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February 26, 2015

TO: PLANHOLDERS

SUBJECT: PIER 4 PHASE 1 REMOVAL ACTION
PROJECT NO. 091452
CONTRACT NO. 069982

ADDENDUM NUMBER TWO

This addendum is issued to amend the following:

SPECIFICATIONS

A. 35 20 24 – CONTAMINATED DREDGED MATERIAL TRANSLOADING

1. **DELETE** and **REPLACE** the issued Section 35 20 24 with the attached, revised Section 35 20 24 – Contaminated Dredged Material Transloading (Attachment A).

DRAWINGS

B. DRAWING C1.2 DREDGE SECTIONS – SHEET 1, DETAIL B

1. The lower limit of the clean sediment dredge at elevation -2 is drawn incorrectly relative to the vertical scale shown on the sides of the detail. The actual location of that line should be as shown on Details C – F on Drawings C1.3 and C1.4.

Receipt for this addendum shall be indicated in the space provided in Section 00 41 00, Bid Form.

END OF SECTION

ATTACHMENT A – Revised Section 35 20 24 – Contaminated Dredge Material Transloading

Section 352024
Contaminated Dredged Material Transloading

PART 1- GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. The provisions and intent of the Contract, including the General Conditions and General Requirements, apply to this work as if specified in this section. Work related to this section is described in the following sections:
1. Section 00 31 00 – Available Project Information
 2. Section 00 45 13 – Responsibility Detail Form
 3. Section 01 14 00 – Work Restrictions
 4. Section 01 35 29 - Health, Safety and Emergency Response Procedures
 5. Section 01 45 00 - Quality Control
 6. Section 01 57 13 – Temporary Erosion and Sediment Control and Construction Stormwater Pollution Prevention
 7. Section 01 71 23 - Field Engineering
 8. Section 02 90 00 – Fugitive and Silica Dust Control Procedures
 9. Section 35 20 23 – Dredging
 10. Appendix - Removal Action Work Plan (RAWP) (includes the Water Quality Monitoring and Protection Plan, (WQMPP) and Dewatering Return Water Treatment Technical Memorandum)

1.02 DESCRIPTION OF WORK

- A. The work consists of transporting TBT contaminated dredged material (soil, sediment, rock, debris and water (free and entrained in the dredge material)) from contaminated areas of the Pier 4 slope to the Transload Facility indicated on the Drawings, offloading the material from the barge to the transload facility, processing the material for disposal and discharge, and disposing and discharging the material in compliance with these Specifications. This work also consists of set-up and clean-up of the transload facility. All dredged soil, sediment, debris, and riprap shall be disposed of at an approved landfill permitted to accept the contaminated material. The Port has obtained Waste Disposal Authorization (WDA) for disposal at the LRI Landfill (LRI) located in Graham, WA for disposal of TBT contaminated dredged material. All water (free and entrained in the dredge material) and surface water collected on the transload site or on the dredge barge shall be discharged into the Sitcum Waterway only after onsite treatment. Requirements for dredging the contaminated material and depositing the material into the transport barges are provided in Section 35 20 23 – Dredging.
- B. The Contractor shall furnish all labor, materials, tools, equipment and supervision necessary to transload the contaminated dredged material as described in these Specifications and in strict compliance with the Removal Action Work Plan (RAWP). Transloading consists of all work activity required to accomplish upland disposal of contaminated dredged material from the point at which it is deposited on the barge at

the Pier 4 site. All work shall be performed in compliance with the work sequence and schedule constraints described in Section 01 14 00 – Work Restrictions.

1.03 QUALITY ASSURANCE

- A. The water treatment supervisor must have a minimum of five (5) years of relevant experience and have knowledge of system operation, control, maintenance, and diagnosis. Water treatment operators must have knowledge of system operation and control.
- B. The independent analytical testing laboratory shall have certifications specified in the WQMPP in the RAWP.
- C. See Section 00 45 13 – Responsibility Criteria for additional experience requirements for Transloading Contaminated Material and for Contaminated Water Treatment.

1.04 PRE-CONSTRUCTION SUBMITTALS

- A. Transload, Transport, and Disposal Work Plan (TTD):

The Contractor shall submit a detailed written Transload, Transport, and Disposal Work Plan (TTD) to address activities associated with transloading contaminated dredge material. The TTD shall be a separate document from the Dredging and Disposal Work Plan (DDWP) submittal that is required per Section 35 20 23. The TTD shall be submitted to the Engineer at least 60 days prior to dredging. Transloading shall not begin until: 1) the Plan has been reviewed and approved by the Port and applicable regulatory agencies; 2) agency-required notifications have been completed in accordance with the RAWP; and 3) the Contractor schedules and attends a Pre-transload conference with the Port and other permitting agencies as required by the RAWP, and receives agency approval to begin transloading as a result of that conference. The Transloading conference may be included as part of the Pre-dredge conference required per Section 35 20 23.

At a minimum, the TTD shall contain the following:

1. Work Sequence and Equipment
 - a. Order in which the work is to be performed indicating the work sequence.
 - b. A construction schedule shall be prepared that identifies the timing and sequencing of the major activities to setup, operate, and clean-up the Transload facility. These shall include, but not be limited to, mobilization, site setup, start of Transloading operations, anticipated material delivery and processing rates, duration of Transloading, cleanup, and demobilization. The transloading schedule shall be coordinated with the dredge schedule required for submittal per Section 35 20 23.
 - c. Number, types and capacity of all land-based equipment to be used as well as names of derrick barges, dredge barges, and other marine vessels to be used.
2. Means and Methods for Transporting, Offloading, Handling, Dewatering, and Disposal of Contaminated Dredge Material
 - a. Methods, procedures, and equipment to be used to provide watertight containment of dredged material on disposal barges. Drawings shall be

submitted that show the proposed concept for providing watertight containment of all dredged material in route from the Pier 4 site to the transload facility. Documentation of successful leak testing of the dredged material containment system used on the disposal barge shall also be provided. Leak testing documentation shall be submitted prior to start of transloading and may be submitted as a supplement to the TTD.

- b. Methods, procedures, and equipment to be used to transport the disposal barge from the Pier 4 site to the Transload facility.
 - c. Methods to be used for record keeping related to transport and disposal of dredged material.
 - d. Methods, procedures, and controls to protect existing Port facilities against damage, including installation of temporary mooring piles to protect the existing fender system (if used).
 - e. Methods, procedures, and controls to be used to prevent water from entering the existing storm drain system.
 - f. Methods, procedures, and controls to be used to offload, segregate, handle, stockpile, dewater, transport, and dispose of dredged sediment and debris.
 - g. Products, methods, procedures, and controls to be implemented if a drying agent is to be used to dewater the dredged material.
 - h. Methods, procedures, and controls to be used to provide containment, collection, and conveyance of all dredged water and surface water to the onsite water treatment system, including water collected during offloading of dredged material.
 - i. Methods, procedures, and controls to be used to provide control of fugitive dust from stockpiles of dredged material.
 - j. Methods, procedures, and controls to be used to collect and convey dredged water from the dredge barge to the onsite treatment system.
 - k. Methods, procedures, and controls to be used to ensure that trucks used to haul dredged material to the landfill are sealed and watertight.
 - l. Information gathered through coordination with the landfill regarding constraints on material receiving capacity, hours of operation, and delivery logistics used for project planning.
 - m. A site plan(s) shall be submitted that clearly depicts the Contractor's proposed setup and use of the Transload facility, including details depicting the proposed water containment, collection, conveyance, and treatment system.
3. Dewatering Treatment System Information
- a. Description of water treatment system, product details, and process and instrumentation details.
 - a.b. Information regarding the use of chemical coagulants if proposed as an alternate to electrocoagulation.

- ~~b.c.~~ System scaling calculations, including dredge rates, transload rates, barge dewatering rates, sediment dewatering rates, water treatment rates, stormwater accumulation, and storage requirements.
 - ~~e.d.~~ System monitoring, control, and response plan.
 - ~~d.e.~~ Proof of Quality Assurance requirements indicated above.
4. A Stormwater Pollution Prevention Plan (SWPPP) for operation of the transload facility that shall meet National Pollutant Discharge Elimination System (NPDES) substantive requirements. Because this project is being conducted as a Time Critical Removal Action under USEPA's authority, an NPDES permit will not be required as long as substantive requirements for NPDES requirements are met (per RCW 90.48.039). The SWPPP shall describe operational and source control BMPs related to dredge material transloading and shall describe the routing and ultimate disposal of any water from the dredged material, all stormwater collected within the transload area, all water that is used for wash-down of trucks and equipment, and any water that may come in contact with the dredged material or dredged material handling equipment. The SWPPP shall also discuss the design storm criteria and the contingency for overflows in excess of the design storm and controls to minimize stormwater contributing to the sediment dewatering process. See Section 01 57 13 – Temporary Erosion and Sediment Control and Construction Stormwater Pollution Prevention for additional information.
 5. Notification procedures to United States Coast Guard (USCG) for barge operations within the Blair Waterway and the Sitcum Waterway.
 6. Environmental monitoring, including procedures for emergency spill containment and removal operations. Spill containment and removal procedures shall be provided that address spills that occur while transiting dredged material to the transload site, while offloading at the transload site, and while in route to the landfill.
 7. Water Quality Monitoring and Notification Procedures
 - a. The Contractor shall be subject to the requirements and procedures specified in the Water Quality Monitoring and Protection Plan (WQMPP) and the RAWP included in the Appendix. Provide written acknowledgement of understanding of all requirements and procedures contained in these documents with respect to water quality monitoring, best management practices (BMPs), and notification procedures associated with transload operations. Written acknowledgement shall be provided in the form of a signed letter from the Contractor to the Port of Tacoma.
 - b. Proposed methods and procedures for monitoring water quality in strict compliance with the WQMPP.
 - c. The personnel and equipment that will be used to monitor water quality during the course of the project
 - d. Contingency measures to be implemented if water quality violations occur.
 8. Prevention of Interference with Navigation

- a. Notification and procedures to be used for moving transloading equipment to accommodate inbound and outbound commercial vessel traffic using the surrounding waterway.
9. Contractor Quality Control and Organization Plan
- a. Organization chart with key personnel and supervisory chain. At a minimum, the Contractor shall identify the following key personnel: superintendent, quality assurance representative, health and safety representative, equipment operator(s), water quality monitoring lead (or firm that the Contractor has hired to conduct monitoring), water treatment supervisor, and other key personnel deemed necessary by the Contractor for the successful implementation and completion of this work. Provide 24-hour direct telephone numbers for key staff that will be responsible during off hours work periods (between 5 pm until 8 am the following day and on non-working days)
 - b. Quality control methods and procedures
- B. Pre-construction survey to confirm or supplement existing transload site topographic information, if performed.

1.05 CONSTRUCTION SUBMITTALS

- A. Daily Transload Reports
- B. Weekly Transload Reports
- C. Transload Closure Report

1.06 SITE CONDITIONS

- A. Site Description
1. The site designated to serve as the Transload Facility is located along the northwest edge of the Sitcum Waterway and is contained within the APM Terminals (APMT) container yard. The area contained within the boundary indicated on the Drawings is approximately 7 acres in size and will be made available to the Contractor for transloading TBT contaminated dredge material and water; however the remainder of the APMT yard and dock will continue to operate as an active container terminal. Landside access to the site will be provided through the secured entrance gate located at the south end of the terminal, requiring that Contractor vehicles pass through the active terminal to reach the transload area. Waterside access to the site will be provided by a portion of the existing deep-draft dock. Refer to Section 01 14 00 – Work Restrictions for access requirements.
 2. The upland portion of the transload area is paved with approximately 4 inches of asphalt and configured and striped for container handling operations. The pavement is sloped to drain to five catch basins that convey surface water to an underground treatment system that discharges to outfalls located along the Sitcum Waterway. Pavement cracks will be sealed by the Port under a separate contract prior to the Contractor's mobilization to the transload site. After crack sealing work is complete, the Contractor may assume that the upland paved surface of the transload site is impervious for the purpose of providing containment and collection of dredged water and surface water.

3. The waterside portion of the transload area consists of a deep-draft dock built over a riprap-armored slope. The dock is a concrete pile supported structure that supports a 100-foot gage container crane system. Appurtenances and features on the dock include crane rails, crane power trench, bullrail, utility vaults, crane stops, bollards, fender panels, deck drains, pavement striping and bullrail markings, ladders, and traffic barriers. The wharf structure is rated for 750 pounds per square foot (PSF) of uniform deck loading.
4. Water and power are available at the transload site as indicated on the Drawings. All water and power used by the Contractor for transloading operations shall be paid for by the Contractor. Metering equipment shall be installed by the Contractor.
5. Site lighting is provided by high-mast light fixtures that are appropriate for illumination of a container yard. It is anticipated that existing site lighting will be adequate for transloading operations, however the Contractor shall assess if additional lighting is required to facilitate transloading. Additional lighting shall be provided at the Contractor's expense and only at the approval of the Engineer.
6. Record drawings for the site and wharf are available as reference documents as indicated in Section 00 31 00 – Available Project Information. The Contractor shall familiarize itself with the layout, features, constraints, and limitations of the area designed for transloading use (including limitations on wharf deck loading), including review of the reference documents prior to bidding. All additional survey work to either confirm or supplement existing site topographic information shall be performed by the Contractor and included as part of the base bid for the project.

B. Inherent Delays

1. The Contractor shall anticipate inherent delays while conducting transloading operations in the Blair Waterway, Sitcum waterway, Commencement Bay and within the APM Terminal. Inherent delays are due to commercial shipping traffic within the shipping channel and due to APM Terminal operations. Commercial shipping traffic and APM Terminal operations shall have precedence over the Contractor's activities and may require them to stop, move, adjust, and/or slow down to accommodate vessel movement and terminal operations. The bid prices shall include allowances for such inherent delays.

C. Interference with Navigation

1. The Blair Waterway, Sitcum Waterway, and Commencement Bay are active navigation corridors used for transport of deep-draft commerce activities. These activities shall take priority over the Contractor's operations. The Port's tenants and other entities using the waterway must have access along the project site for the duration of the construction contract. The Contractor shall conduct its operations in a manner that will minimize interference with those activities. In the event that the Contractor's construction equipment (derricks, dump scows, tug, barges, workboats, anchors, lines, etc.) obstructs the navigable waterway so as to hinder movement of commercial vessels, the equipment shall immediately be moved to facilitate the shipping activity.

2. Any damage to the Contractor's equipment in navigation lanes due to the Contractor's failure to move when required shall be at the Contractor's sole risk and expense.

D. Protection of Existing Facilities

1. Any damage to the existing dock structure at the Husky Terminal and the APMT Terminal (transload facility), and/or other existing facilities caused by the Contractor's operations, as determined by the Engineer, shall immediately be repaired to the pre-project condition at the Contractor's expense.
2. All vaults, deck drains, crane rail pockets, and other areas on the dock where dredged material can collect and/or drain through the structure shall be covered using sheeting or impermeable liners and protected during transloading operations. The Contractor will not be allowed to open or access the inside of any vaults along the dock without permission from the Engineer.
3. The existing fender system along the face of the dock consists of discrete fender panels spaced along the length of the berth. These fender panels are intended for use with tall freeboard container vessels and are not configured to accommodate barges or other low free-board vessels through the full tidal range. Damage to the fenders can occur if low freeboard vessels are allowed to snag the fenders on a rising tide. The existing fender system may be used to accommodate berthing of the Contractor's transloading equipment; however the Contractor shall make provisions to protect the fender panels and dock structure from damage throughout the full tidal range.
4. The existing buried storm drain system shall be completely isolated from the dredge and surface water containment and collection system established by the Contractor. All buried piping, vaults, and outfalls shall be protected and shall not receive any water or sediment from transloading operations.
5. The transload area contains removable concrete wheel stops that may be moved by the Contractor to accommodate setup of the transload facility. The wheel stops are pinned to the pavement by steel or rebar dowels. All wheel stops shall be protected from damage, whether they remain in place or are removed. Removed wheel stops shall be reinstalled after completion of transloading operations in their pre-project condition.
6. All pavement damage due to transloading operations shall be repaired by the Contractor.
7. Condition Survey of Existing Structures: The Contractor and Engineer shall review and verify the condition of adjacent structures, appurtenances, and pavement adjacent to the work area prior to beginning work to ascertain existing conditions. Any damage documented as a result of the Contractor's activities will be repaired at no additional cost to the Port.
8. The Contractor's TTD shall include a description of the methods for the above protections.

E. Security Concerns

1. For security and vessel navigation concerns, the Contractor shall give notice and receive required approval from the Engineer prior to berthing at any location along the Blair and Sitcum Waterways. The Contractor shall notify the Coast Guard as required to comply with Coast Guard and Port regulations for operating within the Blair Waterway, Sitcum Waterway, and Commencement Bay.

1.07 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, the Contractor shall promptly recover and remove the same. The Contractor shall give immediate verbal notice, followed by written confirmation, of the description and location of such obstructions to the Engineer and shall mark and buoy such obstructions until they are removed. Should the Contractor refuse, neglect, or delay compliance with this requirement, such obstructions may be removed by the Port 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. 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 River and Harbor Act of 3 March 1899 (33 U.S.C. 410 et seq.). The Contractor shall be responsible for any fees, fines, penalties or other costs resulting from misplaced materials. The Contractor shall also be responsible for removing accumulated spilled dredged materials in the waterway even if the material is located beyond the project dredging limits.

1.08 REGULATORY COMPLIANCE

- A. **Permits and Compliance.** The Contractor shall be responsible to adhere and conform to all applicable provisions, conditions and requirements of the Removal Action Work Plan (RAWP).
 1. The Contractor is responsible for notifying various regulatory agencies prior to commencing transloading, discharge of treated dredged water, and upland disposal of dewatered sediment as required by the project permits and the RAWP.
- B. Any conflicts between these contract specifications and issued permits will be brought to the attention of the Engineer. Nothing whatsoever shall be deemed to authorize violation of project permits.
- C. The Contractor shall grant access to its dredge derrick, barge(s), tug(s), and all other equipment mobilized for the project for inspection purposes, to the Port or to any Port-designated representative, and to representatives of the State and Federal agencies issuing the aforementioned permits.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 ORDER OF WORK

- A. Transloading of contaminated dredged material shall be performed in sequence with dredging at the Pier 4 site and shall be performed in compliance with the work sequence and schedule constraints described in Section 01 14 00 – Work Restrictions and in compliance with the provisions and BMPs included in the RAWP. See Section

35 20 23 for work sequence requirements for dredging. All contaminated dredge material shall be processed for disposal through the transload site.

- B. The Contractor shall setup the transload site to accommodate his proposed means and methods for offloading, stockpiling, dewatering, hauling, and disposal of dredged debris, riprap, sediment, and water. The transload site shall be setup as described in the Contractor-prepared TTD and as approved by the Port.
- C. The Contractor shall outfit his dredge disposal barge(s) to provide watertight containment of dredged material as described in the Contractor-prepared TTD and as approved by the Port.
- D. The Contractor shall perform transloading operations only after approval has been received from the Port that transload site setup and barge containment has been completed in accordance with the approved TTD.
- E. Transloading activity shall be coordinated and performed in strict accordance with project-specific BMPs included herein and within the RAWP. This specification section does not include all required protection measures, mitigation measures, and BMPs associated with this project. The Contractor shall pay particular attention to the conditions of issued permits, the RAWP, the WQMPP, and applicable regulations and authorizations associated with this project. All protection measures, mitigation measures, and BMPs included in these documents shall be implemented by the Contractor.
- F. All dredged material shall be disposed of offsite prior to start of site clean-up activities. The Contractor shall clean up the site to its pre-construction condition. The Port will perform pavement striping and bullrail marking work, if required.
- G. The water treatment system shall be removed only after all cleaning of the site and equipment is complete. All wash-down water shall be processed through the water treatment system.

3.02 TRANSLOAD SITE ACCESS AND SETUP

- A. Landside access to the site will be provided through the secured entrance gate located at the south end of the terminal. The access gate is controlled by APMT. The Contractor shall coordinate all gate activity with APMT and shall be aware of, and accommodate, restrictions on hours of operation. Refer to Section 01 10 00 - Summary and Section 01 14 00 – Work Restrictions for access and security requirements.
- B. A preconstruction meeting shall be held prior to Contractor mobilization to the transload site to coordinate proposed transloading operations with APMT and the Port.
- C. At a minimum, the Contractor shall coordinate transload site access activity on a daily basis with APMT. Changes to access routes within the terminal to the transload site may be required depending on container yard activity and will be determined by APMT.
- D. Approximately 250 feet of berth length at the north end of the dock is available for waterside access to the transload site. This portion of the dock will be available for exclusive use by the Contractor for offloading of dredged material from barges. As noted above, measures shall be taken to protect the dock and all appurtenances and features from damage due to transloading activity. For protection of the existing fender system, the Contractor may install up to 10 temporary steel pipe piles along the pier

face to provide a stand-off for barge and equipment mooring. The pile standoff system (including means and methods for installation) shall be designed by the Contractor and shall be described in the TTD. Installation of the temporary piles shall occur no earlier than July 15, 2015 and removal shall occur no later than February 15, 2016.

- E. Temporary fencing (including access gates) or barriers shall be installed along the boundary between the transloading area and the container yard as shown on the Drawings. The fencing or barriers is intended to provide clear delineation between the transload area and the container yard. Fencing or barriers shall not impede the flow of water into the transload site such that ponding develops in the container yard. Fencing and barriers shall be secured to the pavement and shall be repaired immediately if damaged or blown over.
- F. The Contractor shall remove the existing wheel stops located within the transload area on an as-needed basis to accommodate transloading operations. All holes in the pavement due to removed dowel pins shall be filled and sealed to be impermeable prior to the start of transloading operations.
- G. All water that enters the transload site shall be treated before discharge into the Sitcum Waterway. A temporary site drainage and collection system separate from the existing storm drain system shall be designed and installed by the Contractor to establish complete containment within the transload area of all surface water and dredge water and to deliver water to the treatment system. The containment system shall not prevent surface water from entering the transload site such that ponding occurs in the container yard and shall be able to accommodate water entering the transload site from the container yard. The approximate area in the container yard that drains to the transload site is indicated on the Drawings. The containment system shall include exclusion zones to prevent migration of dredged material from the transload site via vehicle, equipment, or personnel access leaving the site. Exclusion zones shall include features such as wheel washes, vehicle and equipment wash-down areas, boot washes, etc.
- H. The existing buried storm drain system shall be completely isolated from the dredge and surface water containment and collection system. All buried piping, vaults, and outfalls shall be protected and shall not receive any water or sediment from transloading operations. The existing catch basins within the transload area may be used as drainage sumps as long as all piping into and out of the catch basins is temporarily plugged and the catch basins are proven by the Contractor to be watertight. The Contractor shall demonstrate the effectiveness of the pipe plugging system and the water-tightness of catch basins by performing a leak test of the catch basins. The leak test shall consist of plugging the pipes, filling the catch basins with clean water, and measuring water loss over a 12 hour period. No measurable loss of water will be allowable within the 12 hour period. All crack sealing or repair to the existing catch basins that is necessary to provide watertight drainage sumps shall be at the Contractor's expense.
- I. The Contractor will be responsible for installing temporary water and power metering equipment on the existing utility lines located within the transload area.

3.03 BARGE TRANSIT TO TRANSLOAD SITE

- A. Barges transiting dredge material from the Pier 4 site to the transload site shall provide watertight containment of all dredged material during barge loading, transit, and unloading. Dredged material includes water, soil, sediment, riprap, and debris. Dredged material shall not be piled above the barge sidewalls at any time.
- B. The Contractor's proposed method for providing watertight containment of dredged material on transit barges shall be included in the TTD submittal and shall be verified through a leak test. The leak test shall consist of completely filling the watertight containment area of a clean barge with seawater, visually inspecting the barge containment area for leaks, and measuring water loss over a 4 hour period. No measureable loss of water will be allowed within the 4 hour period. All water used for leak testing shall be discharged back into the waterway from which it came. Performance of the test will be observed by Port personnel. Documentation of successful leak testing shall be provided as a supplement to the TTD and shall be submitted prior to the start of transloading. All repairs or modifications to the Contractor's proposed dredged material containment system that are necessary to demonstrate watertight containment shall be performed at the Contractor's expense.
- C. Any barge that exhibits leakage during transloading shall be removed from the equipment utilized on the project until satisfactory repairs are made. Costs and penalties associated with delays due to repair or failure of the watertight containment system shall be the paid for by the Contractor.

3.04 UNLOADING OF DREDGED MATERIAL FROM BARGE

- A. Unloading of dredged material from the barge shall only occur along the dock at the transload site and shall be done in such a manner as to prevent spillage of dredged material into the waterway. All dredged material shall remain contained either within the barge or within the confines of the contained transload site.
- B. Transfer of dredged material shall occur in a fashion that minimizes splash and splatter of the material. Sheeting or equivalent impermeable lining shall be placed under the travel area of the offloading bucket between the barge and stockpile area to capture any spills.
- C. There shall be no path for dredged material to fall into the water during off-loading operations. Spill aprons or other containment devices shall be used to prevent the release of spilled material into the waterway or on uncontained landside work areas.
- D. Spill aprons shall be impermeable, uninterrupted, and structurally adequate to catch any falling material, including rain water, and hold or deflect it back into a contained area, either on shore or on the barge. Spill aprons shall be able to provide protection throughout the full tidal range and shall be wide enough that caught material will not fall off the sides. Dredged material shall not be allowed to accumulate on the spill apron.
- E. Dockside sediment control (e.g., sweeper trucks, shoveling, sweeping, wash down) shall occur as often as necessary to avoid tracking of sediment by vehicles and personnel and to generally maintain a clean site.

- F. The Port shall be notified immediately if a spill of dredged material into the waterway occurs. Spill response procedures shall follow those described in the approved TTD and in the RAWP.

3.05 DREDGED MATERIAL STOCKPILING AND DEWATERING

- A. All dredged material shall be sufficiently dewatered to meet landfill paint filter test criteria before hauling offsite. Dewatering may occur either by adding a drying agent to the material or via passive dewatering through stockpiling, or both. All water drained from dredged sediment shall be collected and conveyed to the onsite treatment system.
- B. The Port's Geotechnical Engineer performed a laboratory test to evaluate the drainage characteristics of the dredged sediment. A memorandum summarizing the tests performed and results obtained is referenced in Section 00 31 00 – Available Project Information. Information contained in the memorandum is provided for reference only and is based on the behavior of one composite sample of material. The actual drainage characteristics of the material in the field may be different than those observed in the laboratory. The Contractor shall draw his own conclusions regarding the drainage characteristics of the dredged material based on the available reference information.
- C. It is anticipated that handling of dredged material may require the use of short-term surge piles, short-term mixing piles (if a drying agent is used) and/or long-term stockpiles in order to dewater the material to meet landfill paint filter criteria. The following measures shall be taken if piling of dredge material is necessary:
 - 1. All material shall be located within the confines of the contained transload area.
 - 2. All material piles shall be visually monitored to prevent fugitive dust. Dust control measures as described in the approved TTD shall be employed if necessary.
 - 3. All stockpile areas shall be inspected daily and after high precipitation events to verify that the drainage system is functioning and the material is properly contained. Covering of stockpiles shall be done at no additional cost to the Port.
- D. Drying agents used to dewater dredged sediment shall not introduce environmental health hazards to the project. Drying agents such as hog fuel, sawdust, lime, or cement may be used if mixed in a way that does not create fugitive dust and does not impact air and water quality. Drying agents shall not negatively impact the performance of the dredge return water treatment system or the quality of treated water discharged back into the waterway. The use of any type of drying agent shall be included in the TTD and shall be approved by the Engineer before use.

3.06 DREDGE RETURN WATER TREATMENT

- A. Dredge return water includes the water collected in the enclosed bucket during mechanical dredging and placed on barges, and the entrained water within the dredged sediment. Dredge return water shall include water pumped from the barges and water recovered from the upland sediment dewatering area. The treatment system shall also treat collected stormwater in the transload area.
- B. Treatment of all dredged return water and all runoff from rainfall shall be performed at an upland location at the transload site prior to discharge back into the waterway.

- C. The Contractor shall design, specify, operate, maintain, and monitor a treatment system that includes the following treatment processes:
1. Primary settling and flow equalization to provide initial storage for disparate barge offload, dewatering, and treatment flow rates.
 2. Electrocoagulation or chemical coagulation to coagulate, flocculate, and settle suspended solids, ~~without the addition of chemical coagulants.~~ See paragraph 3.06.D below for information regarding the use of chemical coagulants.
 3. Sand filtration to remove dissolved solids and turbidity to below discharge limits.
 4. Granular activated carbon (GAC) to remove TBT to below the discharge limits; and
 5. Treated water storage to be used for backwash water supply and for sampling and confirmation of treatment effectiveness during hot spot dredging.
- D. ~~Under conditions included in the RAWP, no chemical coagulants shall be used. The USEPA has provided approval for the use electrocoagulation on this project. The use of chitosan or other chemical amendments for coagulation may be allowed, pending the Port's and USEPA's review and approval of the Contractor's proposed water treatment system. Information regarding the use of chemical coagulants must be included in the TTD submittal. Although a separate NPDES permit is not required for this project, material submitted within the TTD for the proposed use of chemical coagulants shall include information typically required to be submitted under the NPDES process in order to demonstrate that substantive requirements are met. If chemical amendments are used, then additional effluent monitoring may be required above and beyond that described in these Specifications and in the RAWP. Additional effluent monitoring may include sampling of residuals and performing bioassay tests to evaluate the toxicity of residuals. USEPA may also require that additional performance confirmation of the dewatering treatment system be performed conducted prior to issuing discharge authorization, potentially restricting discharge for several days pending analysis of effluent samples. Requirements for additional monitoring and system performance confirmation in response to the proposed use of chemical coagulants will be established by the Port and USEPA upon review of the TTD.~~
- E. The treatment system shall:
1. Be scaled and operated to not inhibit the dredging schedule and to treat collected stormwater within the transload area.
 2. Have sufficient redundancy to operate during routine maintenance, which includes removal of solids from primary settling, calibration of electrocoagulation system or chemical coagulant metering system, backwash of sand filters, and backwash of GAC media.
 3. Have automated system monitoring to measure pH and turbidity of water after electrocoagulation or after chemical coagulation, flocculation and settling, sand filtration, and GAC treatment and to measure pressure loss across every filter and GAC unit.
 4. Have serial GAC vessels that allow Contractor to collect water samples for analysis of TBT and indicator parameters to assess depletion of the GAC.

5. Have automated controls that prevent discharge of reject water that exceeds system control limits. Turbidity control limit shall be set as low as practicable before water is discharged through GAC to mitigate head loss and depletion of the GAC.
 6. Retreat reject water until it meets discharge criteria.
 7. Allow for sufficient daily downtime that can be used to catch-up water processing due to system maintenance or to retreat reject water.
 8. Have sufficient treated water storage. Treated water storage shall be used to backwash filters. Filter backwash water shall be re-treated in treatment system. During hot spot dredging, influent and effluent from the treatment system shall be sampled pursuant to Section 6.3 of the WQMPP in the RAWP. No water shall be discharged through the end-of-pipe compliance point until analytical results from Day 1 show that the concentration of TBT is below the discharge limit. As identified in 3.06 D, additional performance monitoring and hold times may be required if chemical coagulants are used.
- F. Treated water shall be discharged from the end-of-pipe of the treatment system through a treated water conveyance pipe to a marine outfall specifically established for discharge of treated dredged return water. The marine outfall shall be constructed in the EPA-approved location at the north end of the Sitcum Waterway as shown on the Drawings. The marine outfall shall be constructed to inhibit scouring or damaging existing conditions.
- G. Stormwater control and treatment:
1. The treatment system shall be completely separate from the existing permitted stormwater sewer system.
 2. Stormwater within the transload area and runoff entering the containment area shall be captured, collected, and treated by the treatment system.
- H. The Contractor shall bear responsibility for the effectiveness, efficiency, and reliability of the treatment system and for consequential project delays attributed to sub-par performance of the treatment system. The Contractor shall plan and account for a delay during hot spot dredging due to the evaluation of system performance, which allows up to four (4) days of turnaround time for the analysis of TBT. Additional performance evaluation periods may be required if chemical coagulants are used. The Contractor shall bear costs for additional project delays due to system shutdown because of maintenance or monitoring conditions that warrant subsequent re-evaluation of performance.
- I. The RAWP establishes the treatment criteria for pH and turbidity, and TBT at the treatment system end-of-pipe and at the edge of the mixing zone boundary in marine water, and shall supersede the requirements in this specification, if different. The compliance points are the end-of-pipe of the treatment system, prior to the treated water conveyance pipe, and the edge of the mixing zone at 150 feet from the marine outfall. The discharge limits are:
1. End-of-pipe of treatment system:
TBT: less than 0.42 µg/L

Turbidity: Less than 10 NTU over background when background is 50 NTU or less, or less than 20% over background when background is greater than 50 NTU

pH: 7.0-8.5 SU

2. Edge of Mixing Zone in Marine Water (150 feet from marine outfall):

TBT: less than 0.0074 µg/L

- J. The Water Quality Monitoring and Protection Plan (WQMPP) in the EPA-approved RAWP defines the monitoring requirements for the dredge return water treatment system discharge, and shall supersede this specification, if different. The Contractor shall implement intensive and routine monitoring schedules as described in the RAWP. The Contractor shall abide by notification, response, system control, and reporting requirements in the RAWP.
- K. The Contractor shall develop a system monitoring, control, and response plan to optimize performance of ~~electrocoagulation~~ and settling, preserve the permeability and sorptivity of the GAC, and provide an early warning system for potential exceedances at the end-of-pipe compliance point.
- L. Reference documents:
1. RAWP Appendix C: Technical Memorandum, Port of Tacoma Pier 4 Phase 1 Removal Action Project, Project No. 091452 – Dredge Return Water Treatment Criteria, Evaluation of Treatment Alternatives, and Recommended Approach to Monitoring. The Technical Memorandum provides a basis for selection of water treatment technology. The RAWP supersedes the recommended approach for monitoring described in the Technical Memorandum.
 2. Removal Action Work Plan (RAWP): Includes Water Quality Monitoring and Protection Plan.

3.07 WATER QUALITY MONITORING

- A. The Contractor is responsible for all water quality monitoring and is responsible for meeting Water Quality criteria as defined in the EPA-approved WQMPP (located in the RAWP).

3.08 OFFSITE TRANSPORT & DISPOSAL OF DREDGED MATERIAL

- A. All dredged material processed through the transload site shall be disposed of at an approved landfill permitted to accept the contaminated material. The Port has received Waste Disposal Authorization (WDA) for disposal at LRI for the approximate quantity of TBT contaminated material anticipated to be dredged as part of this project. The WDA certificate is included in the Appendix. If the Contractor chooses to dispose of the contaminated material at LRI, then he shall comply with all provisions of the WDA and will be required to provide signed certification stating agreement. Failure to comply with the WDA at any time during the project may result in its immediate revocation. If the Contractor chooses to dispose of the contaminated material at an alternate landfill, then he shall obtain and comply with a WDA issued by that landfill. All costs associated with obtaining a WDA from an alternate landfill shall be borne by the Contractor.
- B. The Contactor shall coordinate with the landfill regarding all constraints on material receiving capacity, hours of operation, and delivery logistics and incorporate this

information into his construction schedule. Information gathered through coordination with the landfill and used for project planning shall be identified in the TTD.

- C. All fees associated with disposal of dredged material at the landfill shall be paid by the Contractor and shall be included in the base bid, including fees associated with additional disposal tonnage due to the addition of drying agents to dewater the material.
- D. Truck loading shall take place within an exclusion zone that is established to contain any spilled material that may occur while loading. Loading practices such as partially loading to provide adequate freeboard and/or loading near the centerline of the truck bed shall be employed to prevent spillage.
- E. All truck loads shall be covered to prevent loss of material during transport to the landfill.
- F. A wheel wash shall be installed immediately adjacent to the outbound gate of the transload area to prevent migration of contaminated material into the APMT container yard. If necessary, the exterior of the haul trucks shall be swept of excess material prior to leaving the loading area. All water generated from cleaning the exterior of the trucks shall be treated onsite.
- G. All loads shall be inspected by the Contractor to ensure that no dredged materials are on the outside of the truck and that the loads are covered and not leaking.
- H. All haul trucks shall be sealed or lined to prevent leaking of water during transportation. 100 percent of all liquid shall be contained within the transportation vehicle.
- I. The Port shall be notified immediately if a spill of dredged material occurs in route to the landfill. Spill response procedures shall follow those described in the approved TTD and in the RAWP.

3.09 TRANSLOAD REPORTS

- A. Daily Transload Report: The Contractor shall keep a daily record of the estimated quantity of dredged material delivered to the transload site, the number of barge trips made to the site, the quantity of material delivered to the landfill (including weight tickets and documentation that all material was delivered), the number of truck trips made to the landfill, the volume of water treated through the onsite treatment system, the volume of treated water discharged back into the Sitcum Waterway, results from water quality monitoring, and a summary of other details of the work. This daily record shall be submitted to the Engineer with a transmittal letter the morning following completion of work on the date of the Daily Report. The Daily Report shall be signed by the Contractor's transloading superintendent or quality control manager.
- B. Weekly Transload Report: The Contractor shall summarize the week's work in a weekly report to be submitted to the Engineer the following Monday morning. The weekly report shall identify work completed to date and anticipated work to be completed in the present week.
- C. Transload Closure Report: The Contractor shall prepare a closure report that summarizes all the weekly reports and identifies Contractor estimates of the total volume of transloaded dredge material, including the total volume of treated water discharged into the Sitcum Waterway.

3.10 SITE CLEANUP

- A. At the conclusion of the transload operation the Contractor shall return the site to the Port in its pre-construction condition. Site cleanup shall include, but not be limited, to the following:
1. Removal of all Contractor-installed temporary structures, utilities, protection devices, etc.
 2. Pressure washing of pavement. All wash water shall be treated through the onsite treatment system.
 3. Repair of existing structure that was damaged during the transload operation.
 4. Repair of pavement damaged during the transload operation.
 5. Unplugging of stormwater pipes at existing catch basins.
 6. Repainting of bullrail marking damaged during transload operations.
 7. Removal of pier deck drain plugs.
 8. Removal of temporary fender/mooring piles installed in front of the dock.
 9. Removal of all utility metering devices.
 10. Replacement of removed wheel stops.
 11. Removal of temporary curbing or flow control structures
 12. Removal of treatment system, including discharge piping and temporary outfall structures.
 13. Removal of Contractor installed fences and traffic control measures.
- B. Engineer's approval that the site has been restored to its pre-construction condition must be obtained prior to the Contractor vacating the site.

END OF SECTION