debris. Ensure that appropriately equipped spill kits are available on all equipment at the site and Contractor Facilities, and that workers and supervisory staff are knowledgeable with the provisions of the EPP and are adequately trained to implement the measures contained therein.

1.05 FIRES

A. Fires and burning of rubbish at the site are not permitted.

1.06 WASTEWATER MANAGEMENT AND DISPOSAL

A. Discharges: Comply with applicable discharge limitations and requirements; do not discharge wastewaters to site sewer systems that do not conform to, or are in violation of, such limitations or requirements.

B. Do not discharge wastewater from personnel hygiene or decontamination facility or toilet facilities on site.

C. Dredged material dewatering effluent may be discharged to receiving waters at the site, provided it has been adequately filtered to remove suspended solids.

1.07 DISPOSAL OF NON-SEDIMENT WASTES

A. Do not bury rubbish or waste materials on the site.

B. Do not dispose of waste or volatile materials, such as mineral spirits, oil, or paint thinner into waterways, storm sewers, or sanitary sewers.

C. Do not discharge wastes into streams or waterways.

D. The Contractor is responsible for storing, separating, handling, transporting, and disposing of all waste materials in accordance with applicable regulations and requirements, and at appropriate disposal facilities or transfer stations.

E. Disposal or recycling of other waste generated during the project shall be done in compliance with applicable regulations, and the facilities used will need to be reviewed by the Engineer.

1.08 NOTIFICATION

A. The Engineer will notify the Contractor, in writing, of observed noncompliance with federal, state, or local environmental statutes, ordinances or regulations, permits, and other elements of the Contractor's EPP. Notwithstanding this notification process, the Contractor shall be responsible for conducting all construction activities in a manner compliant with these regulations.

B. Inform the Engineer of proposed corrective action after receipt of such notice, and take such action for approval by the Engineer.

C. The Engineer may issue a stop work order until satisfactory corrective action has been taken.

D. No time extensions shall be granted or equitable adjustments allowed to the Contractor for such suspensions.

PART 2 – PRODUCTS

2.01 CATCH BASIN INSERTS

A. Catch basin inserts shall meet the requirements provided on the Drawings.

2.02 TEMPORARY EROSION AND SEDIMENT CONTROLS

A. Components for Silt Fences shall meet the requirements provided on the Drawings.

B. Components for Straw Bales

1. The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, bermuda, etc., furnished in air dry condition. Provide bales with a standard cross section of 14 by 18 inches. Wire-bound or string-tie all bales.

2. Use either wooden stakes or steel posts to secure the straw bales to the ground.

2.03 SILT/TURBIDITY CURTAIN

A. Use a silt or turbidity curtain to limit suspended sediment transport during completion of subtidal dredging activities. The curtain shall have a minimum skirt length of 10 feet. The curtain shall be supported by floats at the top that keep the top of the silt curtain above the water surface, and be weighted at the bottom. It shall be designed, installed, managed, and moved such that minimal dispersion of suspended sediment in the water column occurs, and to help meet the water quality requirements.

B. Be responsible for design, procurement, installation, operation, inspection, maintenance, and repair of all silt or turbidity curtains.

C. Submit manufacturer information and a Silt Curtain Installation, Operations, and Maintenance Plan to the Engineer as part of the EPP.

2.04 CONTAINMENT BOOM

A. The floating containment boom shall be capable of fully containing all floating debris generated during demolition and pile removal activities. Inspect the floating containment boom on a daily basis and maintain the condition of the containment boom throughout the duration of the work.

2.05 SORBENT BOOM

A. Floating sorbent boom shall be deployed within the containment boom at all times the Contractor is completing demolition and pile removal activities. Inspect the sorbent boom on a daily basis, maintain the condition of the sorbent boom throughout the duration of the work, and replace the sorbent boom once it becomes ineffective at absorbing sheen. The Contractor shall maintain additional sorbent materials and pads to deploy as needed to remove surface sheens.

PART 3 – EXECUTION

3.01 GENERAL

A. Maintain a copy of the EPP at the site and at the Contractor's on- and off-site transload facility(ies).

B. In the event of a conflict between these requirements and environmental and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply as determined by the Engineer.

C. No discharge of water to Port Gamble Bay shall be allowed that exceeds the regulated pollutant levels in the National Pollutant Discharge Elimination System (NPDES) General Permit. All water discharged to Port Gamble Bay shall be in compliance with Washington State Surface Water Quality Standards (173-201A Washington Administrative Code [WAC]).

D. The Contractor shall be solely responsible for any damages and fines incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this section.

E. The Contractor shall be solely responsible for schedule impacts incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this section.

F. Supervision

1. During the work, supervise all activities, including those of subcontractors, to ensure compliance with the intent and details of the EPP. Conduct weekly environmental compliance meetings for the Contractor and its subcontractors to ensure that all personnel working at the site are familiar with the environmental protection provisions. Inspect all equipment and materials for environmental protection regularly to ensure that they are in proper order, are being applied correctly, and have not deteriorated.

G. Daily Inspection and Weekly Reporting

1. Conduct daily inspection of the Contractor's environmental protection measures to ensure that all are working properly and are adequately maintained during the duration of construction.

2. Submit written Weekly Environmental Protection Inspection Reports to the Engineer as part of the Contractor's Weekly Construction Report in accordance with Section 013300 – Submittal Procedures.

3.02 NOTIFICATION OF NON-COMPLIANCE

A. The Owner will notify the Contractor of non-compliance with the provisions of this section. Immediate corrective action shall be taken in the event of non-compliance. Such notice, delivered at the site, shall be sufficient for the Contractor to take action. The Owner may issue an order stopping all or part of the work for failure to comply until corrective action has been taken. No time lost resulting from such stop orders shall be the subject of a claim for extension of time or for costs or damages. The Contractor is required to comply with all environmental requirements whether or not notified by the Owner of non-compliance.

3.03 SUBCONTRACTORS

A. Compliance with this section by subcontractors will be the responsibility of the Contractor.

3.04 SITE MAINTENANCE

A. Keep the site, on- and off-site transload facility(ies), on-site Staging and Stockpiling Area(s), and Contractor's temporary facilities clean and free from rubbish and debris. Remove materials and equipment from the site when they are no longer necessary. Upon completion of the work, and before final acceptance, clear the site of equipment, unused materials, and rubbish to present a clean and neat appearance in conformance with the present condition of the site.

B. Catch Basins

1. Clean catch basins of all debris and sediment and dispose of properly.

2. Maintain catch basin inserts during construction. Clean out or replace catch basin inserts when one-quarter full of sediment and debris.

3. Remove and dispose of catch basin inserts after substantial completion. Remove and dispose of all sediment and debris in catch basins.

C. Cleanup

1. Maintain work in tidy condition, free from accumulation of waste products and debris.

2. Dispose of waste materials and debris in accordance with these Specifications.

3. Waste material of any kind shall not be permitted to remain on the site of the work or on adjacent streets. Immediately upon such materials becoming unfit for use in the work, they shall be collected, carried off the site, and properly disposed of by the Contractor.

4. Keep all buildings occupied by the Contractor clear of all refuse, rubbish, and debris that may accumulate from any source, and keep them in a neat condition to the satisfaction of the Engineer.

5. Handle paints, solvents, petroleum products, hazardous substances, bulk cement, concrete cure washings, crushed concrete, waste streams generated during construction, and other construction materials with care to prevent entry of contaminants into storm drains, surface waters, or soils. Dispose of excess materials off-site in accordance with applicable local, state, and federal regulations.

6. In the event that waste material, refuse, debris, and/or rubbish are not removed from the work by the Contractor, the Owner reserves the right to have the waste material, refuse, debris, and/or rubbish removed, and the expense of the removal and disposal deducted from payment owed to the Contractor.

D. Street Cleaning

1. Prevent dirt and dust from escaping from trucks departing the site by covering all loads, scrubbing and/or washing truck tires and undercarriages before leaving the site, installing inserts at catch basins, and other reasonable methods. Take all measures necessary to prevent the tracking of mud and other debris from the site to the surrounding streets.

2. When working dump trucks or other equipment are on paved streets and roadways, clean said streets and roadways at the conclusion of each day's operations at a minimum, and as required by the Engineer to prevent tracking of soil or other transported materials on paved roads at no additional cost to the Owner. Properly dispose of all collected material. This shall be the case, whether the vehicles or equipment are owned and/or operated by the Contractor or its subcontractors, or not.

3. In the event that the above requirements are violated and no action is taken by the Contractor after notification of non-compliance by the Engineer, the Owner reserves the right to have the streets and roadways in question cleaned by others and the expense of the operation deducted from payment owed to the Contractor.

3.05 PROTECTION OF FISH AND WILDLIFE

A. Perform all work and take all steps to prevent interference or disturbance to fish and wildlife. Do not alter or disturb water flows or habitat outside the project boundaries. Do not remove or alter native trees or shrubs during construction. Protect existing native vegetation on or adjacent to the site prior to and for the duration of construction.

B. Immediately cease dredging, capping, or other in-water operations if fish kill or distressed fish are observed, and immediately notify the Owner, Engineer, U.S. Army Corps of Engineers (USACE), Washington Department of Fish and Wildlife, and Washington State Department of Ecology (Ecology).

3.06 PROTECTION OF AQUATIC VEGETATION

A. Except in areas where eelgrass is planned for removal, restrict vessel operation to tidal elevations adequate to prevent propeller-related damage to existing native kelp, eelgrass, or macroalgae beds.

B. Do not operate equipment within eelgrass beds that are proposed to be protected.

C. As practicable, conduct subtidal dredging that occurs adjacent to the eelgrass beds in a manner that minimizes sediment deposition on the eelgrass beds.

D. Do not allow direct placement of fill to occur within the buffers of eelgrass beds that are proposed to be protected as shown on the Drawings.

E. Operate barge movements between elevation +2.0 feet mean lower low water (MLLW) and -20 feet MLLW as follows to minimize shade-related impacts to eelgrass habitat:

1. Do not allow barges to shade any portion of eelgrass beds that are not planned for removal for a continuous period of longer than 4 consecutive days. If shading occurs for a period of 4 consecutive days, then the eelgrass area shall receive, at a minimum, 3 consecutive days of uninterrupted natural light.

2. When not in use, locate barges in deep water to avoid shading impacts on macroalgae and eelgrass vegetation.

3. Set and retrieve anchors vertically, and maintain anchor tension such that anchor cables do not drag.

4. Use minimal propulsion power when maneuvering barges between the mean higher high water (MHHW) line and elevation -20 feet MLLW, for the protection of eelgrass habitat.

5. Do not permit barges to ground out or spud down within existing eelgrass beds as shown on the Drawings.

F. Eelgrass, kelp and macroalgae exist in areas not shown on the Drawings. The Contractor must protect native aquatic vegetation even if it is not identified on the Drawings. Impacts to wetlands, eelgrass or other high value habitat may be subject to mitigation requirements.

3.07 AIR POLLUTION AND ODOR CONTROL

A. Do not discharge smoke, dust, odor, or other contaminants into the atmosphere that violate the regulations of any legally constituted authority. Do not allow internal combustion engines to idle for prolonged periods of time. Maintain construction vehicles and equipment in good repair. Repair or replace exhaust emissions that are determined to be excessive by the Engineer.

B. Minimize dust nuisance by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. The use of water, in amounts that result in mud on public streets, is not acceptable as a substitute for sweeping or other methods. Keep equipment for this operation on the jobsite or available at all times.

1. Execute work by methods that minimize raising dust from construction operations.

2. Apply water as required for dust control, and when advised by Engineer. Choose dust control methods such that a minimal amount of water is required.

3. Apply water with distributors equipped with a spray system to ensure uniform application and with means of shut off.

4. Do not allow runoff from water used for dust control to enter storm drains.

C. Conduct all operations and maintain the site so as to minimize and suppress objectionable odors and the potential for organic vapors associated with the work consistent with all local, state, and federal regulations.

1. Monitor odor as necessary to comply with any applicable health and safety regulations and implement procedures to reduce or eliminate odor from sediment stockpiles if necessary.

2. Implement measures to suppress organic vapor concentrations and/or odors at no additional cost to the Owner. Acceptable measures include backfilling open excavations, and/or application of an odor or organic vapor suppression foam.

3. The Owner reserves the right to suspend work at any time in the event that the Contractor's operations result in organic vapors or objectionable odors that are deemed to cause a potential safety and/or air quality issue.

3.08 NOISE AND LIGHTING CONTROL

A. Ensure that construction involving noisy operations, including starting and warming up of equipment, is in compliance with local noise ordinances. Schedule noisy operations so as to minimize their duration.

B. Comply with all local controls and noise level rules, regulations, and ordinances that apply to the work.

C. Enclose each internal combustion engine used for any purpose on the job or related to the job and equip with a muffler and spark arrester of a type recommended by the manufacturer. Do not operate any internal combustion engine on the project without said muffler and enclosure. Ensure that noise control devices on construction equipment are properly maintained. Operate all construction equipment with exhaust systems in good repair to minimize noise.

D. Implement the use of lighting shrouds for work to be completed during night-time hours to minimize lighting disruptions to local residents.

3.09 SPILL PREVENTION AND CONTROL

A. Be responsible for prevention, containment, and cleanup of spilling of oil, fuel, and other petroleum products used in the Contractor's operations. All such prevention, containment, and cleanup costs shall be borne by the Contractor.

B. The Contractor is advised that discharge of oil from equipment or facilities into State waters or onto adjacent land is not permitted.

C. Take the following measures, at a minimum, regarding oil spill prevention, containment, and cleanup:

1. Inspect fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums, and other equipment and facilities regularly for

drips, leaks, or signs of damage, and maintain and store properly to prevent spills. Maintain proper security to discourage vandalism.

2. Dike or locate all land-based oil and products storage tanks so as to prevent spills from escaping to the water. Line diking and sub-soils with impervious material to prevent oil from seeping through the ground and dikes.

3. Immediately contain all visible floating oils with booms, dikes, oil-absorbent pads, or other appropriate means and remove from the water prior to discharge into State waters. Immediately contain all visible oils on land using dikes, straw bales, or other appropriate means and remove using sand, ground clay, sawdust, or other absorbent material, and properly dispose. Temporarily store waste materials in drums or other leak-proof containers after cleanup and during transport to disposal. Dispose waste materials off-property at an approved and permitted disposal facility.

4. Use environmentally sensitive hydraulic fluids that are non-toxic to aquatic life and that are readily or inherently biodegradable.

5. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, immediately notify the Engineer and other required reporting agencies at their listed 24-hour response numbers, including but not limited to:

    a) National Response Center: (800) 424-8802

    b) Washington Emergency Management Division: (800) 258-5990 or (800) OILS-911

    c) Ecology, Northwest Regional Office: (425) 649-7000

    d) U.S. Coast Guard: (206) 217-6002

6. Maintain the following equipment and materials on the jobsite in sufficient quantities to address potential spills from the Contractor's floating and land-based equipment:

    a) Oil-absorbent booms.

    b) Oil-absorbent pads or bulk material.

    c) Oil-skimming system.

    d) Straw bales.

e) Oil dry-all, gloves, and plastic bags.

f) Contractor employee personal protective equipment (PPE) for emergency spill response.

g) Concentrated odor neutralizer.

D. Perform construction activities by methods that will prevent entrance or accidental spillage of solid matter, contaminants, debris, or other pollutants or wastes into saltwater bodies, streams, flowing or dry watercourses, lakes, wetlands, reservoirs, or underground water sources. Such pollutants and wastes include, but are not restricted to: refuse, garbage, cement, sanitary waste, industrial waste, hazardous materials, radioactive substances, oil and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution.

3.10 TEMPORARY EROSION AND SEDIMENT CONTROL

A. Develop and implement the construction SWPPP as described in Section 013300 – Submittal Procedures, including TESC best management practices (BMPs). Address the following issues as part of developing and implementing the TESC BMPs:

1. The TESC notes and details shown in the Drawings and the information in this section of these Specifications are minimum requirements for the anticipated site conditions during the construction period. During the construction period, upgrade the TESC facilities as needed for unexpected storm events and modify these facilities for changing site conditions (such as relocation of ditches and silt fences, etc.) at no additional cost to the Owner.

2. Inspect the TESC facilities daily and maintain these facilities to ensure continued proper functioning during the construction period. Submit written records of these inspections to the Engineer as part of the Contractor's Weekly Construction Report on a weekly basis in accordance with Section 013300 – Submittal Procedures.

3. Immediately stabilize any areas of exposed soils, including embankments, which will not be disturbed for 2 days during the wet season (October 1 through April 30) or 7 days during the dry season (May 1 through September 30) with the approved TESC measure (e.g., plastic covering, etc.).

4. Employ appropriate erosion control measures, including silt fences, filter fabric, plastic sheeting, sedimentation ponds, and placement of straw bales along the peripheries of construction sites, temporary detention ponds, and terraced slopes, and ensure that measures are in place prior to any clearing or grading activity.

B. Silt Fences

1. Provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Properly install silt fences to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g., clearing and grubbing, excavation, embankment, and grading).

C. Straw Bales

1. Provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. If bales are used, properly place the bales to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) and remove, replace, or relocate the bales as needed for work to progress in the drainage area.

D. If monitoring or inspection shows that the erosion controls are ineffective, immediately mobilize work crews to make repairs, install replacements, or install additional controls as necessary.

3.11 WASTEWATER MANAGEMENT CONTROLS

A. Stockpile Wastewater Control Measures

1. Fully contain all Staging and Stockpiling Area(s) located within the on-site Staging and Stockpiling Area(s) to prevent release of unfiltered effluent and suspended sediments, or other potentially contaminated materials from the stockpile area.

2. Suspend work in the rain if such work cannot be performed without causing turbid runoff.

3. Discharge of hazardous substances will not be permitted under any circumstances.

3.12 STORMWATER MANAGEMENT CONTROLS

A. Drainage and Surface Water Management

1. Divert stormwater runoff from upslope areas away from stockpile and/or excavation areas. Implement practices to divert flows from exposed soils, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site.

2. Use methods of dewatering, excavating, or stockpiling sediment, soil, and debris materials that include prevention measures to control silting and

erosion, and that will intercept and settle any runoff of soil- or sediment-laden wastewaters.

3. Before construction begins, establish appropriate perimeter barriers to prevent excess surface water flows from causing erosion. Keep work areas free of surface water run-on from adjacent upland areas, and as free from immersion as possible. Unless otherwise specified, remove all temporary facilities, equipment, and structures for care and diversion of water upon completion of the work, except the permanent drainage features of the project.

4. To avoid solids or turbid runoff from entering surface waters, secure, and/or berm excavated areas and stockpiles and employ other methods as necessary such as straw bale around storm drains or around excavated areas; or use sedimentation basins.

5. Prevent construction site runoff from directly entering any storm drain or the waterway; use straw bales or other filtration method suitable to the Engineer.

3.13 FUEL STORAGE TANKS MANAGEMENT

A. Storage tank placement: Place fuel or other petroleum product (hereinafter referred to collectively as fuel) storage tanks or containers at least 20 feet from saltwater bodies, streams, flowing or dry watercourses, wetlands, reservoirs, and any other water source in a discharge area.

B. Storage area dikes: Construct storage area dikes at least 12 inches high or graded and sloped to permit safe containment of leaks and spills equal to the capacity located in each area plus a sufficient amount of freeboard to contain the 25-year rainstorm.

C. Diked area barriers: Provide diked areas with an impermeable barrier at least 50 mils thick. Provide areas used for refueling operations with an impermeable liner at least 50 mils thick buried under 2 to 4 inches of soil.

D. Underground tank prohibitions: Do not use underground storage tanks.

3.14 PROTECTION OF WATER RESOURCES

A. General

1. Compliance with state water quality standards and conditions of any permits and clearances obtained for the work is the Contractor’s responsibility. No uncontrolled effluent will be permitted that results from the Contractor’s activities.

B. Disposal

1. Except as provided in the Contract, disposal of any wastes, effluents, trash, grease, chemicals, or other contaminants in waterbodies shall not be allowed. If any waste material is dumped in unauthorized areas, the material shall be removed and the area restored to a condition approximating the adjacent undisturbed area, at no additional expense to the Owner.

3.15 MARINE WATER QUALITY CRITERIA COMPLIANCE

A. The Contractor is responsible for meeting marine water quality criteria for in-water construction activities as defined in the Water Quality Monitoring Plan (WQMP; Appendix H) and applicable local, state, and federal standards. The Owner will conduct its own marine water quality monitoring during the project to assess the Contractor's compliance, but this does not alleviate the responsibility of the Contractor to comply with the water quality criteria. In the event of a water quality exceedance, the Contractor will be required to modify its procedures, methods, or equipment appropriately so as to remedy the exceedances, at no additional expense to the Owner. The purpose of the specified water quality monitoring is to provide ongoing assessment of water quality impacts during dredging, capping, and other in-water construction activities as specified in the WQMP. The Contractor shall have in place BMPs to respond to water quality exceedances from in-water construction activities.

B. Review and comply with conditions in the Ecology-approved WQMP. The WQMP is available as a reference document to the Contract Documents as Appendix H to these Specifications.

C. In the event that water quality criteria are exceeded during the work:

1. Modification of Operations: If water quality criteria are exceeded, take immediate steps to correct the exceedance and improve water quality conditions. Such steps may include modified operational practices, engineering controls, and other measures as appropriate. Communicate all modifications proposed by the Contractor to the Engineer prior to implementing them. If corrective actions do not result in water quality criteria being met, be prepared to temporarily suspend operations until water quality comes back into compliance with the criteria.

2. Cessation of Operations: Cease construction activities at the first indication of a regulated substance spill (e.g., oil) within the work area, or at the first indication of distressed or dying fish in the vicinity of construction. When such conditions occur, cease all operations and take all necessary steps to correct the problem. Immediately notify the

Engineer of the problem. Operations may resume upon approval of the Engineer after the problem has been corrected.

3. USACE and Ecology will be notified by the Engineer.

D. Marine Water Quality and Sediment Recontamination Controls

1. Procure, design, install, operate, inspect, and maintain BMPs and control measures as necessary to comply with water quality criteria and prevent or minimize to the extent practicable sediment recontamination within the site.

2. Use an environmental dredge bucket in accordance with Section 352023 – Dredging and Excavation.

3.16 CONTAMINATED/HAZARDOUS SOILS AND GROUNDWATER

A. Contractor's Responsibility

1. Visually monitor soils, groundwater (seeps), and waste materials by instructing workers to observe and report questionable materials and odors, such as oily sheen or color on soils or water, and oily or chemical odors. If suspected hazardous or contaminated materials (other than debris) are encountered, stop all work in that area and immediately notify the Engineer.

2. Be responsible for all matters related to work safety and for detection of contaminated soils and groundwater encountered during the construction as they relate to worker safety. Ensure the protection of the safety and health of construction workers and other authorized persons at the site from exposure to potentially toxic materials.

3. As part of the Contractor's safety program, workers shall be instructed by a Contractor-provided and qualified specialist on methods or techniques to assist workers in detecting hazardous soils or groundwater during construction of this project.

B. Notification and Suspension

1. In the event that the Contractor suspects the presence of suspicious materials, the Contractor's Site Safety and Health Officer shall immediately notify the Engineer. Following such notification by the Contractor, the Engineer will, in turn, notify the various regulatory agencies concerned with the presence of potentially dangerous materials. Depending on the type of problem identified, the Engineer may suspend the work in the vicinity of the material discovery under the provisions of the General Conditions.

2. Following completion of any further testing necessary to determine the nature of the materials involved, the Engineer will determine how the material shall be handled and disposed. Although the actual procedures used in resuming the work shall depend upon the nature and extent of the questionable material, the following alternate methods of operation are foreseen as possible:

   a) Contractor to resume work as before the suspension.

   b) Contractor to move its operations to another portion of the site until measures to eliminate any hazardous conditions can be developed and approved by the appropriate regulatory agencies.

   c) For dangerous or hazardous waste, or other non-municipal refuse waste, the Engineer will direct the Contractor to dispose of the excavated material in accordance with regulatory requirements. Such work shall be paid by force account.

3.17 EQUIPMENT DECONTAMINATION

A. Decontaminate equipment after working in potentially contaminated work areas and prior to subsequent work or travel on clean areas.

B. Perform equipment decontamination on a Contractor-constructed equipment decontamination pad or in watertight barges to prevent cross-contaminating un-impacted areas.

C. Each piece of equipment may be inspected by the Engineer after decontamination and prior to removal from the site or travel on clean areas. The Engineer will have the right to require that additional decontamination be completed if deemed necessary, at no additional cost to the Owner.

D. Collect decontamination wastewaters and sediments that accumulate on the equipment decontamination pad and properly dispose.

E. Furnish and equip personnel engaged in equipment decontamination with PPE including suitable disposable clothing, respiratory protection, and face shields.

END OF SECTION

PART 1 – GENERAL

1.01 TIMING

A. Prior to requesting final inspection, ensure that the work is complete in all aspects.

1.02 DESCRIPTION OF WORK

A. Ensure that all procedures and actions identified in this section and elsewhere in the Contract Documents necessary to fully complete the work are accomplished in a timely and effective manner. Lack of compliance with the closeout requirements will result in delays to any or all of the milestones identified herein.

1.03 PRE-FINAL INSPECTION

A. Prepare a Punchlist prior to requesting a Pre-final Inspection by the Engineer. Limit Punchlist items to administrative requirements of the Contract and minor deficiencies in the work requiring correction. A Pre-final Inspection will not be requested or granted if the work is incomplete.

B. Make the request for Pre-final Inspection to the Engineer in writing and with the Punchlist attached, at least 3 working days prior to the requested date of inspection.

1.04 SUBSTANTIAL COMPLETION

A. Substantial Completion is the stage in the progress of the work when the work is complete and in accordance with the Contract Documents; the date of Substantial Completion is the end of Contract Time and the start of the warranty period.

B. The date of Substantial Completion is established in a Certificate of Substantial Completion issued by the Engineer.

C. In order to achieve Substantial Completion, the Contractor must:

1. Satisfactorily complete the Engineer’s Punchlist resulting from the Pre-final Inspection.

2. Submit for approval to the Engineer any Special Warrantees, Bonds, or Follow-on Contracts required by the Contract Documents.

3. Perform Final Cleaning of the project site as required by the Contract Documents.

4. Upon completion of the above items, request a Final Inspection from the Engineer, in writing, at least 3 days prior to the requested date.

5. Satisfactorily pass the Final Inspection and receive the Certificate of Substantial Completion from the Engineer.

1.05 NOTICE OF COMPLETION

A. Notice of Completion will be issued in writing when all the work is complete, with the exception of claims previously made in writing and identified by the Contractor, a subcontractor, or material supplier as unsettled at the time of application for Final Payment.

B. Notice of Completion will be issued in writing by the Owner if:

1. Contractor demobilization is satisfactorily completed.

2. Project Record Documents have been submitted and approved by the Engineer.

3. Final Payment has been requested.

1.06 CONTRACTOR'S CHECKLIST

A. Attached to this section is a Contractor's Project Closeout Checklist for use in tracking completion of the items required herein.

PART 2 – PRODUCTS

2.01 WARRANTY

A. The Contractor warrants the labor, materials, and equipment delivered under the Contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of 1 year from the date of Substantial Completion.

B. Promptly (within 48 hours) repair or replace all defective or damaged items delivered under the Contract. Haul away all defective or damaged items prior to Substantial Completion.

C. In the event of equipment failure, during such time or in such a location that immediate repairs are mandatory, respond promptly, irrespective of time. If the Contractor is not available, the Owner will affect repairs. Reimburse the Owner for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

PART 3 – EXECUTION

3.01 FINAL DOCUMENTS

A. Project As-built Drawings

1. Compile Project As-built Drawings and submit to the Owner for translation to the Record Drawings on a monthly basis.

2. Submit the Project As-built Drawings on full-sized (ANSI D) paper copy.

3. Keep Project As-built Drawings current, and update at the time materials and equipment are installed. Make annotations to the record documents with an erasable colored pencil conforming to the following color code:

   a) Additions – red.

   b) Deletions – green.

   c) Comments – blue.

   d) Dimensions – graphite.

4. Project As-built Drawings must be complete and accepted by the Owner before Final Completion is issued.

5. As-built Drawings shall be in accordance with horizontal and vertical control as shown on the Drawings.

B. Record Document Survey

1. See Section 017123 – Surveying, for Final As-built Survey (post-material placement) requirements. Complete the Final As-built Survey and submit to the Owner within 30 days of Substantial Completion. The Final As-built Survey must be complete and accepted by the Owner before Final Completion is issued.

C. The following certificates of conformance shall be submitted by the Contractor prior to Final Completion:

1. Notice of Termination (NOT) Construction Stormwater General Permit: confirmation of termination request acceptance by Ecology.

3.02 CLEANUP

A. Provide final cleaning of the work and project site prior to final inspection. Employ experienced workers or professional cleaners for the final cleaning. Clean each surface or unit of work to the condition expected from normal commercial building cleaning and maintenance programs. Complete the following cleaning operations prior to closeout:

1. General: Prior to completion of the work, remove from the site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described above.

2. Site: Unless otherwise specifically directed by the Owner, hose down all paved areas affected by the work, including any public sidewalks and catch basins on adjoining streets. Completely remove all resultant debris.

3. In addition to performing debris removal and the cleaning specified in these Specifications, clean exterior exposed-to-view surfaces.

4. Regrade unpaved staging areas as necessary to restore original grades and a level area.

5. Remove waste, debris, and surplus materials from site. Clean grounds; remove stains, spills, and foreign substances from paved areas and sweep clean. Rake other exterior surfaces clean.

6. Maintain clean condition until final completion.

7. Re-clean areas or equipment after final inspection if such were dirtied as result of Contractor's preparations for final inspection or completion of the Punchlist.

B. Timing: Schedule final cleaning as approved by the Owner.

END OF SECTION

CONTRACTOR'S PROJECT CLOSEOUT CHECKLIST

ITEM		BY	DATE
1.	Request Pre-final Inspection – Provide Contractor's Punchlist to Engineer		
2.	Final operations and maintenance data and warranties		
3.	Pre-final Inspection		
4.	Certificates of Compliance		
5.	Submit special warranties, bonds, or follow-on contracts as required by Contract		
6.	Perform Final Cleaning of project site per Contract		
7.	Complete Engineer's Punchlist		
8.	Request Final Inspection		
9.	Final Inspection		
10.	Certificate of Substantial Completion		
11.	Demobilization complete		
12.	Project Record Documents submitted and approved by Engineer		
13.	Final progress payment requested 100% (all items complete)		
14.	Notice of Completion		
15.	Contractor's Release of Claims Form Executed		
16.	Subcontractor and Supplier Claims Settled		
17.	Submit Final Payment Request		

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Provide all materials, labor, equipment, and incidentals necessary to conduct the proper surveys required to determine seafloor and shore elevations within the area of the work.

B. Perform hydrographic and topographic surveys for layout of the work, to verify dredge depths and obtain final quantity for dredging, and to verify the grades of final as-built construction for acceptance of completed work as stipulated in this section.

C. Vertical Datum: All elevations indicated on drawings refer to National Ocean Survey mean lower low water (MLLW) Datum unless otherwise noted.

1.02 REFERENCE STANDARDS

A. 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. The most recent version of the reference applies.

1. U.S. Army Corps of Engineers (USACE) – EM 1110-1-1005 (January 2007). USACE Engineering and Design – Control and Topographic Surveying.

2. USACE – EM 1110-2-1003 (April 2004). USACE Hydrographic Surveying Engineering Manual.

1.03 LICENSED SURVEYOR QUALIFICATIONS AND RESPONSIBILITIES

A. Retain a licensed surveyor that will be responsible for conducting the Pre-construction and Final As-built Surveys. The Contractor's licensed surveyor shall satisfy the following minimum qualification requirements:

1. Professional Land Surveyor with current registration in the State of Washington.

2. Hydrographic surveys shall be supervised by a hydrographer certified by the American Congress on Surveying and Mapping.

3. The surveying firm and project personnel shall have performed hydrographic surveying services for at least three dredging projects of similar size and complexity (provide list of projects, reference contacts, and phone numbers).

B. The Contractor's proposed licensed surveyor will be subject to review and approval by the Engineer.

C. The responsibilities of the Contractor's licensed surveyor shall include, but not be limited to, the following:

1. Establishment of survey control points as required to complete the work.

2. Establishment of supplemental benchmarks, control points, staff gauges, etc., as needed to conduct the work.

3. Installation of automatic recording tide gauge for dredging operations.

4. Initial layout of all work elements.

5. Initial calibration and verification of survey system accuracy.

6. Pre-construction and Final As-built Surveys of all soil excavation, sediment excavation, dredging, and material placement activities.

7. Calculation of final quantities for the Contractor's final payment request.

8. Preparation of as-built construction Record Drawings.

D. Assume full responsibility for the coordination, scheduling, accuracy, and quality of the licensed surveyor's work. The licensed surveyor shall coordinate with the Contractor's quality control (QC) manager as necessary to fulfill project QC requirements, in accordance with Section 013100 – Project Management and Coordination, and Section 014500 – Quality Control.

E. In addition to the submittals specified in this section, the Owner reserves the right to request, at any time, copies of all other survey data, calculations, and supporting documentation generated by the licensed surveyor in support of the work.

1.04 SUBMITTALS

A. Submit a Survey Plan to the Engineer for review and acceptance as part of the Construction Work Plan in accordance with Section 013300 – Submittal Procedures.

B. Pre-construction and Final As-built Surveys: Provide a submittal to the Engineer within 48 hours of completion. The submittal must include: an AutoCAD electronic file, plan view drawings with 1-foot contour intervals, and spot elevations depicting high and low points plotted at 1 foot equal to 50 feet. The AutoCAD electronic file shall include a triangulated irregular network (TIN)-based digital terrain model (DTM). American Standard Code for Information

Interchange (ASCII)-format processed survey data shall be provided in x, y, z (easting, northing, elevation) format. Each data file shall include a descriptive header including, but not limited to: software and equipment information, client, project, horizontal and vertical datum, units, tidal correction, survey type, alignment, and stations surveyed.

C. Prior to submitting a request for progress payment, furnish to the Engineer copies of all field notes, computations, any records relating to the quantity survey or to the layout of the work, and personal computer (PC)-compatible versions of any computer software required to interpret the finished data and records. The Contractor is responsible for converting data and drawing files to a standard software version approved by the Engineer. Standard ASCII format is pre-approved for data files.

D. Maintain on site a complete, accurate log of control of survey work as it progresses.

E. Keep updated survey field notes in a standard field book. These field notes shall include all upland survey work performed by the Contractor's surveyor in establishing line, grade, and slopes for the construction work. Keep separate updated field notes for in-water survey work performed by the Contractor. Copies of these field notes shall be provided to the Engineer upon request.

F. Sediment Excavation, Dredging, and Material Placement Progress Surveys: Submit to the Engineer, within 12 hours of completing excavation or placement activity, the results of ongoing progress surveys and records (Windows Offshore Positioning Software [WINOPS], DREDGEPACK by Hypack, Inc., or equivalent) required to document compliance with the minimum sediment excavation, dredging, capping, enhanced monitored natural recovery, and residuals management cover limits shown on the Drawings.

1.05 PRESERVATION OF STAKES AND MARKS

A. Carefully preserve all primary controls. The Contractor will be charged for the replacement costs of stakes and marks damaged or destroyed by the Contractor's operation. Such charges will be deducted from amounts otherwise due or to become due to the Contractor at the current time and material rates.

B. Do not remove major survey control points without the approval of the Engineer.

1.06 CONTRACTOR SURVEYS

A. Establish such additional lines, grades, and controls as are needed for construction.

B. Perform all work in conformance with the lines, grades, and dimensions indicated on the Drawings. If a discrepancy is noted between the Drawings, immediately

bring this to the Engineer's attention. Where tolerances are stated, perform the work within those tolerances. The Engineer will determine if the work conforms to such lines, grades, and dimensions; his/her determination shall be final.

C. The Contractor assumes full responsibility for detailed dimensions and elevations measured from primary control points.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 GENERAL

A. Exercise care during the execution of the survey work to minimize any disturbance to existing property and to the landscape and waters in the areas surrounding the work site. Survey crews shall comply with all provisions of the site-specific construction Health and Safety Plan when traversing into controlled areas.

1. If the survey work provided by the Contractor does not meet the Contract requirements, the Contractor shall, upon the Engineer's Written Notice, remove and replace the individual or individuals doing the survey work. The Owner may subcontract control of surveying at the Contractor's expense, which will be deducted from moneys due or to become due to the Contractor.

2. The Engineer reserves the right to check all work laid out by the Contractor during the progress of the work, as deemed necessary to verify conformance with the Drawings and Specifications. Allow a reasonable time to permit such checks (24 hours, excluding Sundays and holidays) before completing the work. These checks will be made during the regular working hours.

3.02 SURVEY CONTROL AND REFERENCE POINTS

A. Existing survey control points are noted on the Drawings and may be used by the Contractor to establish project baseline, stationing, offsets, and work limits. The existing survey control points may also be used to establish any supplemental survey control points. For all surveys, use the horizontal datum Washington State Plane Coordinate System North American Datum of 1983 (NAD83) (1991), North zone, in U.S. feet. Show all surveys in MLLW, in U.S. feet.

B. Protect all survey control points prior to starting site work and preserve permanent reference points during construction. Do not relocate site reference points without prior written approval from the Engineer.

C. Promptly report to the Engineer the loss, damage, or destruction of any reference point or relocation required because of changes in grades or other reasons. Replace dislocated survey control points based on original survey control at no additional cost to the Engineer. Replacement of dislocated survey control points shall be done by a land surveyor licensed in the State of Washington.

3.03 INSPECTION

A. Verify locations of site reference and survey control points prior to starting work. Promptly notify the Engineer of any discrepancies discovered. Also verify layouts periodically during Construction.

3.04 SURVEY REQUIREMENTS

A. Reference survey and site reference points to the provided control monuments and record locations of survey control points, with horizontal and vertical data, on Project Record Documents.

B. Topographic Surveys

1. Conduct topographic surveys for areas above 0 feet MLLW before and after all excavation and capping activities and in accordance with USACE Engineering and Design – Control and Topographic Surveying (USACE EM 1110-1-1005 [January 2007]). Along the shoreline bank, conduct these surveys to supplement the hydrographic surveys required for the in-water work. Conduct surveys on a minimum 5-foot by 5-foot grid, including grade breaks from which a 1-foot contour map will be required in an electronic format. The topographic surveys shall cover all work areas with sufficient overlap beyond the work area to allow for tying the survey into existing grades.

2. All control surveys for elevation shall be +/-0.01 foot and, for horizontal, control angles shall be to the nearest 20 seconds +/-10 seconds, and measured distances shall be to +/-0.01 foot. All upland measurement surveys shall be within the following accuracies: horizontal: +/- 0.033 feet +1 parts per million (ppm) at 1 root-mean-square (RMS) (67% confidence level); and vertical: +/- 0.066 feet +1 ppm at 1 RMS (67% confidence level). Real-time kinematic-global positioning system (RTK-GPS) methods are acceptable during positional dilution of precision values of 7.0 feet or less and the utilization of a Geoid model or site calibration. Verify the RTK-GPS system on at least three survey control points near the limits of the site, as established by differential leveling methods from a project benchmark or survey control point. Avoid multi-path environments. Equip range pole tips with a “topo shoe” or device to prevent the tip of the range pole from penetrating the ground surface, or

make a conscious effort to capture the ground surface and prevent the tip of the range pole from sinking into the ground.

3. Provide all materials as required to properly perform surveys, including but not limited to: instruments, tapes, rods, measures, mounts and tripods, stakes and hubs, nails, ribbons, other reference markers, and all else required. All material shall be of good professional quality and in first-class condition.

4. All lasers, transits, and other instruments shall be calibrated and maintained in accurate calibration throughout the execution of the work. Submit calibration certificates to the Engineer prior to the use of any instrument.

5. Furnish all materials and accessories (i.e., grade markers, stakes, pins, spikes, etc.) required for proper location of grade points and line. All marks given shall be carefully preserved and, if destroyed or removed without the Engineer's approval, they shall be reset, if necessary, at the Contractor's expense.

C. Hydrographic Surveys

1. Conduct Pre-construction and Final As-built Surveys using an integrated hydrographic surveying system consisting of a survey grade multibeam fathometer, inertial RTK-GPS with motion platform, tide gauge, and computer and software.

2. Progress surveys may be performed using a single-beam fathometer.

3. Hydrographic survey procedures (positioning modes, electronic positioning system calibration, data reduction, adjustment, processing, and plotting) shall conform to industry standards.

4. Horizontal location observations shall compensate for errors, geodetic corrections, and atmospheric variations.

5. Data recording, record annotating, and processing procedures shall be consistent with recognized hydrographic survey standards, in accordance with USACE Hydrographic Surveying Engineering Manual, for Navigation and Dredging Support Surveys (USACE EM 1110-2-1003 [January 2002]).

6. Failure to perform and process such surveys in accordance with recognized standards will result in a rejection and nonpayment for work performed.

7. Survey deliverables shall indicate which National Oceanic and Atmospheric Administration tide gauge was used to adjust the survey data to MLLW and to compare with the RTK vertical data.

8. Conduct and document the QC procedures recommended by the equipment manufacturer.

9. Install an automatic recording tide gauge with telemetry system for transmitting of data to the dredges and survey vessel(s). The tide gauges shall provide a continuous recording of tidal change for every 15-minute interval or for each 0.1-foot change, whichever occurs first. Record tide levels in the project vertical datum, and visually provide these levels in the operator's cab of the dredge at all times during the dredging and backfilling process to allow proper adjustment of dredge and backfill depth.

10. Soundings

    a) Sounding lines shall extend a minimum of 50 feet beyond the project survey boundaries or as otherwise approved by the Engineer. Intervals between soundings on each line shall not exceed 1 foot during raw data collection and the data shall not be decimated more than 5 feet for the DTM. In areas in which there are breaks in the slope, the 5-foot decimated data may need to be augmented at a denser interval to accurately depict the slope break.

    b) Complete all post-fill completion surveys, as well as the post-dredging and excavation surveys, within the same survey area with the same survey coverage as the Pre-construction Survey.

    c) All sonar collection procedures, methods, and equipment specifications shall be in accordance with the USACE Hydrographic Surveying Engineering Manual, for Navigation and Dredging Support Surveys (USACE EM 1110-2-1003 [January 2002]).

D. Conduct survey events requiring a licensed surveyor as follows:

1. Pre-construction Survey: The data derived from the Pre-construction Survey shall be used in establishing initial conditions, for computing the quantities, and for verifying required backfill thicknesses. No dredging, excavation, or backfilling shall be permitted before the Engineer has approved the Pre-construction Survey.

    a) The Owner and Engineer shall be notified at least 5 working days in advance of the Pre-construction Survey, and the Owner and Engineer shall be permitted to accompany the survey party and to

inspect the data and methods used in preparing the baseline map. This survey will serve as the basis for computing payment quantities.

2. Final As-built Survey: This survey shall document the post-construction elevations and contours at the site. The data derived from this survey shall be used in preparing the Record Drawings in accordance with Section 017000 – Execution and Closeout Requirements.

3. All surveys requiring a licensed surveyor shall be accomplished with the same licensed surveyor and equipment, and use the same data processing and interpolation methods.

3.05 PREPARATION

A. Establish and protect survey control points from traffic, construction equipment, dredging equipment, and vessel traffic.

B. Furnish, set, and maintain, in good order, all ranges, buoys, and other markers necessary to define the work and to facilitate inspection.

C. Establish and maintain a tide gauge in a location where it may be clearly seen during dredging operations and inspection. Include all costs for providing the tide gauge and other survey control in the bid price for dredging and dredged material disposal.

D. Establish a method of horizontal positioning and vertical control before excavation and dredging begins. The proposed method and maintenance of the horizontal positioning and vertical control system shall be subject to the approval of the Engineer and if, at any time, the method fails to provide accurate location for the excavation or dredging operation, the Contractor will be required to suspend operations. Lay out all work using horizontal and vertical measurements from physical structures, as indicated on the Drawings. The accuracy of all measurements taken from these points is the Contractor's responsibility. Furnish and maintain all stakes, templates, platforms, equipment, range markers, transponder stations, and labor as may be required to lay out the work from the control points or features shown on the Drawings. Maintain all points established for the work until authorized to remove them.

E. Establish a positioning control system for dredging as described in Section 352023 – Dredging and Excavation.

3.06 ACCEPTANCE SURVEYS

A. Acceptance Survey(s) by Certification Unit (CU): The data derived from the Acceptance Surveys will be used in verifying depths, grades, and thicknesses, and for computing the quantities for payment. If the Acceptance Survey does not

demonstrate that the required grades, elevations, or thicknesses have been achieved, additional work will be required and additional surveying will be necessary following that work. Additional surveys will be completed at no cost to the Owner.

B. Should the work be determined to be incomplete, immediately perform such additional work as may be necessary to satisfactorily complete the work to the satisfaction of the Owner. Final estimates will be subject to deductions and adjustments to deductions previously made because of excessive overdepth dredging and/or excavation, dredging and/or excavation outside the indicated or authorized areas, or disposal of material in an unauthorized manner.

3.07 PROGRESS SURVEYS

A. Conduct progress surveys for excavation, dredging, and material placement on a daily basis during intertidal work, and at least twice weekly during subtidal work, using the equipment and methods specified in Article 3.04, and elsewhere in this section.

B. The areal coverage of daily progress surveys for intertidal work areas shall encompass the entire area of that day's work, plus an additional area of at least 20 feet beyond the outside perimeter of the day's work (including areas that have been previously excavated and backfilled). Survey and record the toe, crest, and corners of all cut and fill slopes.

C. The areal coverage of progress surveys for subtidal work areas shall encompass the entire area of that day's dredging, plus an additional area of at least 50 feet beyond the outside perimeter of the dredged area (including areas that have been previously dredged).

D. Submit the results of progress surveys to the Engineer within 24 hours of completing the survey. The Engineer will utilize the progress survey submittals to assess the Contractor's compliance with the Contract documents. The Owner reserves the right to direct the Contractor to cease work, at no expense to the Owner, in the event that the Contractor fails to submit the results of progress surveys within the specified time frame.

E. The progress surveys shall be submitted in the form of a grid plan and cross-section drawings, as prepared by the Contractor. The grid plan shall indicate the location of each cross-section. The cross-sections shall be computer generated, and shall conform to the following format and informational requirements:

1. Plot cross-sections at a horizontal scale of 1 inch equals 10 feet (maximum) and vertical scale of 1 inch equals 5 feet (maximum), with axes shown on margins.

2. Note grid line identification number and/or coordinates for each cross-section.

3. Show existing grade, specified neat line dredging and excavation, allowable over depth limits, actual excavation grades, and backfill and shoreline containment grades.

4. Show survey point locations.

5. Show Certification Unit boundaries.

6. Indicate applicable dates for excavation, dredging, backfilling, shoreline containment, and associated surveying activities.

7. Date and sign each cross-section prior to submitting to the Engineer.

F. Conduct progress computations for any period for which progress payments are requested. For progress payments, prepare the dredge and excavation quantity calculations using the TIN volume technique, and using Autodesk Civil 3D, Autodesk Land Development Desktop, HYPACKTM MAX, Terramodel, or other commercially available software, as approved by the Engineer.

G. Survey Records: Prior to submitting a request for progress payment, furnish the Engineer copies of all field notes, computations, any records relating to the quantity survey or to the layout of the work, and a PC-compatible version of any computer software required to interpret the finished data and records. The Engineer will use them as necessary to verify the progress payment request. Retain copies of all such material furnished to the Engineer.

H. The Owner may conduct independent progress surveys for quality assurance purposes. The Owner will notify the Contractor if review of the survey data indicates a discrepancy between the Contractor's and the Owner's progress survey, and the Owner may request that the Contractor re-survey the area(s) where discrepancies are present. Any re-surveying and associated re-work required due to surveying error(s) on the part of the Contractor or Contractor's independent surveyor shall be provided at no additional cost to the Owner.

I. In the event that the Contractor's or the Owner's progress surveys indicate that the work is out of compliance with the Contract Documents, the Owner may direct the Contractor to adjust excavation, dredging, and/or backfilling procedures until compliance is achieved, at no additional expense to the Owner. The Owner further reserves the right to direct the Contractor to stop work if it is determined, in the opinion of the Owner, that the Contractor's methods are not suitable to achieve the specified construction tolerances. In the event that the Owner stops the work, take whatever measures are required, including mobilization of alternative equipment, to achieve the specified construction tolerances, at no additional cost to the Owner.

3.08 FINAL AS-BUILT SURVEY

A. Upon completion of the work, complete a Final As-built Survey and plan drawings of the work for inclusion in the construction records report to be prepared by the Engineer.

B. The As-built Survey shall include a topographic survey and a hydrographic survey of all final grades within the project limits. A separate plan drawing shall also be prepared showing the final dredge and excavation grades within the work area. The As-built Survey shall include the location of all existing structures within the project limits, any cut or broken pile stubs that remain, as well as any structures installed or modified as part of the work.

C. The results of the As-built Survey shall be presented in the form of contour plan drawings with 1-foot contour intervals. The location of installed utilities and structures shall be clearly indicated with appropriate symbols. Break points shall be indicated for all slopes. Spot elevations shall be indicated in areas of limited topographic relief, as appropriate. The associated survey data shall also be submitted to the Engineer, in accordance with the requirements of Article 1.06 of this section.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes the procedures and requirements for the disposal or recycling of materials generated by the construction activities.

B. Disposal work shall include furnishing all labor, tools, equipment, and incidentals required for transport and recycling or disposal of site demolition and deconstruction materials and debris to the off-site disposal or recycling facility, as determined by the Engineer. Disposal work also includes all barge offloading, transportation, and disposal fees.

1.02 GENERAL REQUIREMENTS

A. Dispose of all wastes generated during the course of the project in accordance with all applicable local, state, and federal regulations.

B. Sediment and soils removed from intertidal and aquatic areas will placed into temporary stockpiles on the Former Mill Site as shown on the Drawings for subsequent characterization. Based on this characterization, sediment that cannot be beneficially reused will be transported to and disposed of at a permitted landfill.

C. As an alternate additional work item, the Owner may require that stockpiled sediment suitable for beneficial reuse either be placed within a compacted on-site berm, or transported to and placed at the Upland Containment Site as determined by the Engineer.

D. Demolition debris will be disposed of or recycled in off-site locations in accordance with applicable regulations, in an Owner- and Washington State Department of Ecology (Ecology)-approved facility. Wood, concrete, and other debris encountered during removal will be separated and salvaged, recycled, or disposed of offsite.

1.03 SUBMITTALS

A. Submit a Waste Management, Transportation, and Disposal Plan in accordance with Section 013300 – Submittal Procedures.

1.04 REQUIREMENTS FOR WASTE DISPOSAL AND RECYCLING SITES

A. Provide documentation acceptable to the Owner that the demolition and dredge materials can be accepted at the proposed disposal facility. Copies of the disposal facility permit must be submitted to the Engineer within 14 calendar days of Notice of Award.

B. For all disposal facilities proposed by the Contractor, provide the following information:

1. Location and owner of proposed disposal facility.

2. Documentation that proposed disposal facility is permitted and available to accept and dispose of the demolition and dredge materials.

3. Elimination of liability and acceptance of ownership at the disposal facility.

C. The selection of waste and recycling sites and their operation shall at all times be subject to the approval of the Engineer and Ecology.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Provide all of the materials and labor required for the packaging, labeling, marking, placarding, and transportation of waste materials in conformance with Department of Transportation (DOT) standards.

PART 3 – EXECUTION

3.01 GENERAL

A. Use only Ecology- and Engineer-approved waste disposal and recycling sites.

B. Transport all wastes in accordance with federal, state, and local transportation requirements, including driver training, placarding, and use of shipping papers or waste manifests.

C. Notify the Engineer at least 5 working days in advance of any proposed changes to the operations outlined in the approved Waste Management, Transportation, and Disposal Plan.

D. Transport dredged sediment and debris and upland soil and debris in leak-proof trucks or sealed containers meeting all requirements of state and federal DOTs and other applicable requirements. No spillage or drainage from trucks or containers is allowed at any time during hauling or mode transfer off site. Trucks and containers shall be not be overloaded, shall meet applicable weight restrictions, shall have adequate free-board so as to prevent spillage during transit, and shall be covered in accordance with applicable regulations. The Contractor is advised that sediments may generate free liquid during haul due to separation and settling, and the Contractor's hauling methods and Waste Management, Transportation, and Disposal Plan shall address this possibility.

E. The Engineer will conduct sampling of temporary stockpiles to determine the final disposition (placement location) of the material in that stockpile. The Contractor shall sequence their work to accommodate the Engineer's sampling and analysis to avoid any delays in the work schedule. Up to 1 month turnaround time may be necessary to receive stockpile sample results.

F. Upon approval of the Engineer, the Contractor may consolidate, within another location of the temporary stockpiling area, stockpiles that have the same final dispositions based on sampling results. Consolidation of stockpiles that is not pre-approved will not be paid.

G. During offloading, take care not to damage existing structures, fender piles, piers and appurtenant pier facilities, or utilities at the offloading location. Protection measures shall be discussed in the Waste Management, Transportation, and Disposal Plan. Repair, at no additional cost to the Owner, any damage determined by the Engineer to be the result of the Contractor's activities.

3.02 STAGING AND STOCKPILING AREA

A. Where material is offloaded at the site, install a spill-prevention apron to prevent material spillage during the transfer of the dredged material from the barge to the offload facility. No transfer can begin until the apron is approved by the Engineer and in place. Remove any spillage on the apron as soon as practicable and properly dispose of it. Promptly clean up any such spillage outside of the offload facility. Describe spill prevention measures and contingencies for cleanup in the Waste Management, Transportation, and Disposal Plan.

B. Upon completion of the work, remove all vestiges of dredge sediments, stockpile containment materials and other materials, and clean up the site to the pre-project condition.

3.03 OFFLOADING OF SEDIMENTS TO OFF-SITE TRANSLOADING FACILITY

A. Where material is offloaded off site, install a spill-prevention apron to prevent material spillage during the transfer of material from the barge to the transloading facility. No transfer can begin until the apron is approved by the Engineer and in place. Remove any spillage on the apron as soon as practicable and properly dispose of it. Promptly clean up any such spillage outside of the transloading facility. Describe spill prevention measures and contingencies for cleanup in the Waste Management, Transportation, and Disposal Plan.

B. In order to pass the Paint Filter Liquids Test (if the landfill facility requires passing this test in order to transport dredged sediment), the Contractor may elect to mix additives with the sediments to bind available water.

1. The Engineer must approve the use of additives, and the proper storage and handling of additives must be outlined in the Waste Management, Transportation, and Disposal Plan.

2. Additives that are easily windborne and/or that have an elevated pH (such as fly ash or lime) can pose a health hazard and result in damage to adjacent equipment or facilities. These additives require approval by the Engineer and, if approved, must be properly controlled.

3. The Contractor has sole responsibility for cleanup and/or damage costs related to the use of additives.

3.04 EMERGENCY CONTACTS

A. The Contractor shall be responsible for complying with the emergency contact provisions in 49 Code of Federal Regulations 172.604. Whenever the Contractor ships hazardous materials, the Contractor shall provide a 24-hour emergency response contact and phone number of a person knowledgeable about the hazardous materials being shipped and who has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information. The phone must be monitored on a 24-hour basis at all times when the hazardous materials are in transportation including during storage incidental to transportation. Ensure that information regarding this emergency contact and phone number is placed on all hazardous materials shipping documents. Designate an emergency coordinator and post the following information at areas in which hazardous wastes are managed:

1. The name of the emergency coordinator.

2. The telephone number through which the emergency coordinator can be contacted on a 24-hour basis.

3. The telephone number of the local fire department.

4. The location(s) of fire extinguishers and spill control material.

3.05 SITE MAINTENANCE

A. Keep work area, site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris resulting from Contractor’s operations.

B. Provide on-site containers for collection of waste materials, debris, and rubbish. Periodically remove waste from the site.

C. Dispose of trash and debris in compliance with governing codes, ordinances, regulations, and anti-pollution laws.

D. Locate dumpster(s) or other waste containers or stockpiles inside the staging area or at a location designated by the Engineer.

E. Control all operations in accordance with Section 015000 – Temporary Facilities and Controls, and Section 015719 – Temporary Environmental Controls.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. The work described in this section includes removing, cutting, and disposing of, or salvaging, overwater structures and creosote-treated timber piles including concrete encasements around piles identified on the Drawings. The work also includes sorting, stockpiling, removal, recycling, and/or disposal of surficial shoreline, upland debris, and a derelict vessel identified on the Drawings.

B. The Contractor shall be prepared to remove all visible and encountered creosote-treated and non-creosote-treated piles in areas of intertidal excavation, subtidal dredging, and capping. Removal of non-creosote-treated piles in the jetty, above the ordinary high water mark, is not required unless the piles are also within a capping area.

C. Demolition and pile removal work shown on the Drawings is schematic in nature, and is intended to identify general features of the structures, piles, and associated materials or other obstructions to be removed. Bidders shall visit the site to verify the quantity and details of demolition work.

1.02 EXISTING SITE CONDITIONS

A. The Drawings show existing features and equipment but may not show all equipment and materials existing at the site.

B. Existing Utilities

1. Existing utilities are shown on the Drawings to the best of the Owner's knowledge. The Contractor shall not assume that the Drawings show a complete presentation of existing utilities and shall be responsible for independently locating utilities prior to excavation.

2. Call the Utility Location Request Center (One Call Center) at 1-800-424-5555 for field location of existing utilities not less than 2 nor more than 10 business days before the scheduled date for commencement of excavation that may affect underground utility facilities, unless otherwise agreed upon by the parties involved. In addition to the One Call service, a private utility locate service may be needed. The Contractor shall include costs for a private utility locate as part of their bid.

3. Note the location and extent of overhead utilities. Caution should be taken when working near overhead utilities. The Contractor shall be responsible for the safety of his/her employees and equipment when working near overhead utilities.

4. The Contractor shall be responsible for any breakage of utilities or services that are to remain resulting from its operations, and shall hold the Owner and its consultants and agents harmless from any claims resulting from disruption of or damages to same.

5. Maintain all existing utilities in continuous service during the Contractor's operations, unless the Contractor receives written approval from the utility owners for interruption of service. The Contractor shall pay all permit, inspection, and other fees levied by the utility owners.

6. Anticipate that the requirements of the owners of existing utility systems may hinder, delay, and complicate execution of the work. The Contractor will not be entitled to any claim for damages because of hindrances, delays, and complications caused by or resulting from requirements imposed by the owners of the utility systems.

C. The Drawings indicate the character, general location, and coverage of existing overwater structures and piles. The information provided is general in nature and may not be completely representative of all features present at the site at the time of construction. Prior to submitting their bid, the Contractor shall therefore ascertain, to their own satisfaction, the condition and location of structures, piles, and other materials that will need to be removed during the course of demolition.

1.03 SUBMITTALS

A. Prepare and submit a detailed, written Demolition and Pile Removal Plan as part of the Construction Work Plan in accordance with Section 013000 – Submittal Procedures.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 GENERAL

A. Remove designated overwater structures identified on the Drawings or in the Specifications in accordance with all applicable regulations, codes, and ordinances.

B. Remove creosote-treated and non-creosote treated piles within areas shown on the Drawings in accordance with all applicable regulations, codes, and ordinances using the approach outlined in Paragraph 3.05 below. Note that all creosote-treated and non-creosote treated piles may not be marked on the Drawings and the Contractor can expect to encounter creosote-treated and non-creosote treated piles during excavation and dredging activities that may not be shown on the Drawings.

C. The Contractor shall comply with the Washington State Department of Natural Resources pile removal protocols and best management practices (BMPs) in Appendix G to these Specifications. Additional pile removal BMPs are as follows:

1. Remove intertidal piles "in the dry," to the extent practicable, to minimize sediment disturbance and turbidity.

2. Cut each pile into 4-foot lengths, retaining all sawdust and cuttings in a containment basin at an appropriate location within the upland Staging and Stockpiling Area.

D. Blasting or other special methods for the removal of an existing structure or obstruction will not be permitted.

E. Demolition at the Former Log Transfer Facility (FLTF) includes removal and disposal of piles, decking, bulkhead, utilities, and soils behind the bulkhead at this location.

1. The Contractor shall assume that equipment access to the FLTF will only be available from the water.

2. Soils behind the bulkhead shall be excavated at a 1H:1V slope, placed on a haul barge, and offloaded into the temporary stockpile area at the Former Mill Site for subsequent characterization.

3. Utilities at the FLTF are not known to be active. The Contractor shall satisfy themselves that utilities are inactive prior to demolition. If utilities are found to be active at the FLTF, the Contractor shall promptly notify the Engineer for further direction prior to proceeding with demolition.

F. Beach cleanup includes removal of surficial debris in shoreline areas along the western shore south of the Former Mill Site. The Contractor shall remove and transport debris to the temporary stockpile area at the Former Mill Site for sorting into appropriate debris stockpiles.

G. Mill Site Debris management includes sorting and stockpiling debris previously removed from beaches along the western shoreline of Port Gamble Bay, and currently located in the areas indicated on the drawings. For bidding purposes, the Contractor may assume that approximately 150 cy of debris need to be sorted into stockpiles.

3.02 CONTAINMENT AND SORBENT BOOM

A. The Contractor shall utilize a containment boom as described in Section 015719 – Temporary Environmental Controls. Maintain a floating containment boom throughout the course of the pile removal and demolition activities. Material that

inadvertently falls into the water shall be removed on an ongoing basis during all hours of operation. Remove all floating debris prior to stopping work each day.

B. The Contractor shall utilize a sorbent boom as described in Section 015719 – Temporary Environmental Controls. Maintain a floating sorbent boom throughout the course of the demolition and pile removal activities. The sorbent boom shall be maintained by the Contractor to contain any sheen that may be generated during completion of the work.

C. The Contractor shall be prepared to use and implement other temporary environmental controls as necessary in order to meet requirements of the Water Quality Monitoring Plan in Appendix H and permit requirements.

3.03 SALVAGED MATERIAL

A. Riprap excavated from the intertidal bank shoreline during pile removal and pile cutting work that is clean, intact, and reusable shall be stockpiled on site and replaced as armor material following excavation as described in Section 352026 – Capping and Material Placement. Riprap that is suitable for reuse as cap armor material is not considered debris.

B. If encountered, hazardous material or waste, consisting of batteries, polychlorinated biphenyls (PCBs), and the like shall be disposed of in accordance with applicable federal, state, and local regulations. The Owner does not expect hazardous material to be within the site. If such material or waste is encountered, the Contractor shall immediately notify the Engineer to determine the course of action to be taken.

3.04 DEMOLITION OF OVERWATER STRUCTURES

A. Conduct a Hazardous Materials Survey prior to demolition of any structures. Immediately notify the Engineer if hazardous materials are identified during this survey.

B. Remove structures, roofing, decking, and other materials associated with structures identified on the Drawings.

C. Piles supporting demolished structures shall be removed as described in Paragraph 3.05.

3.05 PILE REMOVAL

A. General

1. Piles and timber pile stubs shall be completely removed by pulling, or shall be cut in a manner consistent with these Specifications.

2. After removal, piles shall be cut to an appropriate length for transport and disposal, transported to the approved transloading facility, and disposed.

3. No pile cutting shall be performed on the barge. Any on-site pile cutting necessary before off-site transport shall be conducted within a contained upland area.

4. Pile removal shall include pile stubs, concrete jackets, and concrete footings used to support piles.

5. For each pile removed or cut, record the method used to remove or cut the pile in accordance with Section 012000 – Price and Payment Procedures.

6. For each cut pile within intertidal areas, place an Amended Sand Cap over the cut pile as described in Section 352026 – Capping and Material Placement.

7. Where visible creosote or non-aqueous phase liquid is noted during pile removal, place Amended Sand Cap over the area as directed by the Engineer.

8. Record the coordinates of any pile stubs that could not be removed for inclusion in the Record Drawings.

B. Intertidal Bank Excavation and Capping Areas

1. Attempt pile extraction using vibratory extraction methods and equipment equivalent to what was demonstrated to be effective during the Pile Removal Pilot Demonstration. Alternate equipment (e.g. excavator, clamshell, etc.) may be applicable for piles with footings and/or concrete encasements that do not extend far enough into the sediment to require vibratory extraction, or where other conditions preclude the use of the primary vibratory extraction equipment.

2. Excavate around piles to expose sufficient pile length above the sediment surface, as required by the extraction equipment, to allow sufficient grip between the vibratory extraction tool and the subsurface portion of the pile. A minimum of 2 extraction attempts shall be made using the vibratory extraction tool and if both fail, a last attempt, if determined in the field and in consultation with Ecology to have a high probability of success and low probability of breakage, will be made using an appropriate method and excavation of the pile shall be limited to a maximum depth of 4 feet.

    a) If extraction attempts are unsuccessful, cut pile at 3 feet below final constructed post-capping grade and place Amended Sand material evenly, at a thickness of 6 inches and extending 1 foot

beyond the perimeter of the pile, over the top of the cut pile as described in Section 352026 – Capping and Material Placement.

C. Subtidal Dredging, Capping, and Enhanced Monitored Natural Recovery (EMNR) Areas

1. Attempt extraction using effective equipment for subtidal pile removal conditions.

2. If attempt is unsuccessful, cut pile at 1 foot below final residuals management cover (RMC) grade.

3. Place RMC material, Sand material, and EMNR material as described in Section 352026 – Capping and Material Placement and as shown on the Drawings.

D. Outside of intertidal Bank Excavation, Dredging, Capping, and Material Placement Areas

1. Intertidal Areas

a) Attempt pile extraction using vibratory extraction methods and equipment equivalent to what was demonstrated to be effective during the Pile Removal Pilot Demonstration. Alternate equipment (e.g. excavator, clamshell, etc.) may be applicable for piles with footings and/or concrete encasements that do not extend far enough into the sediment to require vibratory extraction, or where other conditions preclude the use of the primary vibratory extraction equipment.

b) Excavate around piles to expose sufficient pile length above the sediment surface, as required by the extraction equipment, to allow sufficient grip between the vibratory extraction tool and the subsurface portion of the pile. A minimum of 2 extraction attempts shall be made using the vibratory extraction tool and if both fail, a last attempt, if determined in the field and in consultation with Ecology to have a high probability of success and low probability of breakage, will be made using an appropriate method and excavation of the pile shall be limited to a maximum depth of 4 feet. If extraction attempts are unsuccessful, cut pile at 2 feet below existing mudline grade and place Amended Sand material evenly, at a thickness of 6 inches and extending 1 foot beyond the

perimeter of the pile, over the top of the cut pile as described in Section 352026 – Capping and Material Placement.

c) Riprap that needs to be moved in non-SMA areas during pile removal shall be placed immediately adjacent to the pile. Following pile removal, this riprap shall be replaced in its original location prior to the application of the habitat substrate.

d) Any material that needs to be removed below the riprap to facilitate pile removal shall be segregated to prevent mixing with riprap and shall be placed in the upland stockpile area.

e) Anthropogenic debris that needs to be removed in non-SMA areas during pile removal shall be sorted and placed into the appropriate upland debris stockpile in accordance with the requirements this Section.

2. Subtidal Areas

a) Attempt extraction using effective equipment for subtidal pile removal conditions.

b) If attempt is unsuccessful, cut pile at 1 foot below existing mudline.

3. Place Habitat Substrate material in intertidal pile removal areas, as described in Section 352026 – Capping and Material Placement, over existing armor rock at a thickness of 6 inches in areas as shown on the Drawings.

E. Sensitive Habitat Areas

1. For pile removal in sensitive habitats as indicated on the Drawings, the Contractor shall attempt to remove piles using methods that minimize disturbance. The Contractor shall use diver-assisted methods, if necessary, to attach the vibratory hammer to the pile.

2. For subtidal pile stubs that cannot be removed without excavation, the Contractor shall excavate no more than 2 feet deep around the pile using minimally disturbing methods (e.g. hand excavation, or other as proposed by the Contractor and approved by the Engineer). Excavation around piles in sensitive habitat areas must be approved in advance by the Owner, in consultation with Ecology.

a) If the 2-foot deep excavation is not sufficient to allow for removal of the pile, the Contractor shall cut off the pile 2-feet deep below the mudline using minimally disturbing cutting methods such as

diver-assisted saw, shear, or other as proposed by the Contractor and approved by the Engineer.

b) To facilitate eelgrass recolonization in the piling removal area, existing sediment (excavated by hand to expose piles) can be retained, reused and blended with a residuals/sand material to backfill any holes and bring the area to grade.

3.06 STOCKPILING AND DISPOSAL

A. Sort demolition debris into different stockpiles for disposal in accordance with the categories provided in Section 004143 – Bid Form.

B. Line the bottom of debris stockpile areas. Protect stockpiles of debris from rain. Prevent the loss of debris from the stockpile with appropriate perimeter containment.

C. All materials, except those containing substances classified as hazardous or potentially hazardous by local, state, or federal regulating agencies, shall upon their demolition become the property of the Contractor. All such material, including those containing hazardous or potentially hazardous substances, shall be removed and disposed of at an appropriate disposal site(s) away from the project site, in accordance with the Contractor's Waste Management, Transportation, and Disposal Plan as described in Section 017419 – Waste Management and Disposal.

D. Dispose of waste materials and demolition debris by hauling to a waste site obtained and provided by the Contractor in accordance with the Contractor's Waste Management, Transportation, and Disposal Plan as described in Section 017419 – Waste Management and Disposal.

E. No materials shall be disposed of in adjoining waterways. Burning of demolition debris is prohibited.

3.07 CLEANUP

A. After removal of structures, piles, and other obstructions designated for demolition, clean the area. There shall be no debris, rubble, or litter left at the site from any of the demolition operations.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The work includes furnishing all labor, materials, tools, equipment, and incidentals required for excavation, dredging, dewatering, and stockpiling as described in the Drawings and in these Specifications.

1. Perform all dredging using equipment selected by the Contractor that is capable of meeting the lines and grades, tolerance, quality, and environmental protectiveness requirements of the work.

2. Perform Bank Excavation from the uplands "in the dry" above elevation +0 feet mean lower low water (MLLW). Stockpile clean riprap material removed during Bank Excavation at the Mill Site for reuse as cap armor material.

3. All material not otherwise designated as debris will be temporarily stockpiled and characterized prior to being moved into its final location as described in Section 017419 – Waste Management and Disposal. Debris encountered during excavation and dredging will be offloaded, sorted, stockpiled, and transported and disposed of at an approved upland permitted landfill as described in Section 017419 – Waste Management and Disposal.

4. Subtidal Dredging includes completion of dredging to the required elevations shown on the Drawings below elevation +0 feet MLLW and potential contingency re-dredging to support additional removal of missed inventory material if the Engineer conformational sampling and testing results indicate the need for contingency re-dredging.

5. Place capping material or clean residuals management cover (RMC) over the Dredge/Excavation cuts within a Certification Unit (CU) as soon as practical, after the dredging area is completed and accepted by the Engineer.

6. The estimated payable volumes to achieve the required excavation and dredging lines and grades are provided on the Bid Form. Dredging volumes include a 6-inch allowable paid overdepth allowance. Bank Excavation volumes do not include a paid overdepth allowance. If localized deposits of wood waste or visibly contaminated materials (e.g., petroleum hydrocarbons) are encountered below the Required Dredge Elevation within the Bank Excavation limits, the Contractor shall remove the materials at the direction of the Engineer and shall be paid by the unit price for Bank Excavation as provided on the Bid Form.

1.02 CONSTRUCTION PERIOD

A. The in-water work window for Bank Excavation is July 16 to January 14. The in-water work window for Subtidal Dredging is November 1 to January 14.

1.03 DEFINITIONS

A. Engineer: The Engineer will be the Owner's Representative during construction.

B. Subtidal Dredging: The removal of material from below the existing grade elevation +0 feet MLLW.

C. Bank Excavation: The removal of material above existing grade elevation +0 feet MLLW. Bank Excavation shall be accomplished in the dry using land-based equipment to the extent practicable. Periodic excavation below the water surface may be necessary to accomplish the Bank Excavation work, depending on the tides. Land-based excavation below the water surface is subject to the approval of the Engineer. Land-based excavation in the wet shall utilize a silt curtain, containment boom, and sorbent boom as described in Section 015719 – Temporary Environmental Controls.

D. Dredge/Excavation Limits: The horizontal limits by which Dredging and Bank Excavation work will be completed under this Contract. The Dredge/Excavation Limits are shown on the Drawings. There shall be no Dredging or Bank Excavation outside of the Dredge/Excavation Limits unless approved or directed by the Engineer.

E. CU: A subarea within the Dredge/Excavation Limits used to assess compliance with the Required Dredging Elevations and/or Bank Excavation grades.

F. Payable Allowable Overdepth Line: A vertical distance of 6 inches, as shown on the Drawings, below the Required Dredging Elevation and grades that will be paid for Subtidal Dredging. The Contractor shall select its means and methods to conduct its dredging work to stay within the Payable Allowable Overdepth Line to the extent practicable. Material dredged beyond the Payable Allowable Overdepth Line will not qualify for separate payment. Dredging beyond the Payable Allowable Overdepth Line but above the Maximum Allowable Overdepth Line is allowable but will not be paid.

G. Required Dredge Elevation: The grade or elevation within an area above which the Contractor is required to remove all material, including associated side slopes or slough materials.

H. Maximum Allowable Overdepth Line: A grade 1 foot below the Required Dredge Elevation that will be allowed for the Contractor to accomplish their means and methods for dredging. Volume removed between the Payable Allowable Overdepth Line and Maximum Allowable Overdepth Line will not be paid.

I. Excessive Dredging: Material outside of the dredging limits and/or below the Maximum Allowable Overdepth Line.

J. Sediment Management Area (SMA): A subarea of the site as shown on the Drawings.

K. Side Slope: The slope to be excavated between the outer edge of the dredge cut at design depth (toe) and the intersect point at original ground level (top of cut).

L. Pay Volume: The quantity of dredged material calculated on an in situ basis above the Payable Allowable Overdepth Line using pre- and post-dredge surveys.

M. Staging and Stockpiling Area: The upland portion of the site as shown on the Drawings that is used to offload, stockpile, rehandle, and transfer the sediment or debris that has been removed from the site.

1.04 SUBMITTALS

A. Dredging/Excavation, Haul Barge Transport, and Dewatering Plan

1. Prepare and submit a detailed, written Dredging/Excavation, Haul Barge Transport, and Dewatering Plan as part of the Construction Work Plan in accordance with Section 013300 – Submittal Procedures.

2. Prepare and submit daily and weekly Construction Submittals in accordance with Section 013300 – Submittal Procedures.

1.05 JOB CONDITIONS

A. Character of Materials

1. The material to be dredged includes wood waste and sediment. Available information indicates that the sediments within the dredge area are predominantly soft wood mixed with sandy silt and minor amounts of shell fragments. The wood waste ranges from distinct wood chunks and logs, to splinter-sized particles, down to fine sawdust material. Some of the wood waste shows signs of decomposition, while other material appears to be relatively intact.

2. In addition to sediment and wood waste, it is anticipated that debris may be encountered during dredging. Old wood piles or submerged logs not previously identified may be present at or below the mudline. Other debris typical of that found in a barge berth and log pen area may be present as well.

3. Subsurface investigations were performed to characterize the dredge material. Detailed results from geotechnical and chemical testing of the sediments are provided in Appendix B to these Specifications.

4. The Contractor shall satisfy themselves regarding the nature of materials present at the site prior to bidding. The type of materials encountered at the site may vary from the conditions described in Appendix B.

    a) Variations in the type of materials encountered may occur that do not differ materially from those indicated in these Specifications, and if encountered, will not be considered as basis for claims of differing site conditions.

B. Riprap and Debris

1. Debris of various dimensions and material types exists at the site in the Bank Excavation and Dredging areas.

2. Debris that may be encountered during the work shall be managed in accordance with Section 017419 – Waste Management and Disposal.

3. Riprap excavated from the intertidal bank shoreline that is clean, intact, reusable, and that is free of concrete, bricks, plastic, and other unsuitable debris shall be stockpiled on site and replaced as armor material following excavation as described in Section 352026 – Capping and Material Placement. Riprap that is suitable for reuse as cap armor material is not considered debris.

C. Interference with Navigation

1. Contractor vessel movements shall be subject to the requirements of the Vessel Management Plan provided as Appendix E to these Specifications.

2. Make allowances in the construction schedule for potential delays or interruptions related to the requirements of the Vessel Management Plan.

3. Any damage to the Contractor’s equipment due to the Contractor’s failure to move when required shall be at the Contractor’s sole risk and expense.

D. Protection of Existing Eelgrass Beds and Facilities

1. In addition to the measures outlined in Section 015719 – Temporary Environmental Controls, protection of existing eelgrass beds and facilities shall be provided as follows:

    a) Any damage to eelgrass beds that are outside of Bank Excavation and Dredging areas shown on the Drawings or any damage to

existing facilities caused by the Contractor's operations, as determined by the Engineer, shall be repaired to the pre-project condition at the Contractor's expense.

b) Any penalties and costs associated with damage to eelgrass caused by the Contractor, including but not limited to any required additional mitigation related to eelgrass damage, shall be borne solely by the Contractor.

1.06 NOTIFICATIONS

A. Provide the necessary notifications as described in Section 014126 – Permits, the Contractor Communications Plan provided as Appendix D, and the Vessel Management Plan provided as Appendix E.

B. U.S. Coast Guard: Send notice, with a copy to the Engineer, to the Commander, Thirteenth Coast Guard District, 915 Second Avenue, Seattle, WA, 98174-1067, at least 14 days prior to the commencement of dredging, notifying the Coast Guard as to the start of dredging operations.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 ORDER OF WORK

A. Excavate and dredge from the top of the bank to lower elevations.

B. Unless an alternate sequence is approved by the Engineer, excavate and dredge from south to north beginning in the southernmost area of SMA-2.

C. Dredging within eelgrass beds that will be transplanted by others, located in SMA-1 and SMA-2 as shown on the Drawings, shall not occur until the eelgrass has been transplanted and the Engineer approves dredging in these areas.

D. Work above elevation +0 feet MLLW shall occur in the dry. If the Required Dredge Elevation beneath the existing +0 MLLW elevation cannot be practicably achieved from the land, water-based equipment may be used subject to approval of the Engineer. The initial 6-inch lift of intertidal cap material placement in Bank Excavation areas will occur during the same tidal cycle as excavation and the full intertidal cap thickness will be placed no more than 2 days following bank excavation, to reduce potential for resuspension as described in Section 352026 – Capping and Material Placement.

E. Once required excavation is completed in a CU, conduct an Acceptance Survey to verify that required elevations and grades have been met. If high spots remain above the required dredge elevations and grades, remove such high spots to the satisfaction of the Engineer.

F. Once the intertidal CU has been approved, place cap material as required in Section 352026 – Capping and Material Placement.

G. Once required dredging is completed in a CU, notify the Engineer to conduct post-dredge confirmation sampling.

H. The Engineer will conduct post-dredge confirmation sampling to determine if additional dredging is required within a CU. While awaiting sampling results, move to the next CU to conduct dredging activities until results of confirmation sampling are available.

I. Plan for up to ten (10) working days, following collection of the samples, for the Engineer to receive confirmation sampling results and inform the Contractor whether additional contingency re-dredging will be required in that CU.

J. If contingency re-dredging is required, move equipment back to the CU requiring contingency re-dredging to complete contingency re-dredging as advised by the Engineer.

K. Once contingency re-dredging activities are considered by the Contractor to be complete within a CU, conduct an Acceptance Survey to verify that required elevations and grades have been met and that contingency re-dredging activities are complete.

L. If high spots remain above the required dredge elevations and grades, remove such high spots to the satisfaction of the Engineer.

M. Once the subtidal CU has been approved, place RMC or cap material as required in Section 352026 – Capping and Material Placement.

3.02 STOCKPILE MANAGEMENT

A. Establish separate stockpiles for the following:

1. Demolition debris, by material type as identified in the Bid Form.

2. Bank Excavation and Subtidal Dredging materials.

3. Riprap to be stockpiled and replaced on the shoreline as armor material.

B. Soil and sediment shall be stockpiled in piles with an approximate volume of 1,500 cubic yards for sampling and testing to determine suitability of disposal as shown on the Drawings.

C. Stockpiles shall be fully contained to prevent the unfiltered release of water that comes into contact with stockpiled materials.

D. Stockpiles shall be managed to control dust and erosion.

E. Load trucks within the Staging and Stockpiling Areas so that stockpiled materials are contained within the area. Spilled material shall be immediately picked up and deposited in the appropriate stockpile area.

F. Temporary containment of excavated soil and sediment shall include rinsing with clean fresh water source to remove sodium chloride. Provide means to apply water at up to 1 gallon per minute per 1,500-cubic yard stockpile, for up to 100 days to facilitate rinsing. Water shall be applied with a sprinkler or other similar means to evenly distribute water at the top of the stockpile, minimizing pooling. Rinsate runoff will be monitored by the Engineer. After stockpiled soil and sediment has been sufficiently rinsed and approved by the Engineer for transport, the soil and sediment shall be transported to its final destination for placement.

G. Water is available from the Owner at the location shown on the drawings. The Contractor shall assume that the Owner's water supply can supply 20,000 gallons per day, which is sufficient to accommodate concurrent rising of up to 15 stockpiles.

3.03 CONDUCT OF WORK

A. Dredging and excavation shall not begin until:

1. The Construction Work Plan has been reviewed and approved by the Engineer, and the Engineer has issued Notice to Proceed.

2. Agency-required notifications have been completed in accordance with the permits.

3. The Pre-construction Baseline Survey plan drawing and CAD files are approved by the Engineer as described in Section 017123 – Surveying.

4. The Contractor participates in the Pre-construction Meeting.

B. Layout of Work

1. Establish an accurate method of horizontal and vertical control and layout work before dredging begins as described in Section 017123 – Surveying.

C. Positioning Equipment and Methods

1. Use real-time kinematic-global positioning system (RTK-GPS) for horizontal positioning during all dredging operations and hydrographic surveying. Equip all dredges and survey vessels with RTK-GPS receivers compatible with the Contractor's provided RTK-GPS base station and telemetry system. Vertical elevations may be obtained by RTK-GPS or use of a telemetried tide gauge installed at the site. If RTK-GPS is used by the Contractor for water level determination, the telemetried recording tide gauge shall still be installed and used as cross reference and backup for the RTK-GPS system.

2. Each dredge and the dredge bucket will be positioned horizontally and vertically using the RTK-GPS and an integrated positioning and display system. This system shall provide real-time data to the dredge operator and the Engineer, displaying digitally and graphically the dredge position (X, Y, Z), the dredge bucket position (X, Y, Z), the Required Dredge Line or Elevation, depth below the dredge bucket, and the depth of sediment to be removed at that location. The system shall automatically update and after each cycle show the remaining depth of sediment above the Required Dredge Line or Elevation. Provide, install, and maintain all software and hardware necessary for this system.

3. Dredging shall be performed using a precision dredge capable of providing +/- 10-centimeter (4-inch) horizontal and vertical positioning accuracy.

D. Bank Excavation

1. Conduct Bank Excavation in the dry to the extent practicable unless otherwise approved by the Engineer. Bank Excavation performed below the water surface shall utilize a silt curtain, containment boom, and sorbent boom as described in Section 015719 – Temporary Environmental Controls.

2. Excavate from top of bank, working from higher elevations to lower elevations.

3. Maintain a stable slope.

4. Remove piles encountered during excavation in accordance with Section 024100 – Demolition and Pile Removal.

5. Excavate riprap located within Bank Excavation areas, and separate and stockpile clean reusable riprap for replacement on the shoreline following excavation.

6. Make the cut to the lines and grades shown on the Drawings. No excessive excavation shall be allowed.

7. Offset Bank Excavation from mapped eelgrass beds as shown on the Drawings. Do not perform Bank Excavation within 10 feet of eelgrass beds.

8. Following approval that bank excavation is complete, place the initial 6-inch lift of cap material over the excavated surface ahead of the incoming tide.

9. Construct the full cap thickness in accordance with Section 352026 – Capping and Material Placement, no more than 2 days following the bank excavation for that area. If slumping or loss of sidewall stability is observed, the full intertidal cap thickness shall be constructed no more than one day following the intertidal excavation for that area. If slumping or loss of sidewall stability continues to be observed, the full intertidal cap thickness shall be constructed in the same tidal cycle as the intertidal excavation for that area.

10. In the event that weather or other conditions develop that can erode the initial 6-inch lift of cap material, construct the full cap thickness before such conditions develop.

E. Subtidal Dredging

1. Dredge working from higher elevations to lower elevations. Do not undercut slopes.

2. Offset Subtidal Dredging from mapped eelgrass beds as shown in the Drawings. Do not perform Subtidal Dredging within 10 to 15 feet of eelgrass beds as shown on the Drawings.

3. Remove piles encountered during Subtidal Dredging in accordance with Section 024100 – Demolition and Pile Removal.

4. Dredge to the lines, grades, slopes, and elevations shown on the Drawings. Each pass of the dredge equipment shall be complete.

5. If a mechanical dredge is used, the following best management practices shall be used, at a minimum:

   a) Do not stockpiling sediment in the water.

   b) Do not overfill the bucket.

   c) Do not take multiple bites.

d) Leveling of the completed dredging surface by dragging a beam or the clamshell bucket is not permitted.

6. No Excessive Dredging shall be allowed.

7. Upon acceptance of all Subtidal Dredging by the Engineer, promptly remove the dredging plant and associated equipment, including ranges, buoys, piles, and other markers or obstructions placed by the Contractor in the water or on shore.

8. Control the dispersion of suspended solids away from the point of dredging and due to vessel propwash during dredging activities in order to prevent or reduce, to the extent practicable, the potential for sediment recontamination. Utilize a silt curtain as described in Section 015719 – Temporary Environmental Controls.

9. Dredge Bucket

a) Subtidal Dredging work shall be primarily performed using a hydraulically actuated fully enclosed Young or similar bucket (Primary Technology).

b) Be aware that buried debris or piles might be present within the dredge footprint. In the event that the Primary Technology is unsuccessful at achieving the required dredge elevation or thickness, have available Alternate Technology that is capable of achieving the required dredge elevation or thickness.

c) If the Contractor cannot achieve grade with the Primary Technology and needs to change to the Alternate Technology, notify the Engineer and do not proceed with changing equipment until verbal approval is received from the Engineer.

d) If the Engineer does not observe debris or similar encumbrances for at least 4 hours of continuous dredging with the Alternate Technology, the Engineer will require the Contractor to switch back to the Primary Technology.

F. Residuals Management Cover

1. Place an average 6-inch-thick layer of RMC material as soon as practicable after the dredging in all CUs within an SMA is accepted as complete in accordance with Section 352026 – Capping and Material Placement.

G. Dewatering on Haul Barge(s)

1. Dredged material barges shall by equipped with sideboards and scuppers located around the perimeter of the deck line that fully contain the dredged material and prevent loss of material back to the water. No overtopping of the sideboards will be allowed.

2. The scuppers shall be covered by filter fabric and/or hay bales (or similarly approved by the Engineer) to filter water and retain sediment while allowing water to drain. Do not directly discharge water from the material barge back into the site waters without passing it through filter media. The method for filtering return effluent shall be described in the Construction Work Plan and approved by the Engineer.

    a) Inspect the filter material on a daily basis to ensure that the filter material is effective in removing suspended sediment from the effluent.

    b) Maintain or replace filter material as necessary in order to ensure that the filtering system remains effective at removing suspended solids throughout the work duration.

3.04 WATER QUALITY MONITORING

A. The Contractor is responsible for meeting water quality criteria as defined in the Water Quality Monitoring Plan in accordance with Section 015719 – Temporary Environmental Controls and applicable local, state, and federal standards.

3.05 TRANSPORTATION AND DISPOSAL

A. Excavated and dredged material shall be unloaded at the Former Mill Site uplands into separate stockpiles. All material not otherwise designated as debris will be temporarily contained prior to being tested by the Engineer to determine the material's final disposition.

B. Debris that cannot be processed for reuse or recycling (e.g., armor rock, logs, woody debris, and concrete) shall be transported to an appropriate licensed landfill facility approved by the Owner as described in Section 017419 – Waste Management and Disposal.

C. Depending on the results of testing, the Owner may require that the Contractor place material on site into a compacted embankment, transport off site and place at the Upland Containment Site, as add-on work.

D. For materials determined by the Engineer to be unsuitable for placement on site or at the Upland Containment Site, the Contractor shall transport off site for permitted landfill disposal as directed by the Engineer.

E. Excavated material shall be dry enough when transported such that no free water is generated that cannot be retained in the truck, vehicle, or vessel during transport.

F. It is the Contractor's responsibility to verify rail access and capacity for rail car staging at potential off-site rail car staging locations, if used.

3.06 HAZARDOUS MATERIAL

A. If encountered, hazardous material shall be disposed of in accordance with applicable federal, state, and local regulations. The Owner does not expect hazardous material to be encountered or removed during performance of the work. When such material or waste is encountered, immediately notify the Engineer pursuant to Section 007200 – General Conditions to determine the course of action to be taken.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The work consists of furnishing all transportation, labor, materials, equipment, and incidentals necessary to construct engineered sediment caps, the Eelgrass Mitigation Area, place residuals management cover (RMC) material over Subtidal Dredge areas, and Enhanced Monitored Natural Recovery (EMNR) material within site areas, as shown on the Drawings.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D422 – (2007) Standard Test Method for Particle-Size Analysis of Soils

B. U.S. Environmental Protection Agency Publication SW846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods

1. SW846 Method 6010/6020A/7471A Series for Priority Pollutant Metals

2. SW846 Method 8081A – Organochlorine Pesticides by Gas Chromatography (GC)

3. SW846 Method 8082A – Polychlorinated Biphenyls (PCBs) by GC

4. SW846 Method 8260 – Volatile Organic Compounds (VOCs)

5. SW846 Method 8270D – Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

C. U.S. Environmental Protection Agency Publication Method 1613- Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS

1. Method 1613B – Dioxins/Furans

D. Puget Sound Estuarine Protocols (PSEP) – Recommended Protocols for Measuring Conventional Sediment Variables in Puget Sound.

1. PSEP Protocol – Total Organic Carbon (TOC)

2. SM Method 5310B – TOC

1.03 DEFINITIONS

A. Cap Type: Specified areas require placement of engineered cap materials. The engineered capping design is separated into several cap types, as described below

and as shown on the Drawings. Each cap type has a different makeup for material types:

1. Intertidal Cap Type 1: This cap type consists of three layers—Filter material, Type 1 Armor, and Habitat Substrate material—and is designated for placement in the nearshore areas of the site as shown on the Drawings. Both cap materials are described in Part 2 of this section.

    a) Minimum Required Thickness for Filter material is 12 inches.

    b) Minimum Required Thickness for Type 1 Armor material is 6 inches.

    c) Minimum Required Thickness for Habitat Substrate material is 6 inches.

2. Intertidal Cap Type 2: This cap type consists of three layers—Filter material, Type 2 Armor material, and Habitat Substrate material—and is designated for placement in the nearshore areas of the site as shown on the Drawings. Cap materials are described in Part 2 of this section.

    a) Minimum Required Thickness for Filter material is 6 inches.

    b) Minimum Required Thickness for Type 2 Armor material is 1.5 feet.

    c) Habitat Substrate material thickness will be a nominal 6-inch thickness and will be placed to fill the interstitial spaces in Type 2 Armor material.

3. Intertidal Cap Type 3: This cap type consists of three layers—Filter material, Type 3 Armor, and Habitat Substrate material—and is designated for placement in the nearshore areas of the site as shown on the Drawings. Both cap materials are described in Part 2 of this section.

    a) Minimum Required Thickness for Filter material is 12 inches.

    b) Minimum Required Thickness for Type 3 Armor material is 6 inches.

    c) Minimum Required Thickness for Habitat Substrate material is 6 inches.

4. SMA-1 Subtidal Cap: This cap type consists of two layers – Filter material and Type 1 Armor material to be placed in areas shown on the Drawings. Both cap materials are described in Part 2 of this section.

a) Minimum Required Thickness for Filter material is 12 inches.

b) Minimum Required Thickness for Type 1 Armor material is 6 inches.

5. SMA-2 Subtidal Cap: This cap type consists of Sand material to be placed in areas shown on the Drawings. The cap material is described in Part 2 of this section.

a) Minimum Required Thickness for the SMA-2 Subtidal Cap is 4.0 feet.

6. Amended Sand Cap: This cap type consists of Amended Sand material to be placed over piles that are cut within intertidal areas. The cap material is described in Part 2 of this section.

a) Minimum Required Thickness for the Amended Sand Cap is 6 inches.

b) Place Amended Sand material over the top of the pile to a 1-foot radius from the edge of the pile using an Amended Sand blend consisting of 140 lbs of Sand (dry weight) or Alternate Sand blended with 140 lbs of organoclay.

B. Excessive Capping: Material placed outside of the capping limits and/or above the Overplacement Allowance is Excessive Capping.

C. Minimum Required Thickness: The Minimum Required Thickness is defined as the thickness that the Contractor shall place Sand material, Filter material, Armor material (Type 1, Type 2, and Type 3), RMC material, and EMNR material within areas as shown on the Drawings.

D. Overplacement Allowance: An additional increment above the Minimum Required Thickness to account for material placement tolerances. Material that is placed within the Overplacement Allowance will be paid as specified on the Drawings for the SMA-1 Subtidal Cap and SMA-2 Subtidal Cap. All other cap, RMC, and EMNR materials placed within the Overplacement Allowance will not be paid. Material placed above the Overplacement Allowance is considered Excessive Capping and will not be paid.

1.04 SUBMITTALS

A. Submit an Engineered Sediment Capping and Material Placement Plan as part of the Construction Work Plan in accordance with Section 013300 – Submittal Procedures.

B. Submit a Borrow Source Characterization Report in accordance with the requirements of this Specification and Section 013300 – Submittal Procedures.

C. Prepare and submit daily and weekly Construction Submittals in accordance with Section 013300 – Submittal Procedures, and Section 013200 – Construction Progress Documentation.

1.05 JOB CONDITIONS

A. The Contractor shall calculate its own estimate of the quantity of material to be used for the capping, RMC material, and EMNR material placement activities based on the Contractor's own calculation methods, the dredge and cap design as shown on the Drawings, and Contractor's means and methods for both dredging and capping operations in order to account for Contractor's equipment tolerances. Contractor shall account for its own estimated quantities in the Contractor's bid.

PART 2 – PRODUCTS

2.01 GENERAL

A. The Contractor shall provide all required capping, EMNR, and RMC materials for the project.

B. Imported material shall have chemical concentrations that meet the criteria presented in Table 352026-1, presented at the end of this section. Type 2 Armor material does not need to be tested for chemical criteria.

C. Material available from the Owner Sand Pit, Miles Sand and Gravel – Shine Facility, and Orcas Island Bay Head Marina maintenance dredging project are pre-approved sources for use as EMNR, Sand, and RMC materials. EMNR, Sand, and RMC materials shall be free of vegetation, debris, trees, or other deleterious materials.

D. The Owner Sand Pit is currently partially vegetated. It is the Contractor's responsibility to visit the Owner Sand Pit prior to bidding to generally ascertain vegetation to be removed for construction.

1. Prior to excavation of borrow material from this area, the Contractor shall clear and grub vegetation as directed by the Engineer. Vegetation shall be stockpiled at the Sand Pit.

2. The Owner Sand Pit material shall be screened to remove any remaining organic debris prior to hauling and placement.

E. The Contractor may elect to propose an alternate material source that meets the requirements described in this section.

2.02 BORROW SOURCE AND MATERIALS CHARACTERIZATION

A. The following activities shall be performed by the Contractor, as specified below, to ensure that imported materials are natural, native, virgin materials and free of contaminants, including debris or recycled materials, and meet construction Specifications:

1. Characterization of any Contractor-proposed sources of imported material shall be performed by the Contractor prior to any on-site placement. The characterization will include analysis of a borrow source sample, site inspection, and site characterization. The Contractor shall submit a Borrow Source Characterization Report summarizing all the information contained within this section.

2. Material Sources: Submit a list of the sources for all materials to be placed. Coordinate with the Engineer for pre-construction inspection of the cap material supplier sources.

3. The borrow source shall be inspected by the Contractor. During such inspection, the Contractor shall ensure that the materials to be delivered to the site meet the appropriate Specifications. The Contractor shall provide notification to the Engineer within 14 calendar days of such inspections. At the Engineer's discretion, the Engineer or another Owner's Representative may accompany the Contractor to witness such inspections. This witnessing shall in no way release the Contractor from complying with the Specifications and shall in no way be construed as approval of any particular source of material.

4. The Contractor shall provide the Engineer with a 5-gallon sample from each borrow source. Note, samples of Armor material are not required. Each sample should be composed from no less than five sub-samples taken throughout any one source. The Contractor shall ensure that the samples are representative of all materials to be imported. Samples shall be provided to the Engineer at least 1 month prior to the start of Capping activities.

5. Testing: The Contractor (or its material supplier) shall conduct physical and chemical testing to confirm that the materials meet the Specification requirements for use at the site. Materials must meet the gradation Specifications provided in this section and the chemical quality as shown on Table 352026-1, attached at the end of this Specification.

    a) The Contractor shall note that stringent, site-specific chemical acceptance criteria for dioxin/furans and carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) have been established for this work. It shall be the responsibility of the Contractor to ensure that

the proposed material suppliers can provide materials that meet the requirements of these Specifications.

b) The Owner reserves the right to request additional samples of materials in order to conduct its own testing for quality assurance purposes.

6. Testing Laboratory: Submit certificates for laboratories (certified by the Washington State Department of Ecology in Washington State) providing required testing to validate that the laboratory conforms to relevant paragraphs of ASTM D3740.

7. The Contractor shall test samples of all materials for chemical quality to be imported (except Type 2 Armor material) for the following:

a) In situ moisture content (ASTM method D2216).

b) Priority Pollutant Metals per U.S. Environmental Protection Agency SW846, the 6010/6020A/7471A method series.

c) VOCs per U.S. Environmental Protection Agency SW846, method 8260.

d) Semivolatile Organic Compounds per U.S. Environmental Protection Agency SW846, method 8270D.

e) PCBs per U.S. Environmental Protection Agency SW846, method 8082A.

f) Pesticides per U.S. Environmental Protection Agency SW846, method 8081A.

g) TOC per PSEP.

h) PAHs using Method 8270-SIM in Selected Ion Monitoring mode.

i) Dioxin/Furan per U.S. Environmental Protection Agency Method 1613B.

8. The Contractor shall test samples of all materials to be imported for grain size distribution (ASTM method D422-63).

9. The Contractor shall provide the results of such tests at least 14 calendar days before delivery of the materials to the site. The results shall be provided in report form, with the reports clearly identifying the following:

a) Source of samples.

b) Sampling dates.

c) Chain of custody.

d) Sampling locations.

e) Material Certification: Submit certification from material supplier that the materials meet Specification requirements for gradation and chemical testing.

2.03 ALTERNATE RMC MATERIAL

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter.

B. Alternate RMC material shall be graded so that the material is classified as SW, SP, SW-SM, SW-SC, SP-SM, SP-SC, SM, SC, or SC-SM in accordance with ASTM D2487.

2.04 ALTERNATE EMNR MATERIAL

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter.

B. Alternate EMNR material shall be graded between the limits specified for Alternate RMC material.

2.05 ALTERNATE SAND MATERIAL

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter.

B. Alternate Sand material shall be graded between the limits specified for Alternate RMC material.

2.06 AMENDED SAND MATERIAL

A. The Amended Sand material shall be Sand material or Alternate Sand material uniformly amended by blending organoclay at a minimum content of 50% organoclay by dry weight. Organoclay shall be virgin material meeting a minimum oil adsorption capacity of 0.5 lb/lb and a hydraulic conductivity of 1x10-3 cm/sec (CETCO PM-200, AquaBlok Aquate+Organoclay or equal). Product specification sheets for the selected organoclay must be submitted to the Owner for review and approval prior to ordering the material.

B. The Contractor shall provide a means of verification of the organoclay content, subject to approval by the Engineer. The Amended Sand material shall be blended prior to placement. The Amended Sand material shall be blended by proportioning Sand material and organoclay in the proper amounts and thoroughly mixed using mechanical means. The Amended Sand material shall be mixed until the mixture has a uniform texture and color.

2.07 FILTER MATERIAL

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter.

B. Filter material shall be graded between the limits specified below:

Sieve Size	Percent Passing (by weight)
1/2 inch	99% to 100%
3/8 inch	85% to 100%
U.S. No. 4	10% to 30%
U.S. No. 8	0% to 10%
U.S. No. 16	0% to 5

2.08 TYPE 1 ARMOR MATERIAL

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter, nor soft friable particles in quantities considered objectionable by the Engineer.

B. Type 1 Amor material shall be graded between the limits specified below:

Sieve Size	Percent Passing (by weight)
2 1/2 inches	95% to 100%
2 inches	70% to 100%
1 1/4 inches	40% to 90%
1 inch	3% to 30%
3/4 inch	15% maximum
U.S. No. 200	5% maximum

2.09 TYPE 2 ARMOR MATERIAL

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter, nor soft friable particles in quantities considered objectionable by the Engineer.

B. Type 2 Armor material shall be graded between the limits specified below:

Sieve Size	Percent Passing (by weight)
12 inches	100%
9 inch	45% to 58%
5 inch	10% to 33%
3 inch	0% to 23%

2.10 TYPE 3 ARMOR MATERIAL

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter, nor soft friable particles in quantities considered objectionable by the Engineer.

B. Type 3 Armor material shall be graded between the limits specified below:

Sieve Size	Percent Passing (by weight)
4 inches	100%
2 1/2 inches	20% to 60%
1 inch	0% to 22%

2.11 SUBTIDAL CAP ARMOR

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter, nor soft friable particles in quantities considered objectionable by the Engineer.

B. Subtidal Cap Armor material shall be graded between the limits as specified for Type 1 Armor material.

2.12 HABITAT SUBSTRATE

A. Material shall be clean, free-draining, granular material obtained from natural deposits. Individual particles shall be free from all objectionable coatings. The material shall contain no organic matter.

B. Habitat Substrate shall be graded between the limits specified below:

Sieve Size	Percent Passing (by weight)
2 inch	100%
1 ½ inch	80% to 95%
3/4 inch	50% to 90%
U.S. No. 4	30% to 50%
U.S. No. 200	0 to 5%

PART 3 – EXECUTION

3.01 ORDER OF WORK

A. Placement work will be performed from lower elevations to higher elevations to the extent practicable.

B. Intertidal excavation and intertidal capping will be performed in the dry during low tide cycles. Capping will be performed in the dry during the same tidal cycle as excavation.

C. RMC material placement in dredging areas will be performed following confirmation that the required dredge elevations have been achieved.

D. Amended Sand material will be placed evenly to a thickness of 6 inches over each cut pile location in areas within intertidal areas and within the site boundary as shown on the Drawings and as described in Section 024100 – Demolition and Pile Removal.

E. Habitat Substrate placement over the existing riprap armor will be performed following structure and pile removal as shown on the Drawings.

F. Once capping materials have been placed, the Contractor will complete bathymetric surveys detailed in Section 017123 – Surveying to confirm that required elevations and grades have been met. If low or thin spots are identified, the Contractor shall place additional material to the satisfaction of the Engineer to achieve the required grade or thickness.

3.02 EQUIPMENT

A. Equipment to be used for cap material placement shall place the materials in a manner that does not disturb the subgrade or previous lifts of capping material.

3.03 QUALITY CONTROL

A. The Contractor shall establish procedures for monitoring the rate of placement of the capping materials including use of a positioning system as described in Section 352023 – Dredging and Excavation. The methods should be capable of determining the area of cap material coverage on a daily basis.

B. The Contractor shall supply the Engineer with information pertaining to the previous day's material placement activities on a daily basis in the Daily Construction Report in accordance with Section 013300 – Submittal Procedures.

3.04 INSPECTION OF MATERIALS AT THE SITE

A. Truck or barge loads of imported materials shall be visually inspected by the Contractor upon delivery for the presence of foreign, recycled, or reprocessed material. The Engineer may, at any and all times, perform an independent inspection. Materials may be rejected if identified as substandard or if test results show it to be substandard.

B. The Owner reserves the right to reject any materials that do not meet the construction Specifications. In the event of rejections, it shall be the responsibility of the Contractor to remove all stockpiles of rejected material from the site.

3.05 SURVEYS AND PLACEMENT CONFIRMATION

A. Material Placement Acceptance Surveys: The Contractor shall conduct a survey verifying the thickness and/or elevation of each layer of material placement in accordance with Section 017123 – Surveying.

B. The Engineer must review and accept each layer as complete before the Contractor can place the next capping layer in accordance with Section 017123 – Surveying.

C. The Owner may collect cores through the cap material layers. Cores may be used to measure material layer thickness.

3.06 CONDUCT OF CAPPING

A. Layout of Work:

1. Establish an accurate method of horizontal and vertical control, as described in Section 017123 – Surveying before material placement activities begin.

2. Requirements for positioning equipment and methods as specified in Section 352023 – Dredging and Excavation are also applicable to material placement operations. The proposed method and maintenance of the horizontal control system shall be subject to the approval of the Engineer and if, at any time, the method fails to provide accurate location for the material placement operations, the Contractor may be required to suspend its operations until such time that accurate control is established.

3. Lay out the work from horizontal and vertical control points indicated on the Drawings and be responsible for all measurements taken from these points. Furnish, at the Contractor's own expense, all stakes, templates, platforms, equipment, range markers, transponder stations, and labor as

may be required to lay out the work from the control points shown on the Drawings.

4. Maintain all points established for the work until authorized to remove them. If such points are destroyed by the Contractor or disturbed through its negligence prior to an authorized removal, they shall be replaced by the Contractor at its own expense.

B. Material Placement

1. Furnish and place materials as shown on the Drawings and described in these Specifications. Any Capping material that is deposited other than in the area indicated on the Drawings, or as approved by the Engineer, will not be included in the measurement for payment, and the Contractor may be required to remove such misplaced material and deposit it where directed at its own expense.

2. After intertidal excavation in a Certification Unit has been completed and accepted by the Engineer as described in Section 352023 – Dredging and Excavation, place the initial 6-inch lift of cap material over the excavated surface ahead of the incoming tide.

3. Construct the full intertidal cap thickness no more than 2 days following the intertidal excavation for that area. If slumping or loss of sidewall stability is observed, the full intertidal cap thickness shall be constructed no more than one day following the intertidal excavation for that area. If slumping or loss of sidewall stability continues to be observed, the full intertidal cap thickness shall be constructed in the same tidal cycle as the intertidal excavation for that area.

4. In the event that weather or other conditions develop that can erode the initial 6-inch lift of cap material, the Contractor shall construct the full cap thickness before such conditions develop.

5. Place Habitat Substrate material after all Filter material and Armor material has been placed and accepted as complete by the Engineer.

6. Construct caps on slopes starting from the toe of the slope and working up the slope towards the top of slope to the extent practicable.

7. Place material in a manner to minimize disturbance and mixing of cap material subgrade.

8. Anchors and spuds shall not be set in areas previously capped.

9. Placement of materials in eelgrass beds is prohibited as shown on the Drawings.

10. For placement by bottom dump barge, the barge shall be opened gradually and in a controlled manner to minimize the potential for resuspending bottom sediment and excessive mixing of the cap material with the in situ bottom surface sediment. The Contractor may propose alternative mechanical placement methods to the Engineer such as placement using a clamshell bucket or hydraulic spraying of cap material off of a flat deck barge to form a material layer of uniform thickness. Placement of materials shall be accomplished such that material deposits form a uniform layer of required thickness over the designated area, and water quality criteria are not exceeded.

11. The Contractor shall not place material by rapidly dumping a barge load onto the placement area.

12. Contractor shall not place capping materials above the Overplacement Allowance Line, as shown on the Drawings.

13. The Contractor shall monitor the materials placement work throughout the course of work for depth, slopes, location, and tolerances, and shall be responsible for damages due to Overplacement or Capping outside the specified limits for capping placement.

14. The Contractor will not be allowed to drag equipment over capped areas to even out high spots.

15. Any material that is placed outside of the specified areas as shown on the Drawings, or other than as approved by the Engineer, will not be paid for, and the Contractor may be required to remove such misplaced material and deposit it where directed at its own expense.

3.07 EELGRASS MITIGATION AREA MATERIAL PLACEMENT

A. Place SMA-2 Subtidal Cap material to the lines and grades shown in the Drawings for the Eelgrass Mitigation Area only after placement, measurement, and approval of the SMA-2 Subtidal Cap beneath the Eelgrass Mitigation Area.

B. Avoid adjacent eelgrass during placement of Eelgrass Mitigation Area material in compliance with the buffers shown on the Drawings.

3.08 TRANSPORTING CAPPING MATERIAL FOR PLACEMENT

A. Haul barges shall be in good condition with no leaks in the hull. The barge shall be loaded with sufficient freeboard inside the barge so that no material spills over the side walls. Load lines shall be clearly shown on the barge, and loading shall not take the barge below the load lines.

B. The tug shall be of sufficient horsepower for moving the barge and maneuvering through the area, bridges, and marine traffic encountered between the borrow site and the placement site.

C. The Contractor shall provide the following information (as part of the Construction Work Plan) on each material barge that will be used in accordance with Section 013300 – Submittal Procedures.

1. Dimensions and capacity.

2. Barge displacement curve.

D. The Contractor shall collect certified tickets from the borrow source for each load of material brought to the site. The tickets shall be submitted to the Engineer as part of the Contractor's Weekly Construction Report.

3.09 WATER QUALITY MONITORING

A. The Contractor is responsible for meeting water quality criteria as defined in Appendix H – Water Quality Monitoring Plan in accordance with Section 015719 – Temporary Environmental Controls and applicable local, state, and federal standards.

Table 352026-1. Capping Material Sediment Quality Standards

Chemical	Container	Preservation	Maximum Holding Time (Days)	Required Reporting Limits	Maximum Level
Conventional Sediment Parameters					
Grain Size (%)	16 oz. glass	Cool, 4°C	180	1%	N/AP
Total Solids (%)	4 oz. glass	Cool, 4°C	14; 6 months stored frozen	0.1% (wet weight)	N/AP
Total Organic Carbon (%)	From total solids container	Cool, 4°C	14; 6 months stored frozen	1%	N/AP
Metals (mg/kg dw)	From total solids container	Cool, 4°C	180; 2 years stored frozen; 28 for Hg		
Arsenic				0.2	57
Cadmium				0.2	3
Chromium				0.5	260
Copper				0.5	390
Lead				1.0	450
Mercury				0.05	0.41
Silver				0.2	6.1
Zinc				4.0	410
PCBs (µ/kg dw)	4 oz. glass	Cool, 4°C	None		
Total PCBs				10	130
LPAH (µg/kg)	16 oz. glass	Cool, 4°C	14 days until extraction, 1 year stored frozen; 40 days until analysis		
Naphthalene				20	2100
Acenaphthylene				20	1300
Acenaphthene				20	500
Fluorene				20	540
Phenanthrene				20	1500
Anthracene				20	960
2-Methylnaphthalene				20	670
cPAH				5	16
Total LPAH					5200
HPAH (µg/kg)	Same container as LPAH	Cool, 4°C	14 days until extraction, 1 year stored frozen; 40 days until analysis		
Fluoranthene				20	1700
Pyrene				20	2600
Benzo(a)anthracene				20	1300
Chrysene				20	1400
Benzo(a)pyrene				20	1600
Indeno(1,2,3-Cd)Pyrene				20	600
Dibenzo(a,h)anthracene				20	230
Benzo(g,h,i)perylene				20	670
Total Benzofluoranthenes				20	3200
Total HPAH					12000

Chemical	Container	Preservation	Maximum Holding Time (Days)	Required Reporting Limits	Maximum Level
Chlorinated Hydrocarbons (µg/kg)	Same container as LPAH	Cool, 4°C	14 days until extraction, 1 year stored frozen; 40 days until analysis		
1,4-Dichlorobenzene				20	110
1,2-Dichlorobenzene				20	35
1,2,4-Trichlorobenzene				20	31
Hexachlorobenzene				20	22
Phthalates (µg/kg)	Same container as LPAH	Cool, 4°C	14 days until extraction, 1 year stored frozen; 40 days until analysis		
Dimethylphthalate					71
Diethylphthalate					200
Di-N-Butylphthalate					1400
Butylbenzylphthalate					63
Bis(2-Ethylhexyl)Phthalate					1300
Di-n-Octylphthalate					6200
Phenols (µg/kg)	Same container as LPAH	Cool, 4C	14 days until extraction, 1 year stored frozen; 40 days until analysis		
Phenol				20	420
2-Methylphenol				20	63
4-Methylphenol				20	670
2,4-Dimethylphenol				20	29
Pentachlorophenol				100	360
Misc Extractables (µg/kg)	Same container as LPAH	Cool, 4°C	14 days until extraction, 1 year stored frozen; 40 days until analysis		
Benzyl Alcohol				20	57
Benzoic Acid				200	650
Dibenzofuran				20	540
Hexachlorobutadiene				5	11
n-Nitroso-di-phenylamine				10	28
Dioxins and Furans (ng/kg)	4 oz. glass	Cool, 4°C	None	5	5 ng/kg TEQ (WHO 2005)

Notes:
N/AP = not applicable
mg/kg dw = milligrams/kilogram dry weight
µg/kg dw = micrograms/kilogram dry weight
ng/kg dw = nanograms/kilogram dry weight
cPAH = carcinogenic polycyclic aromatic hydrocarbons. cPAH calculated in accordance with WAC-173-340-708(e)
LPAH = low molecular weight polycyclic aromatic hydrocarbons
HPAH = high molecular weight polycyclic aromatic hydrocarbons
TEQ = toxicity equivalency factor
WHO 2005 = World Health Organization 2005 Human and Mammalian TEF from van den Berg, et al (2006)

END OF SECTION