This master should be used by designers working on Port of Portland construction projects. Usage notes highlight a few specific editing choices, however the entire section should be evaluated and edited to fit specific project needs.

This section is written assuming Army Corps of Engineers and Division of State Lands permits are included in the project manual as an exhibit.

SECTION 352023 – DREDGING

1. GENERAL
   * + 1. DESCRIPTION

Choose one dredge material placement/disposal option from below. Remember to delete the brackets.

* + - * 1. This section describes dredging and transporting of dredged material to [the Port-owned West Hayden Island placement site] or [the Port-designated in-water placement site].

Add “installation of sand cover” below, if applicable.

* + - * 1. The section also includes floating absorptive containment boom requirements and water management.
        2. Dredging depths, over dredge allowances, and pay depths vary within the work area as shown on the drawings and as described in this section.
        3. The Contractor shall segregate and dispose of screened dredging debris at a Port-approved disposal site off of Port property (Port-approved landfill).

Use one of the following paragraph if large woody debris placement is part of this project, otherwise delete. If used, choose one large woody debris placement option from below. Remember to delete brackets.

* + - * 1. Items classified as large woody debris, as described in this section, shall be salvaged and placed at the [West Hayden Island placement site] or [Port-designated placement site], as shown on the drawings.
      1. HYDROGRAPHIC SURVEY

Add month and year of hydrographic survey.

* + - * 1. Hydrographic surveys of the work area were obtained in \_\_\_\_\_\_\_\_\_\_ and are shown on the drawings.
        2. The Contractor will be provided with updated pre‑dredge hydrographic survey taken within 30 days prior to the authorized dredging operations start date as identified in the Notice to Proceed. Base estimates on the hydrographic survey as shown on the drawings. If there are any significant changes in profile or quantity between the surveys, adjustments to the quantities will be made.
        3. The Port will perform the post-dredge hydrographic survey after the Contractor notifies the Port that all dredging has been completed. If deficiencies are identified in the Contractor’s work that require remedial work, additional post-dredge hydrographic survey will be used to confirm the Contractor’s remedial work. Hydrographic surveys performed beyond the initial verification survey will be performed at no additional cost to the Port and the survey costs will be withheld from final payment.

Verify below methods and software are current and accurate.

* + - * 1. The Port anticipates collecting and processing hydrographic surveys as follows:

Performed with a Reson SeaBat 7101 multibeam bathymetric sonar using a frequency of 240 kHz or a Reson T50 using a frequency between 200 and 400 kHz. Multibeam data will be collected by running lines on 50-foot spacing parallel with the berthing lines of the project. The sonar swath will be clipped to 45 degrees either side of vertical.

Post processing of multibeam data will be performed utilizing Caris HIPS multibeam analysis and presentation software.

A 1.64-foot inverse-distance-weighted gridded data set will be exported from accepted data and used for mapping of contours and calculations of volumes for Contractor’s payment.

* + - * 1. The vertical datum used for dredging work, and any in-water placement if applicable, under this contract shall be Columbia River Datum (CRD). The Port will furnish a gauge set on the CRD datum at or near the work site.

Delete the following paragraph if material placement is not at West Hayden Island.

* + - * 1. The vertical datum used for work at the West Hayden Island placement site shall be NAVD 88.
        2. Calibrated electronic means shall be used to verify dredged depths. In the event of dispute of measured depths in the dredging prism, lead-line hydrographic survey measurements may be performed to check disputed depths.
      1. PERMITS
         1. Comply with the equipment, water quality, monitoring, transportation, and other dredging-related requirements stipulated in the Army Corps of Engineers and Division of State Lands permits.

Use one of the following two paragraphs. The first is for material placement/disposal at West Hayden Island. The second is for in-water placement. Do not use both.

* + - * 1. The Contractor shall be responsible for paying all fees and costs associated with obtaining permits to transport and dispose of dredging debris not suitable for placement at the West Hayden Island dredge material placement site. Dredge debris not suitable for West Hayden Island placement site shall be placed at a Port-approved landfill.
        2. The Contractor shall be responsible for paying all fees and costs associated with obtaining permits to transport and dispose of dredging debris not suitable for placement at the Port-designated in-water placement site. Dredge debris not suitable for in-water placement shall be placed at a Port-approved landfill.
        3. See Section 011100, Summary of Work, and the exhibits for additional permits and permit requirements.
      1. SUBMITTALS
         1. At the preconstruction meeting, submit the Material Barge Principal Characteristics Form and hydrostatic table for each barge to be used as a material barge for dredging during the course of the work. The form is provided at the end of this section.
         2. For each dredge material barge to be used, the Contractor shall provide 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.
         3. Submit a spill prevention, control, and containment response plan for all dredging and dredge material placement work. The plan shall be submitted to the Port at the preconstruction meeting and shall meet all applicable local, state and federal regulations. Work at the site shall not commence until the Port has reviewed and approved the plan.

Delete the following paragraph if dredged material is not placed at West Hayden Island.

* + - * 1. Water Rights Permit Water Usage Reporting:

Submit daily reports of water use for discharge operations of dredge material at the West Hayden Island placement site. Daily reports shall have dates, start and stop time of pumping, and quantity of water used in gallons.

The Contractor shall use the Port’s make-up water screen, or fabricate an identical screen, and it shall be in place at all times of water usage from the river.

At the end of the project, submit a report containing all water usage for the project.

* + - * 1. Submit a dredging and dredge material placement work plan to the Port at the preconstruction meeting. Work at the site shall not commence until the Port has reviewed and approved the work plan. The work plan shall include the following:

A description of the equipment to be used to accomplish the work.

A description of the survey monitoring, control, and implementation of clamshell bucket location and depth in the dredging prism.

Survey control methodology and procedures preventing exceedance of the regulatory maximum digging depth.

A description of dredging methods to be used to minimize turbidity at the dredging site and meet the water quality requirements as stated in the project permits.

A description of procedures to be used to document water quality conditions during dredging, and procedures to be followed if water quality criteria are exceeded.

A contingency plan with dredge procedures for reducing turbidity in the event of a work shutdown as a result of exceeding water quality requirements.

Quality control procedures to be used to achieve the lines and grades shown in the project plans.

Identification of the Port-approved landfill to be used to dispose of debris encountered during dredging.

A Water Quality Monitoring and Control Plan with methods and precautions for controlling water quality during dredging.

A Water Quality Monitoring and Control Contingency Plan with methods and procedures for modifications of methods which fail to meet water quality requirements. Include dredge procedures for reducing turbidity in the event of a work shutdown caused by exceeding water quality criteria.

Survey control methodology and procedures preventing exceedance of in-water placement parameters.

Quality control procedures to be used to achieve the lines and grades shown in the drawings for the Port-designated in-water placement site.

A Water Quality Monitoring and Control Plan with methods and precautions for controlling water quality during in-water placement, as stated in the project permits.

A Water Quality Monitoring and Control Contingency Plan with methods and procedures for modifications of methods which fail to meet water quality requirements. Include in-water placement procedures for reducing turbidity in the event of a work shutdown caused by exceeding water quality criteria.

Delete the following subparagraph if dredged material is not placed at West Hayden Island.

Dredge material placement site layout and spill prevention plan.

Delete the following subparagraph if dredged material is not placed at an in-water site.

A description of placement methods to be used to minimize turbidity at the Port-designated in-water placement site and meet the water quality requirements.

* + - * 1. Submit dredge monitoring (Hypack, Winops, or pre-bid approved equal) electronic files of all dredging, and in-water placement if applicable, activity for the first two dredging days, at the end of the second day at each berth, and upon completion of the work.
        2. Floating Absorptive Containment Boom:

Submit for the Port’s review a catalog specification for a proposed floating absorptive containment boom.

Floating absorptive boom is required for dredging operations. The boom shall be in the water and be ready to deploy around the water crane and material barge.

Choose one dredge material placement/disposal option from below. Remember to delete the brackets.

* + - * 1. Submit method, equipment, schedule, and procedures for discharging material into [the Port’s West Hayden Island placement site] or [the Port-designated in-water placement site].
      1. SAFETY REGULATIONS
         1. Operations fitting the 29 CFR 1918, Safety and Health Regulations for Longshoring, definition of “material handling” shall be performed in conformance with applicable requirements of 29 CFR 1918.
         2. Safe access, working surfaces, and first aid/life-saving equipment shall meet the requirements of 29 CFR 1926.605.
         3. Meet the following safety requirements for floating cranes and derricks, including land based cranes mounted on a vessel.

29 CFR 1926.1437.

29 CFR 1926.1437(m) and/or (n) for cranes and derricks. Load charts, wind restrictions, and list and trim data shall be maintained at the worksite and copies shall be made available to the Port upon request.

1. PRODUCTS
   * + 1. DREDGED MATERIAL
          1. Dredged material includes all material (except dredged debris and large woody debris as described below) excavated between the existing river bottom and the dredge profiles as shown on the drawings, within the tolerances noted, regardless of type, nature, or condition encountered.
       2. DREDGED DEBRIS
          1. Dredged debris includes material larger than 6 inches in any dimension that is not approved to be placed in-water such as logs, pressure treated wood, strapping, rods, cones, turnbuckles, cable, chains, or other oversized material.

Delete if large woody debris placement is not part of the project.

* + - 1. LARGE WOODY DEBRIS
         1. Large woody debris suitable for mitigation placement is one of the following:

Wood logs measuring a minimum of 8 feet long and a minimum of 12 inches in diameter at both ends of the log.

Stumps or root balls measuring a minimum of 5 feet in width, length, and height.

* + - * 1. Treated wood (creosote, pressure treated, or other) is not suitable for mitigation placement and is not considered large woody debris. Treated wood shall be handled as waste and debris.
      1. HYDROGRAPHIC SURVEY
         1. Hydrographic surveys completed by the Port as described in this section will be used to document that the work has been completed in accordance with the drawings and to determine the quantity dredged for payment for the work. A pre-dredge hydrographic survey and post-dredge hydrographic survey will be performed by the Port.

Delete the following paragraph if no in-water placement for dredge material.

* + - * 1. A pre-placement hydrographic survey and post-placement hydrographic survey at the Port-designated in-water placement site will also be performed by the Port.
        2. Hydrographic surveys shall be performed during the course of the work (progress surveys) by the Contractor for internal quality control and to monitor the progress of the work.

1. EXECUTION
   * + 1. EQUIPMENT
          1. Clamshell Buckets and Cables:

Clamshell buckets shall have straight sealed closing edges for full closure with minimum leakage and sediment re-suspension.

Calibrate and mark cables and lift lines at one foot and six-inch intervals to allow visual determination of the depth of the bucket.

Clamshell buckets shall have enclosed sides to prevent release of dredged material into the water.

Use one of the following two paragraphs. The first is for in-water material placement. The second is for material disposal at West Hayden Island. Do not use both.

* + - * 1. Barge Types (In-Water Placement):

Multiple Cell or Split-Hull: Barge(s) shall be in good condition with no leaks in the bins, hull, or in the bottom dumping mechanism. Split-hull barges shall have the bottom seals sand bagged and covered with steel plate.

Flat Deck: Use barges with watertight walls.

Open Bin Barges: The Contractor shall use ecology blocks or similar structural material from port to starboard to create bow, two mid-ship and stern “bins” to contain material.

Barge useable bin depths shall be 6-foot minimum.

Barges and equipment being used shall remain stable and secure at all times during transportation and placement operations.

Load lines shall be clearly shown on the barge and loading shall not take the barges below the load lines.

Tugs shall be of sufficient horsepower for moving the barge and maneuvering through marine traffic to be encountered between the dredging site and placement site.

Barge construction shall prevent material from re-entering the waterway during transportation between the dredging site and the placement site.

* + - * 1. Barge Types (West Hayden Island Placement):

Multiple Cell or Split-Hull: Barge(s) shall be in good condition with no leaks in the bins, hull, or in the bottom dumping mechanism.

Flat Deck: Use barges with watertight walls and a hopper type tremie pipe that discharges dredge material into the water at least 20 feet below the water surface. Any equipment and method used to discharge dredge material into the hopper/tremie tube shall ensure that no dredge material directly spills onto the water surface.

Barge useable bin depths shall be 6-foot minimum.

Barges and equipment being used shall remain stable and secure at all times during transportation and placement operations.

Load lines shall be clearly shown on the barge and loading shall not take the barges below the load lines.

Tugs shall be of sufficient horsepower for moving the barge and maneuvering through marine traffic to be encountered between the dredging site and placement site.

Barge construction shall prevent material from re-entering the waterway during transportation between the dredging site and the placement site.

* + - * 1. Dredging Monitoring and Positioning Equipment: Use an on-board electronic real-time differential global positioning system (DGPS) while performing dredging, and in-water placement work if applicable.

The system shall include a boom tip sub-meter DGPS receiver for bucket position monitoring and tracking, and any necessary shore-based remote support equipment. Operator cab console monitor shall be capable of displaying survey and positioning information to accurately track work progress. Work files shall have the capability of being rotated, and shall have scale adjustments to produce accurate positioning read-out that is easily readable by the operator.

The operator shall enter each clamshell bucket material removal event location, the data entry shall be retained in the GPS monitor display for the duration of the day’s work, and the software files shall be downloaded daily and submitted as a recordable and retrievable .dxf or .dgn format file. The operation and method of recording these events shall be reviewed with the Port prior to the start of dredging, demonstrated, and a disc provided to the Port for download and review for acceptance. The total dredging event log software files shall be submitted to the Port at final completion of the contract.

The attributes of the system shall include, at a minimum, tracking of bucket movement within the dredge work area, contour lines, bucket positioning over contour lines, and data entry and retrieval from pre-dredge survey .dxf and/or .dgn format files. Contour lines shall have clear distinction and contrast. Limits of dredging work shall be defined including toe line, fender pile line, and limits of cut areas.

Use the remaining subparagraphs if material placement/disposal is at a Port-designated in-water placement site, otherwise delete all remaining subparagraphs.

The operator shall enter each in-water placement event’s location data, and the software files shall be downloaded daily and submitted as a recordable and retrievable dxf or dgn format file. The operation and method of recording these events shall be reviewed with the Port prior to the start of placement, demonstrated, and a disc provided to the Port for download and review for acceptance. All in-water placement event log software files shall be submitted to the Port at final completion of the contract.

The attributes of the system shall include, at a minimum, tracking of barge movement within the placement area during in-water placement operations, contour lines, barge positioning over contour lines, and data entry and retrieval from survey .dxf and/or .dgn format files. Contour lines shall have clear distinction and contrast. Limits of in-water placement area shall be defined

Use combinations of electronic and manual positioning methods to accomplish the work to the required positioning and depth tolerances, as necessary. Horizontal positioning tolerance is no more than +/-1.5 feet.

* + - * 1. The Contractor shall review operation of equipment at the preconstruction meeting with the Port.
      1. DREDGING
         1. Dredge in the designated areas, within the tolerances, and to the depths indicated on the drawings, or as directed by the Port.
         2. Dredging shall include excavation of material to the dredge limits, depth, lines, and grade, as shown on the drawings.

Complete table according to facility design.

* + - * 1. Dredging tolerances are as follows:

| Berth/Area | Design Dredge Elevation  (feet CRD) | Dredging Tolerance  (feet) | Maximum Pay Depth Elevation  (feet CRD) | Maximum Allowable Depth  (feet CRD) |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

* + - * 1. The area shall be dredged to the designed dredge elevations. To assure excavation to the designed dredge depths, the Contractor is allowed a 2-foot deeper dredging tolerance and a maximum pay depth to 1 foot deeper than the designed dredge elevation.
        2. Side slopes shall not be steeper than noted on the drawings. Side slopes shall be dug from top to bottom to the grades shown on the drawings.
        3. Monitor dredge work throughout the course of work for depth, slopes, location, and tolerances. The Contractor shall be responsible for damages due to over‑depth dredging or dredging outside the given limits for dredging. If work is performed outside the approved dredge prism or the contractual or regulatory depths are exceeded, the Contractor shall immediately notify the Port.

Dredging operations shall be conducted with the assistance of GPS positioning. The Contractor shall submit electronic and hard copy printouts of GPS tracks of bucket digging event locations upon final acceptance of the work. The Contractor shall review the report and the format of the report with the Port for completeness and content prior to submission. Also review startup procedures and methods of tracking “bucket digging event locations” prior to the start of dredging.

The control of dredging depth shall be monitored by calibration and marked clam bucket hold-cable at identifiable and visible 1-foot and 6-inch intervals for the respective dredging depths and river stage elevations. The Contractor shall submit the cable marking as a detailed sketch to the Port and verification prior to the start of dredging.

Dumping or releasing of full or partial buckets back into the water, in any position of the water column, or river bottom will not be allowed.

* + - * 1. The entire river bottom within the dredging area shall be thoroughly checked with the clamshell bucket to ensure dredge depth tolerance has been attained. Any obstructions found above the design dredge elevation shall be removed before moving the dredge from the work area.
        2. Do not use “glory holing” as part of the dredging operations. At no time shall the Contractor dredge beyond the maximum allowable dredge depth, as shown on the drawings, or intentionally redistribute sediments into areas that are at elevations below the maximum allowable dredge depth.
        3. Dredged debris shall be disposed of by the Contractor at a Port-approved landfill off of Port property. Large woody debris shall be salvaged and placed as described in this section.
        4. Stop the dredge bucket as it breaks the surface of the water and allow the bucket to dewater prior to putting dredge material on the barge.

If dredging will occur at multiple berths, change first sentence to read, “Notify the Port when each berth’s dredge work is complete.”

Modify paragraph as appropriate if separate post-dredge hydrographic surveys are anticipated for separate dredge areas/berths.

* + - * 1. Notify the Port when dredge work is complete. A post-dredge survey of the dredged areas will be performed by the Port and used to verify completion of work to the specified dredge depth, slopes, and tolerances. If the Port’s post-dredge hydrosurvey finds the Contractor’s work not meeting contract drawings and specifications, the Port will notify and provide the Contractor with hydrosurvey results. Any material found above the specified grade shall be dredged to within the specified tolerance. The cost of all additional post-dredge hydrosurveys necessary to confirm the Contractor’s work will be deducted from progress payments to the Contractor.

Anticipate standby time during the post-dredge hydrosurvey operation, and during the evaluation of the hydrosurvey results.

It is anticipated that the electronic post-dredge hydrosurvey data will require one day to collect if the area is not occupied by vessels or barges. The post-dredge hydrosurvey evaluation may require up to four days to complete. The results of the evaluation will be given to the Contractor for one of the following:

The post-dredge hydrosurvey evaluation determines that the dredging has met contract dredging requirements, and further dredging work is not required.

The post-dredge survey evaluation determines that the dredging has not met the contract dredging requirements. The Contractor shall immediately begin dredging areas designated on the post-dredge survey until such time as the Contractor notifies the Port of completion of work.

* + - * 1. If excess quantities of material over the contract quantities are encountered during the dredging operations, the Contractor shall notify the Port immediately.

Edit paragraph below as applicable. Or for in-water placement, delete entire paragraph in its entirety with “Leave sufficient freeboard within the cells of the barge.”

* + - * 1. Leave sufficient freeboard within the cells of the barge for the addition of make-up water for discharge pumping operations for material to be offloaded at the West Hayden Island placement site or for the addition of a drying agent for material to be disposed of at a Port-approved landfill.
        2. Protect existing piling and other improvements and structures, in and near dredge areas, from damage. If damage occurs, repair the damage according to the Port’s direction, at no additional cost to the Port.
      1. SPILL PREVENTION AND CONTROL
         1. All equipment used shall be clean and inspected daily before use to ensure that the equipment has no fluid leaks. If a leak develops during use, the leaking equipment shall be removed from the project site immediately and not used again until it has been adequately repaired. Fuels or oils shall not be allowed to enter any water body.
         2. Any fueling of floating equipment shall be performed in a manner that minimizes the possibility of spilling fuels or other hazardous liquids into the water. Spill response plans and equipment shall be onboard with trained staff to ensure immediate cleanup should any spill occur.
         3. A floating absorptive containment boom shall be in the water and deployed around the crane and material barges during dredging operations at the berth. The floating absorptive containment boom shall be deployed, removed for transport of material barge, and redeployed once dredging operations resume and shall be managed for compliance during the dredging operation.
      2. TRANSPORTING DREDGED MATERIAL

Use one of the following two paragraphs. The first is for material placement at West Hayden Island. The second is for in-water placement. Do not use both.

* + - * 1. Transport dredged material from the dredging location to the West Hayden Island placement site located on the north side of West Hayden Island, as shown on the drawings.
        2. Transport dredged material on barges to the Port-designated in-water placement site located downstream of West Hayden Island, as shown on the drawings.
        3. The barges shall be transported to the placement site with sufficient freeboard inside the barge so that no dredged material or water spills from the barge while under way.
        4. Tugboats delivering material barges shall have sufficient horsepower for maneuvering through river traffic and maintaining control under local weather conditions.
        5. Retrieve and transport empty material barges from the placement site to the dredging area(s).
        6. Full and empty material barges transported to and from the dredging site after material placement shall not leave dribbles or spilled material on the side decks that could otherwise end up being washed or windblown back into the river or otherwise re-enter the waterway.

Delete paragraph below if there is no in-water placement of dredged material.

* + - * 1. To ensure the in-water placement of dredge material does not interfere with ship movement or traffic within the Columbia River Navigation Channel, coordinate the in-water placement schedule with the Columbia River pilots.

Use one of the following two paragraphs. The first is for in-water placement, the second is for placement at West Hayden Island. Do not use both.

* + - 1. DREDGE MATERIAL PLACED AT A PORT-DESIGNATED IN-WATER PLACEMENT SITE
         1. The Port-designated in-water placement site for dredge material is located downstream of West Hayden Island, as shown on the drawings. In-water placement shall be executed as follows:

Place the dredged material within the in-water placement site boundary as shown on the drawings.

In-water placement of dredge material shall occur in areas with a river bottom elevation of -54 CRD, or deeper, prior to installation.

Do not place, fill, or mound more than 4 feet of material on the river bottom at any location.

Do not place any material higher than elevation -50 CRD.

In-water placement may be by a hopper dredge, scow barge with a mechanical opening in the bottom of the hull for discharging dredge material, or a barge with a tremie hopper system that will discharge dredge material at least 20 feet below the water’s surface.

* + - 1. DREDGE MATERIAL PLACED AT THE WEST HAYDEN ISLAND PLACEMENT SITE
         1. The placement site for dredge material is at the Port-owned West Hayden Island placement site, unless an alternate permitted placement site is proposed by the Contractor and approved by the Port. Placement of material at the West Hayden Island placement site shall be executed as follows:

Place the dredged material at West Hayden Island placement site on the north side of the island.

The West Hayden Island placement site has a primary material placement basin for this work and a large water retention/settling basin. The basins are connected with weirs and flash-boards.

The Contractor may use the Port’s existing pipe on site, as shown on the drawings, for discharging material into the material basins. Water is permitted to pass over the weir boards and into the water retention settling basin however the dredge material shall be contained within the primary material placement basin. The available Port pipe material on site and available for the Contractor to use at his own risk is: 10-inch HDPE pipe in 40-foot lengths. All pipes have bolted flanges. The Port and the Contractor shall inspect pipe material used by the Contractor prior to start of the work and after completion of the work. The Contractor shall replace all damaged pipe, excluding normal wear and usage.

The Contractor may use the Port’s booster pump at his own risk. The Port and the Contractor shall inspect the booster pump to be used by the Contractor prior to the start of the work and after completion of the work. The Contractor shall replace all damage to booster pump, excluding normal wear and usage.

The booster pump is in storage and located at the Port’s Terminal 2. If the booster pump is used, the Contractor shall be responsible for delivering the pump to the West Hayden Island placement site and return the pump to Terminal 2 when the work is complete.

The Contractor shall be responsible for all fuel, oil, maintenance, and operation of the booster pump for the duration of the work.

The booster pump is manufactured by Georgia Iron Works, model LSA – 8x10 – 32.5GF C/3ME HHP, serial no. 5012.09425, dated 6/20/2000, powered by a 425-HP cat engine, model 3406.

The Contractor may use the Port’s make-up water fish screen, at his own risk, or fabricate an identical screen to be used on the suction end of the pump taking water out of the river. If the Contractor chooses to fabricate a fish screen it shall be approved in writing by the Oregon Department of Fish and Wildlife prior to installation. If the Port’s fish screen is used, the Port and the Contractor shall inspect the fish screen to be used by the Contractor prior to start of project and after completion of the work. The Contractor shall repair or replace all damage to the fish screen, excluding normal wear and usage.

The dredge pipe, booster pump, and fish screen are furnished as-is and the Port does not provide any warranties, guarantees, or assurances as to the state of performance of the pipe, pump, or screen.

An access ramp from the Columbia River to the West Hayden Island placement site may be used in the material placement operations.

The Contractor shall protect the shore and the permitted access ramp from all damage, including but not limited to spillage of water or dredged material, breach of containment berms, equipment used during the dredge material discharge operations, handling of pipe, installation of erosion control measures, etc. The Contractor shall immediately report any violation and damage of the shore or access ramp to the Port. The Contractor shall be liable for all damages, repairs, remediation, administrative and legal costs as a result of violation and damage to the shore and access ramp.

Discharge of dredged material in the West Hayden Island placement site is allowed 24 hours per day, 7 days a week.

Floating discharge operations and equipment may spud down along the shoreline to hold position in the river current. Anchors may also be used to maintain floating operations position. Floating operations shall be secure and safe for barge mooring, fleeting, and discharge operations. No motorized or stationary equipment, other than maintenance equipment, may be used on the West Hayden Island beach for the purpose of unloading and transporting dredged material.

Dredged material or associated water, as a condition of the dredging and West Hayden Island placement site permit, shall not be allowed to enter the waters of the Columbia River, or be discharged on upland areas other than the interior of the containment basins, during discharge operations.

Make-up water for discharge operations may be obtained from the Columbia River as conditioned by the Port’s Water Rights Permit. As a condition of the water rights permit, a screen shall be used on the suction side of the make-up water pump at all times. Water quantity shall be recorded daily according to the conditions of the permit and a report of usage shall be submitted to the Port at the completion of the work.

All material and water discharged at the West Hayden Island placement site shall only be that which is dredged from the designed areas, as shown in the drawings. Additional make-up water drained by the Contractor, as described in this section, may also be discharged at the West Hayden Island placement site.

The Contractor shall maintain dredged material flow in the dredge placement basins during offloading operations. The Contractor may have to temporarily stop discharging dredge material into the placement basins so that they can be maintained.

Material shall not be discharged in one location, or in any manner, to the extent that the deposition of material may overtop and run outside of the berms, or cause the berms to breach or be compromised.

The Contractor shall maintain a pathway for associated water to drain from the primary and secondary containment basins to the retention/settlement basin. Flash-boards shall be used to maintain maximum water still time to reduce turbidity and minimize suspended material from entering the retention/settlement basin.

All dredged material and water shall be left in place at the West Hayden Island placement site. The Contractor shall notify the Port at project completion and request final inspection of the West Hayden Island placement site, access ramp, shore, and material and water in the containment basins.

All material and water shall be removed from the final barge-load. The Contractor shall notify the Port after the barge has been cleaned and request a final barge inspection.

The Contractor shall be responsible for maintaining and monitoring all material basin berms throughout the dredge placement area.

* + - 1. WATER QUALITY AND TURBIDITY
         1. The Port will monitor water quality and turbidity during dredging, and in-water placement if applicable, to assure conformance with state and federal permit requirements.
         2. The Contractor shall coordinate and communicate activities through the Port. Information such as start and stop times, shutdown intervals, best management or contingency plan procedures implemented, obstacles encountered, change in dredged material type, and any other information which may affect turbidity or change monitoring needs or schedules, shall be provided to the Port. Monitoring may be accomplished from a research vessel at approximately 300 feet up- and down-current of the in-water activity every two hours during daylight.
         3. The Contractor shall conduct dredging, and in-water placement if applicable, operations in a manner that:

Conforms to turbidity and water quality requirements set forth in these specifications, and state and federal permits. The Contractor shall alter his dredging plan and operations to meet compliance requirements if permit thresholds are exceeded. If thresholds are exceeded, work may be halted per permit requirements.

Prevents re-suspension of material in the vicinity of the site.

Meets the permit requirements.

Minimizes turbidity increases in the water that would degrade water quality and damage aquatic life, cause erosion of banks or bottom, or cause other water quality impacts.

* + - * 1. The Contractor shall utilize standard best management practices to meet the goals of this article at the dredging site including, but not limited to, the following:

Once the bucket has made a cut and has material in it, the bucket shall not be re-opened to allow material to fall out and re-enter the river.

The Contractor shall stop the clamshell bucket as it breaks the surface of the water prior to putting dredge material on the barge.

Make each pass of the bucket complete including dredging and dumping to the barge.

Bring the bucket fully over the barge before discharging.

Do not fill the barge in a manner which will result in water overflow from the barge.

Place bucket on the bottom; do not drop unless dropping is required to excavate the sediments.

Bucket retrieval speed shall be controlled to minimize spillage of materials from the bucket.

Implement contingency plan procedures when excessive levels of turbidity are observed by visual or instrumented monitoring. When a contingency plan element is implemented, notify the Port so they can coordinate monitoring and permit reporting requirements.

* + - 1. REPORTING REQUIREMENTS
         1. A daily report of operations shall be prepared and maintained and copies shall be submitted to the Port. Further instructions on the preparation of the report will be furnished at the preconstruction conference.
         2. Keep an operator’s log and a daily progress chart aboard the dredge at all times for inspection. These documents shall be submitted to the Port for retention with the contract file at the completion of the dredging work. The Contractor is encouraged to keep a copy of this log for his own records. Include the following in the log:

Data regarding work areas completed, names of barges used, and cubic yards loaded.

Observations, changes in turbidity, monitoring of operations, water quality requirements, locations of debris of substantial size and any other conditions impacting dredging operations or water quality.

Daily progress, starts and stops, and report debris that would potentially extend below the design dredge depth for the specific area being dredged.

Insert project title below.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**MATERIAL BARGE PRINCIPAL CHARACTERISTICS FORM**

**Name of Barge: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| **Length:** | **Cell/Bin Quantity:** |
|  |  |
| **Breadth:** | **Cell/Bin Width:** |
|  |  |
| **Depth:** | **Cell/Bin Length:** |
|  |  |
| **Light Draft:** | **Cell/Bin Depth:** |
|  |  |
| **Freeboard Light Draft:** | **Total Cell/Barge Capacity (Tons):** |
|  |  |
| **Loaded Draft:** | **Mooring Bit Arrangement:** |
|  |  |
| **Freeboard Loaded Draft:** |  |
|  |  |

END OF SECTION 352023