City of Tacoma

**CITY OF TACOMA**
**Environmental Services**

**ADDENDUM NO. 1** **DATE:** May 9, 2023

**REVISIONS TO:**
**Request for Bids Specification No. ES22-0371F**
**St. Paul Confined Disposal Facility Shoreline Maintenance and Repair**

**NOTICE TO ALL BIDDERS:**

This addendum is issued to clarify, revise, add to or delete from, the original specification documents for the above project. This addendum, as integrated with the original specification documents, shall form the specification documents. The noted revisions shall take precedence over previously issued specification documents and shall become part of this contract.

**REVISIONS TO THE SUBMITTAL DEADLINE:**

The submittal deadline remains the same.

**REVISIONS TO THE BID SUBMITTAL PACKAGE:**

Revision No. 1: The Bid Submittal Package Table of Contents references a form to be returned with the Bid Submittal Package for Statement of Qualification. There is no such requirement on this project to provide a Statement of Qualification.

Revision No. 2: The Bid Proposal Form has been replaced in its entirety with Bid Proposal marked Addendum #1. The form included an incorrect Project No. reference and the quantities have been revised.

**REVISIONS TO THE GENERAL INFORMATION AND REQUIREMENTS:**

Revision No. 1: The TABLE OF CONTENTS, PART IV TECHNICAL PROVISIONS is revised to read Division 2 Existing Conditions and Division 31 Earthwork.

Revision No. 2: The TABLE OF CONTENTS, PART IV TECHNICAL PROVISIONS indicates an Appendix F as City of Tacoma Standard Plans. This reference shall be deleted as there is no Appendix F including in the Technical Provisions.

Revision No. 3: The TABLE OF CONTENTS, PART VII STATE PREVAILING WAGE RATES AND GENERAL REQUIREMENTS shall be revised to read PART VII, STATE PREVAILING WAGE RATES.

Revision No. 4: The Bid Proposal Form has the incorrect Project No. A revised Bid Proposal Form is attached. The Bid Proposal Form has been replaced in its entirety. The form included an incorrect Project No. reference and the quantities have been revised.

City of Tacoma

**REVISIONS TO THE TECHNICAL PROVISIONS:**

Revision No. 1: The table in Specification Section 01 41 43 shall be revised as follows:

| Item No. | Item of Work | Unit | Estimated Quantity | Total Price (numbers, in U.S. dollars) |
|---|---|---|---|---|
| **A** | Mobilization/Demobilization and General Requirements | LS | 1 | $ |
| **B** | Environmental Protection/Site Preparation | LS | 1 | $ |
| **C** | Surveying and Field Verification | LS | 1 | $ |
| **D** | Excavation | Tons | 220 | $ |
| **E** | Import and Place Geotextile Fabric | SY | 1,800 | $ |
| **F** | Import and Place Armor Rock 1 Material | Tons | 600 | $ |
| **G** | Import and Place Armor Rock 2 Material | Tons | 375 | $ |
| **H** | Import and Place Bedding Layer Material | LS | 1 | $ |
| **I** | Place Backfill Material | LS | 1 | $ |
| **J** | Import and Place Fish Mix Material | Tons | 150 | $ |
| **K** | Import and Place Topsoil | CY | 125 | |
| **L** | Bioengineered Wall | SF | 715 | $ |
| **M** | Live Stakes | EA | 200 | |
| **N** | Site Restoration | LS | 1 | $ |
| | | | Total Base Bid | $ |

Revision No. 2: Add the following sentence and bullets after the first sentence of Specification Section 01 57 00, Part 1.05.G Water Quality Monitoring:

Visual water quality monitoring activities shall be performed by designated and appropriately trained personnel as follows:

- Following the first tidal inundation after excavation and placement of material.
- Throughout construction during normal working hours (including any work outside these hours due to tidal limitations) as described in Specification 01 14 00.

**REVISION TO THE APPENDICES:**

Revision No. 1: Insert as Appendix C the attached Clean Water Act §404 ARAR Memo: Substantive Water Quality Requirement for the St. Paul CDF Shoreline Repair and Maintenance Project letter issued by United States Environmental Protection Agency Region 10 dated May 5, 2023.

Revision No. 2: Replace in it's entirety Appendix C with the attached revised Water Quality Monitoring and Protection Plan dated May 2023 prepared for the City of Tacoma by Floyd Snider.

NOTE: Acknowledge receipt of this addendum by initialing the corresponding space as indicated on the Signature Page. Vendors who have already submitted their bid/proposal may contact the Purchasing Division at 253-502-8468 and request return of their bid/proposal for acknowledgment and re-submittal. Or, a letter acknowledging receipt of this addendum may be submitted in an envelope marked Request for Bids Specification No. ES22-0371F Addendum No. 1. The City reserves the right to reject any and all bids, including, in certain circumstances, for failure to appropriately acknowledge this addendum.

cc: Jody Bratton, P.E./ES Science and Engineering Division

**Addendum No. 1**

# B I D  P R O P O S A L

SPECIFICATION NO. ES22-0371F
St. Paul Confined Disposal Facility Shoreline Erosion Maintenance and Repair

The undersigned hereby certifies that he/she has examined the location and construction details of work as outlined on the Plans and Specifications for Project No. ENV-03027-17 and has read and thoroughly understands the Plans and Specifications and contract governing the work embraced in this improvement and the method by which payment will be made for said work, and hereby proposes to undertake and complete the work embraced in this improvement in accordance with said Plans, Specifications and contract and at the following schedule of rates and prices:

NOTE: 1. Unit prices of all items, all extensions and total amount of bid should be shown. Show unit prices in figures only.

| ITEM NO. | ITEM DESCRIPTION | ESTIMATED QUANTITY | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|
| 1. | Mobilization/Demobilization and General Requirements | 1 Lump Sum | Lump Sum | $_____ |
| 2. | Environmental Protection/Site Preparation | 1 Lump Sum | Lump Sum | $_____ |
| 3. | Surveying and Field Verification | 1 Lump Sum | Lump Sum | $_____ |
| 4. | Excavation | 220 Tons | $_____ | $_____ |
| 5. | Import and Place Geotextile Fabric | 1,800 Square Yards | $_____ | $_____ |
| 6. | Import and Place Armor Rock 1 Material | 600 Tons | $_____ | $_____ |
| 7. | Import and Place Armor Rock 2 Material | 375 Tons | $_____ | $_____ |
| 8. | Import and Place Bedding Layer Material | 1 Lump Sum | $_____ | $_____ |
| 9. | Place Backfill Material | 1 Lump Sum | Lump Sum | $_____ |
| 10. | Import and Place Fish Mix Material | 150 Tons | $_____ | $_____ |

| ITEM NO. | ITEM DESCRIPTION | ESTIMATED QUANTITY | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|
| 11. | Import and Place Topsoil | 125 Cubic Yards | $_____ | $_____ |
| 12. | Bioengineered Wall | 715 Square Feet | $_____ | $_____ |
| 13. | Live Stakes | 200 Each | $_____ | $_____ |
| 14. | Site Restoration | 1 Lump Sum | Lump Sum | $_____ |

**Base Bid (Subtotal Item No. 1 through 14)** **$ _____**

10.3% Sales Tax (Item No. 1 through 14) $ _____

**Grand Total** **$ _____**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 10**
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3123

WATER
DIVISION

**CLEAN WATER ACT §404 ARAR MEMO: SUBSTANTIVE WATER QUALITY REQUIREMENTS FOR THE ST. PAUL CDF SHORELINE REPAIR AND MAINTENANCE PROJECT**

**May 5, 2023**

# I. Introduction

This Clean Water Act §404 Applicable or Relevant and Appropriate Requirements Memorandum (CWA §404 ARAR Memo) documents the United States Environmental Protection Agency's (EPA) determination that the in-water activities of the St. Paul Confined Disposal Facility (CDF) Shoreline Repair project meet the substantive requirements of the Clean Water Act §404 (CWA §404). A copy of this CWA §404 ARAR Memo and any future amendments will be placed in the Commencement Bay Nearshore/Tideflats Site File. In addition, copies of this original and any future amendments shall be kept on the job site and made readily available for reference by EPA, the contractor, and any other appropriate federal, tribal, state, and local inspectors.

The 11.78-acre St. Paul CDF was constructed in 2005 to confine approximately 510,000 cubic yards of dredged contaminated sediment as part of the Thea Foss and Wheeler-Osgood Waterways Remediation Project. The St. Paul CDF is located within the Commencement Bay Nearshore/Tideflats Superfund Site and was created by dredging more than 400,000 cy of clean materials in St. Paul Waterway to create capacity, followed by construction of containment berms prior to filling with contaminated sediment and capping with clean materials (Figure 1). The original constructed rock and select fill containment berm at the mouth of the St. Paul Waterway was approximately 370 feet in length, 10-12 feet in width, and extended from about 5' MLLW to a crest height of 18' MLLW. The existing landform between the St. Paul Waterway and Middle Waterway became the remaining berm structure for the CDF. The creation of the CDF resulted in the loss of 11.78 acres of aquatic habitat. To offset this loss, compensatory habitat mitigation was required as part of the overall Thea Foss and Wheeler-Osgood Waterway Remediation Project, including construction of the North Beach Habitat Area, Middle Waterway Tideflat Habitat Area, Puyallup River Side Channel and Hylebos Creek Mitigation Site. In the North Beach Habitat Area, 1.66 acres of littoral habitat (-10' to +14' MLLW) was created by filling deeper waters offshore and to the north of the St. Paul CDF (Figure 2, labeled as "North Beach Habitat"). Additional mitigation was created to the west of the St. Paul CDF in Middle Waterway along the peninsula shoreline (Figure 2, labeled as "Middle Waterway Tideflat Habitat"). Currently, monitoring at the St. Paul CDF and adjacent habitat mitigation sites is performed per the Long-Term Monitoring and Reporting Plan (LMRP) (City of Tacoma 2018). The St. Paul CDF continues to sequester the contaminated materials, and the constructed habitat areas persist today.

A Thea Foss and Wheeler-Osgood Waterways pre-certification remedial inspection in 2020 confirmed that remedial action is complete and the St. Paul CDF functioning. However, it also revealed shoreline erosion along the containment berm at the north end of the facility and on the shore of the Middle Waterway Habitat Area (Figures 1 and 2, "North Shoreline" and "South Shoreline" erosion maintenance and repair areas).

In the North Shoreline repair area, the riprap slope that is meant to protect the berm from eroding has experienced significant deterioration of riprap and erosion of some underlying berm material; however, contaminated sediment contained within the CDF has not been breached. There is a 3- to 5-foot-high scarp along approximately 330 feet of the slope face, with the riprap material displaced and relocated downslope. The North Shoreline repair consists of backfilling and grading the berm and constructing a new rock revetment atop this deteriorating riprap. The repaired revetment will be 380-ft long, with a maximum width of 20-feet, and will extend from a toe that varies from +10.5 to +13' MLLW to a crest height of +18' MLLW.

In the South Shoreline, riprap was not originally installed along the entire shoreline. Where placed, riprap has eroded and has been scattered along the adjacent beach. Depending on location and wave energy, scarps from 3- to 8-feet high have formed, and the beach has lowered. On the South Shoreline the revetment will be 270-feet long, with a maximum width of 30-feet, and will extend from a toe that varies from +1.5' to +11' MLLW to a crest height of 15' to 17.25 ' MLLW. 150-feet of the revetment length will have a landward bioengineered retaining wall that will be planted with native plants to provide a softer transition to the existing upland habitat areas. The bioengineered retaining wall will have a maximum width of 7-feet and will extend from a toe of 13.65' MLLW to a crest height of 17' MLLW.

The St. Paul CDF maintenance and repair activities covered in this evaluation of substantive compliance include: shoreline excavation, grading and backfill placement, geotextile installation, bedding layer placement, armor rock placement, fish mix habitat material placement, and upper shoreline topsoil and habitat feature restoration. A new bioengineered retaining wall will provide habitat enhancement landward of the South Shoreline revetment. All construction access and work will be conducted at low tides in the dry using land-based equipment. Construction is expected to take 6-8 weeks and will occur during summer/fall 2023 within the approved Commencement Bay Tidal Reference Area 4 in-water work window of July 16 - February 15. The high tide line (HTL) at this location is 13.42' MLLW.

The EPA is responsible for review of this project to ensure compliance with the substantive requirements of the CWA §404. We have drawn heavily on the State of Washington Water Quality Standards (Chapter 173-201A WAC) in our evaluation, these standards being normally applicable and used by the State of Washington for CWA §401 certification in the absence of a CERCLA action. The antidegradation policy of the State of Washington, in addition to

preservation of beneficial uses, is a factor in our analysis. While the State of Washington has no certification authority regarding this maintenance, EPA has coordinated with the Washington State Department of Ecology, the designated water quality agency for the State of Washington (personal comm. with Laura Inouye, May 4, 2023).

This finding of compliance with CWA §404 is based on our review of documents currently available, including the Final Biological Assessment Second Addendum (BA Addendum 2), dated May 2023 (Confluence 2023) and the Final 2023 St. Paul CDF Shoreline Erosion Maintenance and Repair Plan, dated March 13, 2023 (Floyd|Snider to EPA). A Water Quality Monitoring and Protection Plan (WQMPP) dated May 2023 has been prepared by Floyd|Snider for the City of Tacoma and approved by EPA (Floyd|Snider 2023). Other contractor-prepared documents such as the Construction Quality Control Plan, Temporary Environmental Controls and Monitoring Plan (which includes the WQMPP and Environmental Protection Plan), Site Preparation, Clearing and Grubbing Plan and Shoreline Stabilization Work Plan will be reviewed and approved by the EPA. The WQMPP serves as the overall water quality monitoring plan for the project, though conditions of this CWA §404 ARAR Memo shall supersede the WQMPP if specifications conflict between the two documents. In addition to the pre-construction documents, a Mitigation Plan will be required for EPA review and approval, to compensate for the encroachment of the new design into intertidal mitigation areas along the North and South Shorelines, as well as changes to substrate types (i.e., riprap) on the South Shoreline (see Section V). Should substantive new or more specific information become available during planning and/or implementation of the project, a revised/amended CWA §404 ARAR Memo will be prepared by the EPA, if necessary.

# II. CDF Shoreline Repair and Maintenance

The purpose of this repair and maintenance activity is to protect the St. Paul CDF containment berm from further erosion and ensure the continued sequestration of contaminated materials, repair adjacent eroding shorelines, and protect upland riparian habitat areas. The work is expected to be completed in-the-dry, within 6-8 weeks during summer/fall 2023, with all access to the site provided from the adjacent uplands. Work on the respective beaches will be accessed through construction of temporary rock ramps in defined areas only. All material staging will occur in the uplands adjacent to the North Shoreline.

Repair and Maintenance actions to which this CWA §404 ARAR Memo applies include the following (Figure 2):

- **Excavation, Grading/Backfill and Geotextile Installation**:

  In both the North and South Shoreline areas, shoreline toe excavation is required to key in the new bedding and armor layers. Upper bank excavation, grading and

backfill is required to address scarps, flatten slopes to 2:1, create a smooth slope face, and reduce the repair's waterward footprint.

North Shoreline. Toe excavation will occur down to elevation +8' MLLW. The excavator will remove at least 1 foot, but not more than 3 feet of material to key in the bedding and armor layers at the toe of the slope (320 cy of excavation). Suitable excavated material will be reused as backfill during grading, as much as possible. Approximately 70 cy of backfill will be needed, with an imported gravel/sand mix used if excavated materials are insufficient. After excavation, grading and backfill, geotextile fabric will be installed from the edge of the rock toe to the top of bank.

South Shoreline. Toe excavation will occur down to elevation 0' MLLW. Toe and upland/scarp excavation (150 cy of excavation), grading and backfill (130 cy) will be sequenced, with suitable excavated material reused as backfill. An imported gravel/sand mix will be used if excavated materials are insufficient, similar to the North Shoreline described above. After excavation, grading, and backfill, geotextile fabric will be installed from the edge of the rock toe to the top of bank.

- **Bedding Layer and Armor Rock Placement**:

  In both the North and South Shoreline revetment designs, a minimum 12" bedding stone layer (8"-minus, angular rock) will be placed over the geotextile fabric, followed by armor rock.

  North Shoreline. 230 cy of bedding stone will be placed, followed by a minimum 28" layer of Type 1 armor rock (12-15" diameter, 450 cy).

  South Shoreline. 150 cy of bedding stone will be placed, followed by a minimum 24" layer of Type 2 armor rock (11-13" diameter, 260 cy).

- **Habitat Mix Material Placement**:

  A well-graded 4"-minus habitat mix will be used to fill interstitial voids and then dress the armored slope below the HTL for a minimum depth of 6 inches on top of the armor rock.

  North Shoreline. 10 cy of habitat mix will be placed over the armor rock waterward of the 13.42' MLLW HTL.

  South Shoreline. 30 cy of habitat mix will be placed over the armor rock waterward of the 13.42' MLLW HTL.

- **Upper Shoreline Topsoil and Habitat Feature Restoration (Bioengineered Retaining Wall)**:

  In the North and South Shoreline areas any temporary access areas will be restored to previous or improved condition. Topsoil and native plantings will be installed on top of the new revetment crest and in any riparian areas affected by project access, to restore and enhance existing riparian habitat.

North Shoreline. Topsoil and native plantings will be installed and maintained on the new revetment crest and in riparian areas affected by access.

South Shoreline. Portions of the upper shoreline will include a bioengineered retaining wall. The wall will be constructed by installing vegetated bags (filled with 60-80% sand, 20-40% topsoil, and native plant seeds). Where there is at least 3 feet of space available for planting, topsoil and native plantings will be installed along the revetment berm crest and behind the bioengineered wall. Any riparian areas affected by project access will be restored using topsoil and native plantings.

# III. Conditions of Water Quality Substantive Compliance

As documented in this CWA §404 ARAR Memo, EPA finds that it has reasonable assurance that the discharges associated with the St. Paul CDF shoreline repair and maintenance as proposed and conditioned will be in substantive compliance with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, as amended and other appropriate requirements of Washington State Law.

## A. General Conditions

### 1. Expiration and Amendment

a) This CWA §404 ARAR Memo shall become effective on the date it is signed and shall remain valid through **February 15, 2024**, unless specifically extended by EPA through amendment. All work below the OHWM is proposed to be conducted in the dry, starting June 16, 2023, and ending February 16, 2024. To work during daytime low tides, it is anticipated that the majority of work will be accomplished before September 30, 2023. Work above the OHWM may be conducted outside of this in-water work window.

b) Prior to expiration, this memo may be amended if there are significant additions, changes, modifications, and revisions to the maintenance/replenishment design, to the BMPs intended to protect resources on site, or to the WQMPP.

c) The EPA contact person for amendments, modifications, approvals, or any other changes to this memo is Justine Barton (barton.justine@epa.gov), Wetlands and Oceans Section, (206) 553-6051. Surface mail correspondence should be addressed to EPA Region 10, Suite 155, ms 19-C04, 1200 6th Ave., Seattle, WA 98101.

## 2. Reporting

a) All reporting/notifications as required in this Memo should be made to both the EPA Remedial Project Manager (RPM) and the EPA Water Quality Specialist (WQS).

The EPA points of contact for this project are the following:

EPA Remedial Project Manager (RPM): Kristine Koch (206) 553-6705; koch.kristine@epa.gov
EPA Water Quality Specialist (WQS): Justine Barton, (206) 553-6051; barton.justine@epa.gov

b) The EPA must be immediately notified of any failure to comply with conditions of this CWA §404 ARAR Memo.

*c)* The City must notify EPA, both verbally and by email, immediately following an observed (visual) or measured water quality criteria exceedance (turbidity).

d) Pre-project: EPA shall be notified in writing or via email at least 2 weeks prior to the commencement of repair or maintenance activities.

e) Daily/Weekly reporting: In the absence of water quality exceedances, weekly reporting will be consistent with the reporting schedule outlined in the WQMPP, using the daily form provided in the WQMPP. A daily water quality monitoring form must be filled out for each day of construction. The previous week's forms must be submitted to the City of Tacoma by noon the following Monday. The City will review the forms and submit them weekly to EPA no later than the following Thursday.

f) Final Project reporting: Once all work below the OHWM is complete, water quality monitoring results will be compiled and reported to EPA along with supporting documentation. This information will comprise a section in the Remedial Action Construction Completion Report (RACR). It is expected that the length and detail of this section will be commensurate with the number of issues that occurred, e.g., whether water quality exceedances occurred and whether instrumented monitoring was required. At a minimum, reporting must include, but not be limited to, the following information:

(1) A description of field sampling activities and a general plan view of monitoring locations relative to the location of in-water work;

(2) Any deviations from this CWA §404 ARAR Memo and reasons for the deviations;

(3) Description of changes or contingency BMP's implemented to avoid or address water quality impacts;

(4) A summary of field observations, including sampling times, weather conditions, water conditions, silt plumes, distressed/dying fish, and any relevant anecdotal or unusual observations;

(5) Narrative and/or tabular text presenting results of instrumented water quality monitoring (if required) related to the different project construction activities;

(6) Discussion of water quality exceedances and any additional monitoring that may have resulted including rationale for selection/location of additional stations and/or discretionary samples;

(7) Data quality review based on calibration and precision/accuracy information;

(8) An appendix containing all completed water quality monitoring sample forms and calibration information;

(9) A list of the best management practices (BMPs) related to water quality that were employed during the project implementation, when and why those were used, and an assessment of the effectiveness of those BMPs.

## 3. Incorporation of Other Documents by Reference

The Final Plans and Specs (dated April 11, 2023), the Final Thea Foss and Wheeler-Osgood Waterways St. Paul CDF Shoreline Repair and Maintenance Biological Assessment Second Addendum, dated May 2023, and the Final WQMPP, dated May 2023, describe the project area and project details, BMPs, and construction practices, and address potential concerns associated with shoreline repair and maintenance. These documents, project details, and BMPs are incorporated into this CWA §404 ARAR Memo by reference.

## 4. Fish Window Timing

Placement activities are to be completed in the dry during low tide hours using land-based equipment. The Corps of Engineers and WDFW specify a typical in-water work window for protection of juvenile salmonids in Commencement Bay from July 16 through February 15 (WAC 220-660-330). Therefore, the construction window for this project is **July 16, 2023, through February 15, 2024**.

## B. Water Quality and Water Quality Monitoring

### 1. Applicable Activities

Water quality monitoring will be conducted throughout the construction phases of this project that occur below the OHWM. This includes shoreline excavation, grading and backfill placement, geotextile installation, bedding layer placement, armor rock placement, and habitat mix placement.

### 2. Compliance Standards

The Marine Acute and Chronic Water Quality Criteria (WQC) for the protection of aquatic life, found within the State of Washington's Water Quality Standards (WQS) at WAC Chapter 173-201A-240), shall apply for all in-water activities. Conventional parameters (conventionals) will comply with the water quality performance criteria for the "good quality" marine waters of Commencement Bay (WAC 173-201A-612/Table 612 and WAC 173-201A-210) except at the points of compliance (as defined in Section 3). Conventionals include turbidity, dissolved oxygen, pH and temperature. For this project, visual monitoring for turbidity will be conducted, with instrumented turbidity monitoring triggered by visual observations. All applicable water quality criteria shall remain in effect within the applicable points of compliance, and all water quality criteria are to be met outside of the authorized points of compliance.

### 3. Points of Compliance

Per WAC 173-201A, this CWA §404 ARAR Memo establishes the following Points of Compliance for this project (Table 1):

Table 1: Applicable Points of Compliance

| Activity | Standards | Point of Compliance |
|---|---|---|
| Construction activities including reworking the shoreline and placement of materials | Conventionals (turbidity) | 150-ft from work/placement location(s) |
| Other in-water (below OHWM) activities associated with the project (e.g., equipment driving, entry and egress pathways) | Conventionals (turbidity) | 150-ft radius from activity |

## 4. Applicable Water Quality Criteria

a) Turbidity

At the 150-foot point of compliance, turbidity shall not exceed 10 NTU over background turbidity when the ambient turbidity is less than 50 NTU or have more than a 20 percent increase in turbidity when the ambient turbidity is more than 50 NTU.

b) Dissolved oxygen, temperature and pH will not be measured for this project unless adaptive management indicates this information is required to assess unexpected conditions on site e.g., occurrence of distressed fish or a fish kill (WAC 173-201A-210).

## 5. Water Quality Monitoring

EPA has reviewed and approved the Final WQMPP, dated May 2023. The contractor will provide additional details in their Environmental Protection Plan, which will be reviewed and approved by EPA. The approved WQMPP reflects the relatively low-risk activities proposed – work in the shoreline, using land-based equipment in-the-dry, with no exposure risks to contaminated materials in the CDF. Any modifications to the WQMPP or to the final design or work plan by the contractor selected to do the work shall require prior notification and approval by EPA. Salient elements of the required monitoring for in-water activities are summarized below.

a) Tiering of Visual and Instrumented Monitoring

Visual water quality monitoring will be performed by the contractor in all work areas and areas of disturbance, during all maintenance and repair work, including observations during tidal inundation. Observance of turbidity outside the 150-ft point of compliance (POC) boundary will trigger instrumented monitoring for turbidity.

b) Station types

If instrumented monitoring is triggered, data must be recorded on the instrumented monitoring form provided in the WQMPP. Readings will be taken from the following stations: background stations (generally upcurrent and located outside the influence of project activities); 100-foot early warning stations (100-feet downcurrent of the point of placement or activity), 150-foot compliance stations (150-feet downcurrent from the work site); and discretionary stations (which may be needed for follow-up of exceedances or other water quality issues during adaptive management). The compliance zone boundary will vary depending upon the location of a day's activity (e.g., these distances will be measured from the center point of the activity). Background readings will be recorded just prior to the recording of the early warning and compliance readings.

c) Monitoring depths

Instrumented monitoring will be conducted at the Surface (within 3 feet (approximately 1 meter) of the surface), Middle (mid-depth in the water column), and at the Bottom (within 3 feet (approximately 1 meter) of the mudline) at all monitoring stations. If the water depth at any station is less than 10 feet, monitoring will be conducted at two depths in the water column (i.e., within 1.5 feet of the surface and at the Middle or mid-depth of the water column).

d) Timing of sampling

Visual water quality monitoring for turbidity will be performed by the contractor in all work areas and areas of disturbance during all maintenance and repair work. Visual monitoring will also be conducted during tidal cycles and inundation of excavated and placed material to monitor for potential water quality impact from material placement. The timing of triggered tiered instrumented monitoring is intended to track

with visual turbidity and determine whether exceedances of water quality criteria are occurring at points of compliance. All aspects of instrumented monitoring (e.g., boat, calibrated instrument, staff) must be rapidly available on site to follow up visual monitoring.

### 6. Determination of Water Quality Exceedance

Turbidity criteria and points of compliance are provided earlier in Section B. Visual monitoring should be effective at this site, as the construction area is a relatively shallow intertidal beach and is readily observable from points on shore. Visible turbidity greater than background beyond the 150-foot point of compliance boundary is an exceedance of the water quality standard. A measured water quality exceedance occurs when instrumented monitoring indicates turbidity levels caused by the project exceed standards at the 150-foot point of compliance, as described in Section B.

### 7. Follow up Actions in the Event of an Observed or Measured Water Quality Exceedance

Early implementation of additional BMPs or other changes may be instituted to head off the potential for observed or measurable water quality exceedances. In the event visible turbidity is observed at or greater than 150-feet from project activity, City and EPA staff should be informed immediately, and tiered instrumented monitoring initiated. The 100-foot early warning station is used to help determine whether turbidity is approaching the 150-foot POC and to see whether BMPs are effective. The 150-foot station is used to determine compliance. If water quality monitoring field staff measure an exceedance of turbidity at a 150-foot point of compliance monitoring station, the following response and corrective actions must be followed:

- Notify the contractor of the exceedance so that they can check conditions on site and determine whether operations can be modified and/or additional BMPs implemented. Wait 30 minutes and retake the 100-foot early warning and 150-foot POC stations. In the meantime, discretionary samples may be taken to understand the influence of background and nearby activities.

- Notify the City and EPA following a visual or instrumented exceedance (per Section III.A.2) and the WQMPP, to discuss whether additional BMPs are available and needed.

- If the second turbidity measurement still exceeds turbidity criteria at the 150-foot POC, the contractor will temporarily stop work, modify operations, and implement additional BMPs, as necessary, to achieve compliance with turbidity standards. Additional monitoring will be directed by the City and EPA, likely including instrumented monitoring at least every 30 minutes until compliance with water quality standards has been achieved. Monitoring will also likely be required at the re-initiation of work, to confirm implemented BMPs are effective.

#### 8. Effects on Fish

Project-specific BMPs to prevent stranding of fish due to beach elevations (depressions), and due to management of the boom/silt curtain are provided in the WQMPP and BA Addendum 2. If distressed and/or dying fish are observed in the construction vicinity, work will stop and the contractor will immediately notify the City Project Manager, who will immediately notify EPA. Operations may not continue until directed by the City of Tacoma, in coordination with the EPA. The contractor shall collect fish specimens and if directed, shall take instrumented water quality monitoring samples in the affected area for turbidity and dissolved oxygen. Fish samples shall be held in refrigeration or on ice until the applicant is instructed by the City and EPA on next steps. Photos of the specimens should be taken to allow for ESA-listed species identification and coordination with USFWS and/or NMFS if needed. For distressed or dying fish the following, at a minimum, will be noted on water quality monitoring forms:

- Condition of fish (dead, dying, decaying, erratic or unusual behavior)
- Number, species, and size of fish
- Location of fish relative to operations

## C. Best Management Practices to Ensure Protection of Water Quality

Best management practices (BMPs) are listed in the WQMPP and BA Addendum 2 and have been reviewed and approved by EPA. Additional BMPs will be coordinated as needed, once a construction contractor has been selected, and contractor submittals such as the Environmental Protection Plan are reviewed. The contractor should acknowledge BMPs already provided in the WQMPP and BA Addendum 2 and provide additional BMPs specific to their project schedule and equipment. Implementation of BMPs will be directed by the City of Tacoma, the construction team and EPA to reduce project impacts on the environment.

Clean washed materials will be used for placement on site. Material specifications are provided in the BA Addendum 2. Prior to placement, the EPA RPM must be provided with information regarding the location/source of all materials to be used on site, provided detailed specifications of this material, including chemistry and grain size information, and must approve its suitability for use on site.

## D. Emergency/Contingency Measures:

**1.** The contractor will prepare a Spill Prevention, Control and Countermeasures (SPCC) Plan for the project, which will be subject to EPA review and approval. This plan will provide preventive measures to avoid/contain a release, and corrective actions for mitigating any release.

**2.** Any work that is out of compliance with the provisions of this CWA §404 ARAR Memo, or conditions causing distressed or dying fish, or any discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, is prohibited. If these occur, the contractor shall immediately take the following actions:

- Cease operations that are causing the compliance problem.
- Assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further environmental damage.
- Immediately notify the City Project Manager and EPA (see Section III.A.2).
- In the event of finding distressed or dying fish, the applicant shall collect fish specimens and if directed, take instrumented water quality measurements in the affected area within the first hour of the event and notify EPA (see Sections III.A.2 and III.B.8).
- In the event of a discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. The following three agencies will be notified: (1) Washington State Department of Ecology's Northwest Regional Office Environmental Reporting at (206) 594-0000, (2) Washington Emergency Management Division at (800) 258-5990, and (3) the National Response Center at (800) 424-8802. Cleanup shall include proper disposal of any spilled material and used cleanup materials.
- Submit a detailed written report to EPA (see Section III.A.2) within three (3) days that describes the nature of the event, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.

# IV. Substantive Compliance with CWA Section 402

Pertaining to substantive compliance with CWA §402, the project's upland areas do not exceed the ≥ one-acre (43,000 sq. ft.) threshold and therefore would not otherwise require compliance with the substantive requirements of an NPDES General Permit for Discharges from Construction Activities. Staging and access areas will affect 0.44 acres (19,500 sf) of upland. However, BMPs required under the CGP that minimize the discharge of pollutants associated with construction, vehicle and equipment storage, management of fuel, oil, sediment, etc. from discharging in runoff from the site, are substantively required. The Temporary Erosion and Sediment Control (TESC) and the Spill Prevention, Control and Countermeasures (SPCC) Plans should incorporate these BMPs, many of which are already included in the WQMPP and BA Addendum 2.

# V. Substantive Compliance with CWA Section 404(b)(1)

Avoidance and Minimization. The purpose of this project is to repair and maintain the berm and shoreline of the St. Paul CDF. The City of Tacoma and the EPA have sought to avoid and minimize the environmental effects of this project (via design features and construction BMPs) while accomplishing the project purpose. Detailed BMPs are presented the WQMPP and BA Addendum 2. The City of Tacoma has described and justified the work, and will observe in-water work windows, while ensuring project construction below the OHWM occurs in the dry using land-based equipment. The footprint for the placement of materials has been minimized to the extent practicable, to allow for smooth transition grades on the beach while ensuring long-term viability of the CDF. The proposed armoring material mixes are the minimum sizes calculated to provide necessary erosion protection to the CDF shoreline. Habitat mix will be placed over all armored surfaces waterward of the HTL (13.42' MLLW).

Compensatory Mitigation. While the project avoids and minimizes effects to the extent practicable, the project adversely affects adjacent intertidal habitat areas that were constructed to offset the effects of the original St. Paul CDF construction. The design results in an overall increase in the footprint of stabilized slopes in the intertidal zone. This encroachment requires compensatory mitigation to achieve substantive compliance with CWA Section 404(b)(1). **The North Shoreline repair results in a net decrease of 2,900 sf of constructed habitat and the South Shoreline maintenance results in a net decrease of 3,600 sf of constructed habitat, for a total net decrease of 6,500 sf (0.15 acre). Further, the net decrease of constructed habitat at the South Shoreline repair includes 800 sf of new armor along 150 ft of shoreline that was not armored previously.** Opportunities for nearshore habitat improvement will be identified for implementation within the year following the CDF repair and may include anthropogenic debris removal, creosote-treated timber removal, shoreline armor removal, littoral habitat enhancement or similar work. **A Mitigation Plan will be prepared by the City of Tacoma for**

**EPA review and approval, and work will be completed within the next construction window (2024-2025).**

ESA-Listed Species. Referencing the BA Addendum 2, the temporary construction effects of this project **may affect** Puget Sound/Coastal bull trout, Puget Sound Chinook salmon and Puget Sound steelhead because these species are known to occur in the action area and could be exposed to temporary water quality degradation. However, these effects **are not likely to adversely affect** these species because construction will occur in the dry at low tides, there is low probability of their presence due to work windows, disturbed benthic communities are expected to recover rapidly following construction, and turbidity levels reaching adverse biological thresholds are unlikely due to BMPs.

Referencing the BA Addendum 2, the long-term effects of this project **may affect** designated critical habitat for Puget Sound/Coastal bull trout and Puget Sound Chinook salmon because the constructed habitat areas at the North and South Shoreline are within designated critical habitat for these species, and the encroachment of the CDF repair into existing habitat and additional armoring of the South Shoreline will result in a net loss of 0.15 acre of constructed habitat. However, these effects **are not likely to adversely affect** designated critical habitat for these species because the alteration of critical habitat will be limited in extent and is not expected to measurably affect the primary constituent elements for which the habitat is considered critical. Compensatory mitigation required by EPA will offset the loss of critical habitat area and provide a commensurate level of ecological function in the nearshore marine environment.

As proposed, this project is the least environmentally damaging, practicable alternative for accomplishing required St. Paul CDF Shoreline Repair and Maintenance.

In summary, as described in this CWA §404 ARAR Memo, the St. Paul CDF Shoreline Repair and Maintenance project substantively complies with CWA Section 404(b)(1). Project features avoid and minimize impacts to waters of the U.S. to the extent practicable. Compensatory mitigation will be provided for the 0.15 acres of intertidal habitat that will be filled by this design and cannot be avoided, including the 800 sf of new shoreline armoring. EPA will review and approve a Mitigation Plan, with the work to be completed in the 2024/2025 work window. Discharges will not cause or contribute to violations of water quality standards or toxic effluent standards, jeopardize an endangered or threatened species, cause long-term adverse effects to critical habitat, or impact a protected marine sanctuary. There will be no discharges resulting in significant degradation to waters of the United States. The work will be accomplished in the dry using land-based equipment. The work provides the long-term benefit of preventing further erosion and the exposure of contaminated sediments currently sequestered in the St. Paul CDF.

PREPARED AND APPROVED BY:

_____ _____

Justine Barton Date
Wetland and Oceans Section

cc.
Kristine Koch (EPA Remedial Project Manager)
Jody Bratton (City of Tacoma Project Manager)

Figure 1. Project Location (BA Addendum 2)
Figure 2. North and South Shoreline Erosion Areas (BA Addendum 2)

REFERENCES

Floyd|Snider. 2023. Water Quality Monitoring and Protection Plan. St. Paul Confined Disposal Facility Shoreline Erosion Maintenance and Repair Project. Prepared for City of Tacoma, May 2023.

Confluence (Confluence Environmental Company). May 2023. City of Tacoma Thea Foss and Wheeler-Osgood Waterways Biological Assessment Second Addendum. Prepared for City of Tacoma, Tacoma, Washington, by Confluence, Seattle, Washington.


**Figure 1. Project location**

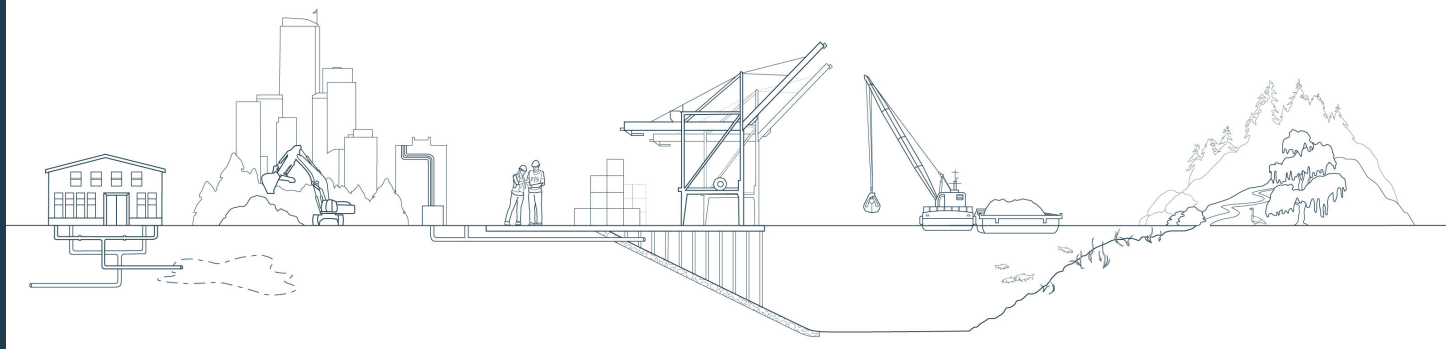

**Figure 2. North and South Shoreline erosion areas**

# Water Quality Monitoring and Protection Plan

St. Paul Confined Disposal Facility
Shoreline Erosion Maintenance and Repair Project

**Prepared for**
City of Tacoma

May 2023



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**LIMITATIONS**

This report has been prepared for the exclusive use of the City of Tacoma, their authorized agents, and regulatory agencies. It has been prepared following the described methods and information available at the time of the work. No other party should use this report for any purpose other than that originally intended, unless Floyd|Snider agrees in advance to such reliance in writing. The information contained herein should not be utilized for any purpose or project except the one originally intended. Under no circumstances shall this document be altered, updated, or revised without written authorization of Floyd|Snider.

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## List of Acronyms and Abbreviations

| Acronym/ Abbreviation | Definition |
|---|---|
| ARAR | Applicable or Relevant and Appropriate Requirement |
| BMP | Best management practice |
| City | City of Tacoma |
| HTL | High tide line |
| LWD | Large woody debris |
| MLLW | Mean lower low water |
| NTU | Nephelometric turbidity unit |
| Project | St. Paul CDF Shoreline Erosion Maintenance and Repair |
| RPM | Remedial Project Manager |
| SPCC | Spill, Prevention, Control, and Countermeasure |
| USEPA | U.S. Environmental Protection Agency |
| WAC | Washington Administrative Code |
| WQMPP | Water Quality Monitoring and Protection Plan |
| WQS | Water Quality Specialist |

# 1.0 Introduction

This Water Quality Monitoring and Protection Plan (WQMPP) has been prepared on behalf of the City of Tacoma (City) and identifies monitoring and best management practices (BMPs) associated with the City's St. Paul Confined Disposal Facility (CDF) Shoreline Erosion Maintenance and Repair (Project). The Project site is located adjacent to the St. Paul CDF located at the south end of Commencement Bay within the Port of Tacoma industrial area in Tacoma, Washington.

The WQMPP has been prepared to meet the requirements of the U.S. Environmental Protection Agency's (USEPA's) Clean Water Act (CWA) 404 Applicable or Relevant and Appropriate Requirements (ARARs) Memorandum (USEPA 2023) and Section 401 of the CWA during construction.

This plan describes water quality protection measures, monitoring parameters, methods, and evaluation criteria, as well as corrective actions and notification procedures to be followed during construction activities. The contractor selected to perform the construction activities will be required to comply with the requirements and procedures specified in this plan, as well as with the contract specifications.

## 1.1 PROJECT DESCRIPTION

This Project includes implementation of erosion maintenance and repair work for two areas adjacent to the St. Paul CDF that were identified during a 2020 Thea Foss and Wheeler-Osgood Waterways pre-certification remedial action inspection with USEPA. These areas include the North Shoreline, the shoreline adjacent to the CDF containment berm adjacent to North Beach Habitat area; and the South Shoreline, the bank adjacent to the Middle Waterway Tide Flat Habitat area (Figure 1.1).

During the inspection with USEPA on July 22, 2020, it was confirmed that while the remedial action was complete and the CDF is still functioning, a couple of areas require maintenance and repair to ensure that the berm face does not continue to erode and compromise the upland habitat and St. Paul CDF.

This WQMPP will be implemented during all construction activities. It is anticipated that all maintenance activities will be completed in the dry. All work below the High Tide Line (HTL) of 13.42 feet Mean Lower Low Water (MLLW) will be conducted during the in-water work window for Commencement Bay, from July 16, 2023 to February 15, 2024[1]. Excavation and placement of maintenance materials is anticipated to occur in sections along the shoreline where the length of sections is determined by the tides and contractor production rates.

In brief, the Project includes slope maintenance and repair to stabilize the existing eroding shoreline protection along the north and south shorelines of the CDF, focused mainly on the area

[1] Note to contractor: while this is the allowable in-water work window, substantial completion of this Project shall be done by September 30, 2023.

of the initial remedial action construction. The slope maintenance and repair work will consist of placing new armor rock, bedding layer material, and fish mix below the HTL, as well as installing a new bioengineered retaining wall to provide habitat enhancement in protected areas along the South Shoreline.

## 1.2 ADAPTIVE MANAGEMENT

This WQMPP details the approach to be followed for monitoring and includes corrective actions and steps to be taken if there are exceedances of water quality standards during the Project. However, circumstances may arise during project implementation that require a modification to the methods, procedures, sampling locations, frequencies, and corrective actions presented in this plan.

Any substantive changes to the monitoring approach will be done in coordination with the City and USEPA.

# 2.0 Water Quality Protection Measures

The following BMPs will be implemented during this shoreline erosion maintenance and repair. Additional BMPs may be implemented during maintenance and repair activities, as necessary, to avoid potential impacts to surface water.

- Maintenance activities will be completed in the dry using land-based equipment (e.g., excavators, front end loaders, conveyors, etc.) during periods of low tide to avoid potential impacts to surface water quality.
- All work below the HTL will be conducted during in the in-water work window for Commencement Bay, from July 16, 2023 to February 15, 2024.
- Visual water quality monitoring by designated and appropriately-trained personnel will be conducted continuously throughout construction (including periods when the tide has risen above the area of work and following first tidal inundation following excavation or placement of material).
- Any deployed boom and turbidity curtain will be managed to ensure that fish cannot be trapped in or stranded by the boom and curtain on falling tides and that escape for fish is available at the lowest margin of the curtain.
- Voids and depressions in intertidal areas of the beach will be managed (e.g., filled at the end of the day) to ensure fish cannot be trapped/stranded on falling tides.
- Work areas will be ”buttoned up” and left in a completed state or otherwise stabilized with surface and/or perimeter erosion controls after each session of work in the dry, to ensure turbidity is prevented (i.e., as previously mentioned, the work will be done in segments, so that disturbed areas are not left exposed to a rising tide).
- All construction equipment and materials will be stored on the upland and not within the intertidal area.
- Material will not be stockpiled below the HTL of 13.42 feet MLLW. Stockpiled material will not be placed in any habitat areas, as shown on the contract drawings. Materials will be imported to the site using land-based equipment (e.g., trucks and trailers, etc.). When material not in use, the Contractor will place visqueen or similar product over materials to prevent erosion/other damage.
- A material staging area will be constructed in the upland area adjacent to the North Shoreline that consists of 6-millimeter-thick polyethylene and plywood sheets prior to material delivery to minimize damage to the surface of the staging area and to contain the material in case of rain and/or wind.
- Access to the intertidal areas will be through a guard shack located on an upland parcel leased by Shipper’s Transport and owned by Rangar Stryder, as shown in the contract drawings (Sheet 4).

- The contractor will use appropriate equipment so as not to cause damage (e.g., rutting) to the project areas. This may include track-mounted equipment and/or placement of temporary mats to distribute the equipment weight while working on the beach areas.
- The contractor will prevent transporting and introducing aquatic invasive species to the area by thoroughly cleaning all equipment, boots and other gear before use at this job site.
- An emergency spill containment kit will be located on site containing an adequate supply of materials (such as a vacuum pump, booms, diapers and other absorbent materials) to control and contain deleterious materials in the event of an accidental spill.
- Fueling and waste storage areas will be distinctly identified and established within the upland portions adjacent to the site. Fueling and waste storage areas will not be established in the intertidal areas of the site. These areas will be equipped with spill prevention and control materials (e.g., kiddie pool). Secondary containment will be placed under any equipment or tanks stored on site.
- All equipment used below the HTL will utilize biodegradable hydraulic fluid.
- Adequate temporary erosion and sediment control (TESC) materials will be maintained on site as needed to accommodate unanticipated events in response to weather conditions and/or construction activities.
- Routine inspections of the erosion control measures will be conducted daily during construction to ensure the effectiveness of the measures and to determine the need for maintenance or additional control measures.
- The construction limits will be marked in the field and equipment and materials will not be allowed outside the limits of construction, as noted on the project Drawings Travel to and from access points to the Work Areas shall be minimized to just what is necessary for construction.
- Materials used for replenishment will be washed at the quarry prior to transport to site to reduce fines present in the material.
- Large woody debris (LWD) existing within the project footprint or access points will be cleared and stockpiled for later replacement. LWD is defined to be trees, stumps, roots and other woody debris present on the site greater than 10 inches in diameter and/or 5 feet in length. Extremely large pieces must be retained intact, where feasible. All stockpile locations must be clear of environmentally sensitive areas and not damage existing native vegetation.
- Construction-related debris within 200 feet from shoreline and from shoreline areas will be cleaned up daily. Proper conservation measures (e.g., containment devices such as roll-off boxes with covers) will be used to ensure that debris will not contaminate surface waters.

- Waste materials, including construction-related debris, miscellaneous garbage and/or other debris removed from the project site, will be transported off site for disposal in accordance with applicable regulations. The storage methods/locations while onsite, must be upland of the HTL so that the waste material cannot enter the water or cause water quality degradation. Storage methods/locations will be animal, weather and wind proof.
- Anthropogenic debris within the project footprint will be removed and disposed off site, including any treated wood, garbage, etc., within the project limits.
- If dead or distressed fish are observed the fish will be collected (as described in Section 6.2), and project work will cease, to allow review by the City and USEPA.
- Restoration and replanting of upland habitat areas will be completed where adjacent upland areas are affected by project construction or access.
- The contractor will be responsible for the preparation of a Spill, Prevention, Control, and Countermeasure (SPCC) plan to be used for the duration of the project. The SPCC plan will be submitted to and approved by the project engineer and USEPA prior to the commencement of any construction activities.

# 3.0 Water Quality Monitoring Objectives, Standards, and Criteria

The objective of water quality monitoring is to demonstrate that construction activities do not result in exceedances of the applicable water quality standards.

Although all maintenance and repair activities will be conducted in the dry, visual water quality monitoring will be performed in work areas (including all areas of disturbance and areas used for access) during all maintenance and repair work to ensure that construction activities do not negatively impact adjacent surface water quality. Instrumented monitoring will only be conducted when triggered (if visible turbidity is seen beyond the 150-foot point of compliance boundary, as described in Section 4.0).

## 3.1 WATER QUALITY STANDARDS

### 3.1.1 Turbidity

The water quality monitoring turbidity standards applicable to this Project per Washington Administrative Code (WAC) 173-201A-200(1)(e) and water quality criteria include the following:

- Turbidity shall not exceed 10 Nephelometric Turbidity Units (NTUs) over the background turbidity when the background turbidity is less than 50 NTUs.
- Turbidity shall not exceed a 20% increase when the background turbidity is more than 50 NTUs.
- Visible turbidity cannot occur beyond the 150-foot point of compliance boundary from the activity.

### 3.1.2 Point of Compliance

Per WAC 173-201A-200, for marine waters, the point of compliance for a temporary area of mixing shall be a radius of 150 feet from center point of the placement area or activity (i.e., point of turbidity discharge). If triggered, metered monitoring locations will be selected based on the location of the construction activity and to intercept any visible turbidity plumes originating from the construction operations. Visible turbidity greater than background beyond the 150-foot point of compliance boundary is considered an exceedance of the water quality standard.

If instrumented water quality criteria exceedances occur at the standard point of compliance of 150 feet, despite the implementation of BMPs, then the City can request to USEPA that the point of compliance be extended to 300 or 500 feet, depending on the nature of the turbidity exceedance. An extension to the allowable point of compliance can be requested because the material being placed is clean, and because work in-the-dry necessitates work during extreme tides. Any point of compliance extension must be coordinated with the City, USEPA, and the construction team.

### 3.1.3 Narrative Water Quality Standards

In addition to the numerical standards for turbidity described in the previous sections, the Project will also comply with narrative water quality standards, which include the following:

- No visible petroleum sheen on water observed at the construction site.
- No distressed or dying fish observed at the construction site that can be attributed to activities at the construction site.

These narrative criteria are not subject to the requirement for the temporary area of mixing and, therefore, must be met throughout the Project area.

# 4.0 Water Quality Monitoring Plan

The following subsections describe where and when monitoring will occur, and how compliance with the water quality standards will be addressed.

## 4.1 ROUTINE VISUAL MONITORING—ALL ACTIVITIES

Although all maintenance and repair activities will be conducted in the dry, visual water quality monitoring will be performed by the contractor in all work areas and areas of disturbance during all maintenance and repair work to ensure that construction activities do not negatively impact adjacent surface water quality.

Monitoring will also need to be conducted during tidal cycles and inundation of excavated and placed material to monitor for potential water quality impact from material placement. Visual water quality observations and any necessary corrective actions will be documented on the daily water quality monitoring form provided in Appendix A. For consistency, the contractor shall have one designated and appropriately trained individual to conduct the monitoring.

In the event persistent turbidity is observed emanating from the Project area toward the 150-foot point of compliance, a sorbent boom with minimum 3-foot curtain will be placed between the work area and the point of compliance. The boom will remain in place until work in the area is completed, and the turbidity is no longer present.

If turbidity is observed at any time beyond 150 feet from water's edge directly downslope from the point of the placement area or activity, instrumented monitoring will be triggered immediately, as described in Section 4.2.

## 4.2 INSTRUMENTED MONITORING—IF TRIGGERED

Instrumented monitoring will be conducted if turbidity is observed out to the 150-foot point of compliance boundary during routine visual monitoring during any Project activity.

### 4.2.1 Monitoring Stations

During all instrumented monitoring, monitoring will occur at the stations described in this section, measured from the point of placement area or activity (distances are described below). Figure 1.1 shows example Compliance Stations downcurrent from a known construction disturbance (e.g., placement of bedding layer). The background station is situated upcurrent of the construction activity. The actual positions of the stations will be adjusted in the field using the best professional judgment of the monitoring crew **and will be based on the location of disturbance (i.e., placement area or activity)**, any potential exceedance, tidal cycle, observations of the direction of current, or visible turbidity plume (if applicable).

In the field, it may be necessary to take turbidity measurements at more than the stations described below (i.e., discretionary stations) to understand the influence of water crossing the site. For example, it may be apparent that more than one separate turbidity plume is seen

extending toward the 150-foot point of compliance. In this case, the contractor would have a compliance station towards both plumes.

1. **Background Station.** There will be a minimum of one Background Station, positioned approximately 300 feet upcurrent of the point of placement area or activity and beyond the influence of construction activities. The Background Station(s) will be in an area with physical characteristics (e.g., water depth, influence of Puyallup River silt plume) similar to those of the main area of construction activity. The Background Station(s) will be monitored first during every instrumented event because the turbidity standard is based on comparison with background levels. If 300 feet upcurrent from the activity is not appropriate, the Background Station can be positioned farther than 300 feet from the activity, beyond the influence of construction activities.
2. **Early Warning Station.** There will be a minimum of one Early Warning Station, and it will be positioned approximately 100 feet downcurrent of the point of placement area or activity. The objective of monitoring at the Early Warning Station(s) at 100 feet is to have an early indication of whether exceedances of the water quality standards may occur at the point of compliance (i.e., 150 feet) if construction activities continue without modification to the BMPs being implemented. It provides an adaptive management process to adjust the construction activities or BMPs prior to a water quality standard exceedance at the point of compliance. Any NTU measurement that initially exceeds the water quality criterion at the Early Warning Station(s) will be referred to as an "elevation." If an elevation is confirmed, monitoring will occur at the 150-point of compliance and BMPs should be adjusted to avoid an actual exceedance at the point of compliance, as described below.
3. **Compliance Station.** There will be a minimum of one monitoring station at this distance, along the 150-foot point of compliance boundary downcurrent from the location of placement area or activity. The objective of monitoring at the Compliance Station(s) is to take turbidity measurements and, if there are exceedances, implement additional BMPs or corrective actions to achieve compliance with water quality standards.

### 4.2.2 Monitoring Depths

Monitoring will be conducted at the following three depths in the water column at each station. It is important to monitor water quality at each of these depths.

1. Surface—Within 3 feet (approximately 1 meter) of the water surface
2. Middle—At mid-depth in the water column
3. Bottom—Within 3 feet (approximately 1 meter) of the mudline

Sample measurements from each of the three depths will be compared to each of the three corresponding depths at the Background Station. Depths should be adjusted to target the

turbidity plume, if present. If the water depth is less than 10 feet, monitoring will be conducted at two depths within the water column (i.e., within 1.5 feet of the surface and at approximately one-half of the total water depth).

### 4.2.3 Turbidity Compliance

Turbidity measurements from the Early Warning Station and Compliance Station will be compared to the Background Station. Measurements will be taken at the Background Station first, prior to the Early Warning Station and Compliance Station(s). Turbidity measurements from each of the three depths at these stations will be compared to each of the three corresponding depths at the Background Station.

If an elevation of turbidity at the Early Warning Station is confirmed to be from construction (i.e., it is greater than the background measurement), monitoring should occur at the 150-foot Compliance Station. Simultaneous to monitoring at the 150-foot point of compliance, the contractor should modify operations and adjust or implement additional BMPs (e.g., deploy the turbidity curtain if not already deployed, check the shoreline for any areas where the work areas were not sufficiently "buttoned up" and secure them, etc.) and then remeasure the turbidity at the Early Warning Station within 15 minutes.

If an elevation of turbidity is observed at a 150-foot Compliance Station and is confirmed to be from construction activity (e.g., it is greater than 10 NTU over the background measurement at any water depth), the turbidity measurement is considered an exceedance. The contractor should wait 30 minutes to collect another measurement. During this time, the contractor should verify construction equipment is working properly, modify operations, and adjust or implement additional BMPs to bring turbidity into compliance. A discretionary sample may be taken to understand the influence of background and activities.

After 30 minutes has passed, the turbidity measurements at the 100-foot Early Warning Station and 150-foot Compliance Station should be collected again. If a second turbidity measurement still exceeds water quality criteria at the 150-foot Compliance Station, the contractor will temporarily stop work, modify operations, and implement additional BMPs, as necessary, to achieve compliance with turbidity standards. Turbidity measurements should be taken every 30 minutes until turbidity is within compliance. Section 6.0 provides corrective actions and notifications to be implemented if there is an exceedance at the point of compliance.

# 5.0 Equipment, Documentation, and Reporting

## 5.1 MONITORING EQUIPMENT

Equipment to be used for the turbidity and water quality monitoring will include the following:

- Water quality meter: Troll 9500, YSI 6920 Sonde (or other suitable equipment)
- Depth sounder or lead line
- Field logbook
- Personal protective equipment
- Camera
- Cellular phone and Project contact phone numbers

Turbidity levels will be measured with a water quality meter, which will be properly operated, calibrated, and maintained according to the manufacturer's guidelines and recommendations by qualified personnel before each use. All field analyses will be recorded in a logbook and the specific person who calibrated the equipment will be recorded. The following details shall be submitted as part of the Contractor's Environmental Protection Plan:

- Describe equipment to be used for water quality monitoring (if applicable). Include at a minimum: reference to the instrument user manual, how the meter will be obtained/calibrated in the event it is needed, and identify personnel responsible for water quality monitoring.

## 5.2 POSITIONING METHODOLOGY

All locations will be positioned by the contractor using standard measurement methods. The contractor will ensure that the accuracy of the location control will be +/- 10 feet.

## 5.3 WATER QUALITY MONITORING METHODOLOGY

For turbidity monitoring during construction activities, the water quality meter will be lowered to the appropriate water depth and be allowed to equilibrate for approximately 30 seconds, and the final turbidity measurement will be recorded on the instrumented water quality monitoring form (Appendix A).

## 5.4 DOCUMENTATION OF WATER QUALITY MONITORING

The contractor will retain a field logbook and will fill out a daily water quality monitoring form detailing the visual monitoring activities and instrumented form for turbidity measurement results (if applicable). The contractor will submit the water quality monitoring forms to the City by noon on the Monday following each week of construction. The City will verify the forms are filled out accurately and will submit them to USEPA on the Thursday following each week of construction.

If there is a violation of state water quality standards, or if the Project is out of compliance with any of the forthcoming Section 404 Memorandum conditions, the contractor will prepare a short, detailed report that provides the relevant water quality form(s) with a description of the nature of the violation, the water quality monitoring results and location, photographs, a description of the BMPs that were implemented to prevent further violations, and any other pertinent information. The contractor will submit the report to the City within 2 days following a violation of a water quality standard.

# 6.0 Corrective Actions and Notification Plan

There are two types of corrective actions that could be implemented, depending on the nature of the water quality impact or exceedance: (1) modifications of operations, and (2) cessation of activities. If water quality criteria are exceeded, the appropriate steps will be taken to identify and correct the problem. If corrective actions do not result in an improvement in water quality at the Compliance Station, construction activities may be halted at the direction of USEPA.

## 6.1 MODIFICATION OF OPERATIONS

If an exceedance of a water quality standard occurs at the Compliance Station during either visual or instrumented monitoring, or during both, field personnel will temporarily stop work and assess the source of the exceedance or impact, and corrective actions will be evaluated. Once the source has been identified, field personnel will implement operation modifications or other supplemental control measures or BMPs to bring the water quality measurements back into compliance with the criteria.

## 6.2 CESSATION OF ACTIVITIES

Some conditions require a stop-work response. These conditions are as follows:

- Confirmation of a turbidity exceedance at a Compliance Station (although work can continue when water quality criteria are in compliance).
- The first indication of significant oil sheen in the vicinity of construction activity.
- The first indication of distressed or dying fish in the vicinity of the construction activity.

If petroleum sheen, oil, or debris is observed in the water, the contractor will immediately stop work. Corrective actions will be implemented to make repairs to equipment, address the spill, or modify construction activities or BMPs and conduct appropriate notifications with the City Project Manager and USEPA. Work may resume after the corrective actions have been deemed effective, after the turbidity complies with the water quality standard, and as directed by the City or USEPA.

If distressed or dying fish are observed at the construction site and their condition can be attributed to construction activities, work will stop immediately and the contractor will immediately notify the City Project Manager, who will immediately notify USEPA. The contractor shall collect fish specimens within the first hour of such conditions. Fish samples shall be photographed and held in refrigeration or on ice until the contractor is instructed by the City and USEPA on next steps. If dying fish are observed and collected, the number, species, and size of fish should be documented on the water quality forms and the location of the dying fish, relative to operations, should be noted.

## 6.3 EXCEEDANCE NOTIFICATION AND REPORTING

If there is a violation of state water quality standards, or if the Project is out of compliance with any of the forthcoming Section 404 Memorandum conditions, the contractor will immediately notify the City. The City will notify both the USEPA Remedial Project Manager (RPM) and the USEPA Water Quality Specialist (WQS) as follows:

- USEPA RPM: Kristine Koch (206) 553-6705; Koch.kristine@epa.gov
- USEPA WQS: Justine Barton (206) 553-6051; barton.justine@epa.gov

The notification should include the following:

1. A description of the nature, extent, and cause of noncompliance.
2. The period of noncompliance, including the date and time of noncompliance, and anticipated time when the activity will return to compliance.
3. The steps taken to minimize, eliminate, and prevent a recurrence of the noncompliance action.

In addition to the email or phone notification, the City shall submit the detailed, contractor-prepared written report to USEPA within 3 days of the noncompliance, and the report will provide a description of the nature of the violation, the sampling results and location, photographs, a description of the BMPs that were or will be implemented to prevent further violations, and any other pertinent information.

In the event of a discharge of oil, fuel, or chemicals, the following three agencies will be notified: (1) Washington State Department of Ecology's Northwest Regional Office Environmental Reporting at (206) 594-0000, (2) the Washington Emergency Management Division at (800) 258-5990, and (3) the National Response Center at (800) 424-8802.

# Water Quality Monitoring and Protection Plan

St. Paul Confined Disposal Facility
Shoreline Erosion Maintenance and Repair Project

## Figure


Tacoma

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Water Quality Monitoring and Protection Plan**
**St. Paul CDF Shoreline Erosion Maintenance and Repair Project**
**Tacoma, Washington**

Figure 1.1
Example Water Quality Monitoring Locations when Instrumented Monitoring Triggered

I:\GIS\Projects\COT_ON_CALL\MXD\WQMPP\Figure 1.1 Example Water Quality Monitoring Locations when Instrumented Monitoring Triggered.mxd
5/3/2023

# Water Quality Monitoring and Protection Plan

St. Paul Confined Disposal Facility
Shoreline Erosion Maintenance and Repair Project

## Appendix A
## Daily and Instrumented Water Quality Monitoring Forms

| Location: | Date: | Time: |
|---|---|---|
| Personnel: | Tide Elevation: | |

**Construction Activity / Equipment**

| **Visual Water Quality Monitoring Checklist** | **N/A** | **Yes** | **No** |
|---|---|---|---|
| Is work being conducted in the dry? | ☐ | ☐ | ☐ |
| Was visual water quality monitoring performed during construction or work activity? | ☐ | ☐ | ☐ |
| Was there persistent turbidity observed in the adjacent surface water that warranted deployment of a boom with curtain? If yes, check box to right and add description of action taken below. | ☐ | ☐ | ☐ |
| Was turbidity observed past 150-foot point of compliance? **If yes, check box and fill out Instrumented Water Quality Monitoring Form** | ☐ | ☐ | ☐ |
| If curtain boom deployed, was area within boom managed to ensure no stranded fish? | ☐ | ☐ | ☐ |
| Were interstitial voids in beach managed to ensure fish could not be stranded on falling tides? | ☐ | ☐ | ☐ |
| Were fish or wildlife observed within the work area? | ☐ | ☐ | ☐ |
| Did overall surface water quality appear to be acceptable? | ☐ | ☐ | ☐ |

**Containment/Sorbent Boom Checklist**

| | | |
|---|---|---|
| Type of boom(s) deployed: | ☐ **Debris Containment Curtain** | ☐ **Sorbent** |
| Was the work area fully enclosed by the boom(s)? | ☐ **Yes** | ☐ **No** |

**Describe any observed water quality problems (as applicable; dying fish, sheen, turbidity, etc.):**

**Describe additional environmental controls implemented during construction (as applicable):**

**Describe any corrective action taken to solve problems described above (as applicable):**

Monitoring Personnel: _____ Date: _____

Construction Activity
During Monitoring: _____ Activity Start Time: _____

**Current Field Conditions**
Weather: _____ Temperature: _____

Any prior disturbances to water body (e.g., boat wake, presence of potential background turbid conditions)?
(Y/N – Describe): _____

Daily meter calibration performed? (Y/N – Describe): _____

Field Notes (If necessary):

_____

_____

Was the turbidity standard exceeded (no more than 10 NTUs greater than background when background <50 NTU or no more than 20% greater than background when background >50 NTUs)? (Y/N )

If yes to water quality standard exceedances, what corrective action(s) were implemented?

_____

_____

Was USEPA Water Quality Specialist notified of exceedances and action(s)?

_____

_____

Did turbidity return to background after correction action(s)?

_____

_____

_____

Were there any unusual conditions or critical activities that could have affected water quality?

_____

_____

Were any photographs taken as supporting documentation? (Y/N)

| **Monitoring Station** | | | Background Station | Early Warning Station | Point of Compliance Station |
|---|---|---|---|---|---|
| **Location (Distance from point of disturbance)** | | | 300 feet minimum upcurrent | 100 feet downcurrent | 150 feet downcurrent |
| **Time** | | | | | |
| **Northing** | | | | | |
| **Easting** | | | | | |
| **Tide Status** | | | | | |
| **Water Quality Monitoring Turbidity Readings (NTUs)** | **Surface** | **Initial** | | | |
| | | **Confirm** | | | |
| | **Exceedance/Elevation (Yes or No)** | | | | |
| | **Middle** | **Initial** | | | |
| | | **Confirm** | | | |
| | **Exceedance/Elevation (Yes or No)** | | | | |
| | **Bottom** | **Initial** | | | |
| | | **Confirm** | | | |
| | **Exceedance/Elevation (Yes or No)** | | | | |
| **Evidence of Noncompliance (e.g., debris, petroleum sheen, oil, dying fish) If yes, describe** | | | | | |
| **If dying fish, was a fish specimen collected and a photo taken?** | | | | | |