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**STATE OF WASHINGTON
WHATCOM COUNTY SUPERIOR COURT**

STATE OF WASHINGTON,
DEPARTMENT OF ECOLOGY,

NO. 07-2-02257-7

Plaintiff,

v.

**FIRST AMENDMENT TO CONSENT
DECREE RE: WHATCOM
WATERWAY SITE**

PORT OF BELLINGHAM, a Washington
municipal corporation; WASHINGTON
STATE DEPARTMENT OF NATURAL
RESOURCES; MERIDIAN-PACIFIC
HWY, L.L.C., a Washington limited
liability company; and the CITY OF
BELLINGHAM, a Washington municipal
corporation,

Defendants.

Pursuant to Section XV of the Consent Decree Re: Whatcom Waterway Site (the “Consent Decree”), entered by this Court on September 24, 2007, Plaintiff, State of Washington, Department of Ecology (Ecology), and Defendants, Port of Bellingham, Washington State Department of Natural Resources (DNR), Meridian-Pacific Hwy, L.L.C., and the City of Bellingham, hereby stipulate to amend the Consent Decree as follows:

1. Subsection B of Section XVIII (Covenant Not to Sue) of the Consent Decree is replaced in its entirety by the following language:

B. This Decree covers only the Site specifically identified in the Site Diagram (Exhibit A) and those hazardous substances that Ecology knows are located at

1 the Site as of the date of the initial entry of this Decree on September 24, 2007, not the
2 date of any subsequent amendment thereto. In the event of an amendment to this
3 Section XVIII pursuant to an amendment under Subsection D or a reopener under
4 Subsection E to incorporate hazardous substances not covered by this Decree, Ecology
5 agrees that those areas effectively contained under a clean sediment layer or cap
6 pursuant to the First Amendment to Exhibit B, Cleanup Action Plan, will not be
7 required to be excavated or otherwise disturbed to further address such contamination.
8 Other requirements such as monitoring may apply in these or other areas of the Site,
9 and these areas would still be subject to the reopeners in subsection E of this Section.
10 This Decree does not cover any other hazardous substance or area. Ecology retains all
11 of its authority relative to any substance or area not covered by this Decree.

12 2. Exhibit B to the Consent Decree is amended as provided by the attached
13 Exhibit 1 (First Amendment to Exhibit B, Cleanup Action Plan).

14 3. Exhibit C to the Consent Decree is replaced in its entirety by the revised
15 Exhibit C, attached as Exhibit 2 (First Amendment to Exhibit C, Schedule of Work and
16 Deliverables).

17 Except as set forth above, all other provisions of the Consent Decree remain in full
18 force and effect, unchanged by this First Amendment.

19 STATE OF WASHINGTON
20 DEPARTMENT OF ECOLOGY

ROBERT M. MCKENNA
Attorney General

21
22 _____
James Pendowski
Program Manager
Toxics Cleanup Program
(360) 407-7177

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Kristie E. Carevich, WSBA #28018
Assistant Attorney General
(360) 586-6762

24 Date: _____

25 Date: _____

1 PORT OF BELLINGHAM

WASHINGTON STATE DEPARTMENT
OF NATURAL RESOURCES

2
3 _____
4 Jim Jorgensen, President
Port of Bellingham Commission
(360) 676-2500
Date: _____

Peter Goldmark
Commissioner of Public Lands
(360) 902-1001
Date: _____

6 MERIDIAN-PACIFIC HWY, L.L.C.

CITY OF BELLINGHAM

8 _____
9 David Ebenal, Member
(360) 738-1940
Date: _____

Dan Pike, Mayor
(360) 778-8100
Date: _____

11 ATTEST

APPROVED AS TO FORM

12 _____
13 John Carter, Finance Director
City of Bellingham
(360) 778-8000
Date: _____

Joan Hoisington, WSBA #7966
City Attorney, City of Bellingham
(360) 778-8270
Date: _____

16 ENTERED this _____ day of _____ 2011.

18 _____
19 JUDGE
Whatcom County Superior Court

Exhibit 1

**First Amendment to
Consent Decree Re: Whatcom
Waterway Site, Bellingham, WA**

First Amendment to EXHIBIT B Cleanup Action Plan

[The Cleanup Action Plan (CAP) is amended as follows:]

Table of Contents

[No change, except the following new subsections 5.6 and 7.1.8 are inserted into the CAP:]

[5.6 Basis for Changes by the First Amendment to the Cleanup Action](#)

[7.1.8 Over Water Walkway Project](#)

List of Figures

[No change, except the following new figure is inserted into the CAP:]

[Figure 6-5 Whatcom Waterway Cleanup Action – First Amendment](#)

[And, Figure 7-2 is replaced with the following:]

[Figure 7-2 Implementation Schedule – First Amendment](#)

List of Appendices

[No change, except the following new Appendix is inserted into the CAP:]

[Appendix B-1 Estimated Remedial Costs – First Amendment](#)

1 Introduction

[No change]

1.1 Site Description

[No change]

1.2 Purpose and Scope

[No change, except for the following language added at the end of the subsection:]

Amendments to this CAP were made in 2011 based on updated information from the pre-remedial design investigation (Pre-Remedial Design Investigation Data Report, Anchor 2010; PRDI Data Report) conducted by the Port. This updated information indicated that levels of dioxin/furans in buried sediments off-shore of the shipping terminal (Units 1A/1B) would be unlikely to meet Dredged Material Management Program (DMMP) guidelines for open-water disposal, as planned in the original CAP.

Prior to 2007, the DMMP guidelines included a concentration limit of 15 ng/kg (expressed as dioxin/furan TEQ), which if exceeded would trigger the requirement to perform bioaccumulation testing. From 2007 to December 6, 2010, the DMMP adopted more stringent interim dioxin guidelines that included new maximum concentration limits and additional project average limits that varied depending on the specific disposal site used. DMMP subsequently issued new interim dioxin guidelines effective December 6, 2010 that are applicable to all Puget Sound disposal sites. The new guidelines include a 4 ng/kg TEQ concentration as a disposal site management objective, and require additional, modified testing and evaluation for sediments containing dioxin/furan concentrations greater than 10 ng/kg TEQ.

Testing conducted as part of the PRDI (Anchor 2010) found average dioxin/furan concentrations of 33 ng/kg TEQ in the Unit 1A and 1B dredge materials. As a result, Ecology considered it unlikely that these units would meet DMMP guidelines for open water disposal, as planned in the original CAP.

The primary effect of this was that a different disposal option was needed for the 1A/1B materials slated for open-water disposal in the original CAP. This also presented an opportunity to manage a portion of the 1C materials and the 5B materials differently.

In addition, the Port proposed changes to the cleanup schedule to accommodate early redevelopment actions and expedite the cleanup.

Under a First Amendment to the Cleanup Action Plan Re: Whatcom Waterway Site (First Amendment to the CAP), adjustments were made to the original cleanup action selected for these specific areas of the Site (Figure 6-5). The CAP now requires the Port to do the following:

- After removing contaminated industrial sludge and sediment from the industrial waste lagoon (Unit 8) and disposing of it in an approved upland landfill, remove an estimated 340,000 cubic yards of clean material from Unit 8. Stockpile clean material for later use; and
- Place contaminated material dredged from Units 1A, 1B, 5B, and a portion of 1C into Unit 8. Contain the placed material under a clean sediment layer, or cap, and apply institutional controls to eliminate exposure to humans and the environment.

The project schedule was also adjusted to reflect a change in the project sequencing to allow the Port to clean up the inner waterway portion of the Site first (Units 2A, 2C, 3, 4, and a portion of Unit 1C), followed by the remainder of the Site.

As outlined in the sections below, these adjustments are consistent with the planned land use for the Site (the Port of Bellingham's plans to continue deep draft shipping, and to convert Unit 8 to a marina), and meet the requirements of the Model Toxics Control Act (MTCA), the MTCA Regulation, and the Sediment Management Standards.

At the time the First Amendment to the CAP was developed, Ecology was still completing a broader evaluation of dioxin and furans throughout Bellingham Bay and Puget Sound. The outcome of these evaluations could result in a future amendment to the CAP. The regulatory framework to address these contaminants is still evolving as described in section 6.1.2 of the PRDI Data Report.

2 Site Background

[No change]

3 Cleanup Requirements

[No change]

3.1 Cleanup Levels

[No change]

3.1.1 Sediment Cleanup Levels

[No change]

3.2 Points of Compliance

[No change]

3.3 Sediment Cleanup Action Objectives

[No change]

3.4 Applicable Local, State, and Federal Laws

[No change]

3.4.1 Required Permits and Approvals

[This subsection is replaced by updated text as shown in the redline/strikeout version below:]

Cleanup actions at the site are anticipated to require the following permits:

- Permit for discharge of dredged, excavated or fill material to waters of the United States pursuant to Section 404 of the Clean Water Act.
- It is anticipated that ~~the Phase 1 of the site~~ cleanup will be performed using a Nationwide 38 permit, and Phase 2 will use an Individual 404 permit, both issued by the Corps. The federal permitting process includes review of issues relating to wetlands, tribal treaty rights, threatened and endangered species, habitat impacts, historical/archeological resources, dredged material management, environmental impacts in accordance with the National Environmental Policy Act, and other factors. The time required to complete federal 404 permitting and associated regulatory reviews can vary from one to several years. The following describes several of the federal permitting issues:

It is anticipated that Phase 1 of the site cleanup will be performed using a Nationwide 38 permit, and Phase 2 will use an Individual 404 permit, both issued by the Corps. The federal permitting process includes review of issues relating to wetlands, tribal treaty rights, threatened and endangered species, habitat impacts, historical/archeological resources, dredged material management, environmental impacts in accordance with the National Environmental Policy Act, and other factors. The time required to complete federal permitting and associated regulatory reviews can vary from one to several years. The following describes several of the federal permitting issues:

Endangered Species Act Review

- The site area is potential habitat for threatened and/or endangered species; therefore, cleanup actions will be subject to Endangered Species Act review. The National Marine Fisheries Service and the United States Fish and Wildlife Service will perform the review as part of the Corps permit process.

Historical/Archaeological Review

- As part of the Corps permit process, the Corps will review the cleanup actions to determine whether they will disturb historical or archaeological resources.

Puget Sound Dredged Material Management Program

- ~~• In Puget Sound, the open water disposal of sediments is managed by the Dredged Material Management Program (DMMP). This program is administered jointly by the Corps, the US Environmental Protection Agency, the Washington State Department of Natural Resources, and Ecology. The DMMP has developed the Puget Sound Dredged Disposal Analysis (PSDDA) protocols which include testing requirements to determine whether dredged sediments are appropriate for open water disposal. The DMMP has also designated disposal sites throughout Puget Sound. As part of the 404 permit process the Corps will ensure dredged material is managed in accordance with the requirements of the DMMP.~~

National Environmental Policy Act (NEPA) Review

- Construction projects are subject to environmental impact review under SEPA and/or NEPA regulations. The SEPA review for the cleanup of the site was completed by Ecology through the DSEIS. NEPA review will be completed by the Corps through the 404 permit process.

- Water Quality Certification from the State of Washington pursuant to Section 401 of the Clean Water Act.
- As part of the 404 permitting process, a section 401 water quality certification must be obtained from Ecology. Certification ensures that the 404 permitted actions will comply with state water quality standards and other aquatic resource protection requirements under Ecology's authority.
- National Pollutant Discharge Elimination System Waste Discharge Permit for discharge of pollutants to waters of the United States pursuant to Section 402 of the Clean Water Act.
- The cleanup of the site will generate waste water that will be either discharged to the local sanitary sewer system or to surface water. Discharge of pollutants to surface water requires a permit under section 402 of the Clean Water Act to ensure compliance with state water quality standards. National Pollutant Discharge Elimination System permits are obtained from Ecology.
- Washington State Scientific Collection Permit for the collection of foodfish, shellfish, or wildlife or their nests and/or eggs for the purpose of research or display pursuant to WAC 220-20-045 and WAC 232-12-276.
- Post-cleanup monitoring of the site will require the collection of Dungeness crab to ensure that mercury tissue concentrations remain below applicable standards. The Washington State Department of Fish and Wildlife issues this permit as part of their management and protection of the resource.

3.4.2 Substantive Requirements

[No change]

4 Description of Remedial Alternatives Considered in the RI/FS

[No change]

5 Basis for Selection of the Proposed Cleanup Action

[No change, except the following new subsection 5.6 is inserted into the CAP at the end of this section:]

5.6 Basis for Changes by the First Amendment to the Cleanup Action

This section presents the basis for the changes to the cleanup action made by the First Amendment to the CAP, including an evaluation of disposal options.

5.6.1 Units 1A, 1B, and 1C

Based upon data in the PRDI Data Report, it was determined that levels of dioxin/furans (average 33 ng/kg TEQ) in Units 1A/1B (124,400 cubic yards) would likely be too high to meet requirements for open-water disposal, as planned originally. Therefore, other disposal options needed to be evaluated. The two options available were upland disposal in an approved landfill, or disposal and capping in Unit 8 (Figure 6-5). Disposal in Unit 8 was also evaluated for a portion of the 1C materials (67,800 cubic yards) originally planned for upland disposal. Upland disposal and disposal in Unit 8 are described and evaluated below.

Dredging and Upland Disposal

Upland disposal would meet cleanup standards through removal of contaminated sediments and placement in an approved upland disposal location.

Dredging and Unit 8 Disposal

Following removal and upland disposal of contaminated sludge and sediment from Unit 8, an estimated 340,000 cubic yards of clean material would be removed and stockpiled for later use. This provides disposal capacity for material from other site units.

Dredging, and disposal and capping in Unit 8 would meet cleanup standards through a combination of containment and institutional controls. The containment cap would be designed to prevent disruption of contained material by planned marina activities, including periodic dredging. The cap would have a nominal thickness of at least 3 feet and is expected to consist of sandy sediments. The final cap elevation, thickness, and composition (including any armoring or modifications to address cap erosion potential) would be determined during engineering design.

Evaluation

Both options would comply with MTCA threshold criteria and have a reasonable restoration timeframe:

<u>Threshold Criteria and Restoration Timeframe</u>		
<u>Threshold Criteria</u>	<u>Units 1A, 1B, and a Portion 1C Disposal Options</u>	
	<u>Dredging with Unit 8 Disposal and Capping</u>	<u>Dredging with Upland Disposal</u>
<u>Protection of Human Health and the Environment</u>	<u>Complies with cleanup standards</u>	<u>Complies with cleanup standards</u>
<u>Compliance with Cleanup Standards</u>	<u>Complies with cleanup standards described in Section 3 through containment and institutional controls</u>	<u>Complies with cleanup standards described in Section 3 through removal and upland disposal</u>
<u>Compliance with Applicable State & Federal Laws</u>	<u>By requiring appropriate project design and permitting, option will comply with applicable state and federal laws</u>	<u>By requiring appropriate project design and permitting, option will comply with applicable state and federal laws</u>
<u>Provisions for Compliance Monitoring</u>	<u>Provides for compliance monitoring of cap to ensure long-term integrity</u>	<u>Compliance monitoring not required</u>
<u>Restoration Time-Frame (pertains to the time required to meet cleanup standards)</u>	<u>6 to 7 years for design and construction</u>	<u>6 to 7 years for design and construction</u>

The MTCA disproportionate cost analysis (DCA) is used to determine which cleanup option that otherwise meets site cleanup standards is permanent to the maximum extent practicable. The DCA is performed by comparing the environmental benefits and costs of cleanup options.

<u>Evaluation of Permanence using MTCA DCA</u>		
	<u>Units 1A, 1B, and a Portion of 1C Disposal Options</u>	
	<u>Dredging with Unit 8 Disposal and Capping</u>	<u>Dredging with Upland Disposal</u>
<u>Disposal Volume</u>	<u>192, 200 c.y. (124,400 c.y + 67,800 c.y.)</u>	<u>192,200 c.y.(124,400 c.y + 67,800 c.y.)</u>
<u>Core Costs (Including contingency, see Appendix B-1)</u>	<u>\$6.9 million (2010\$)</u>	<u>\$23.6 million (2010\$)</u>
<u>Environmental Benefit Criteria</u>		
<u>Protectiveness, Permanence and Long-term Effectiveness</u>	<u>Lower ranking relative to removal and upland disposal- contaminated materials remain on-site</u>	<u>High ranking- contaminated materials removed from site</u>
<u>Short-term risk management</u>	<u>Medium ranking - material handling</u>	<u>Medium ranking - material handling</u>
<u>Implementability</u>	<u>High ranking</u>	<u>High ranking</u>
<u>Consideration of public concerns</u>	<u>Lower ranking relative to removal and upland disposal – consistent with land use plans however contaminated material remains on-site</u>	<u>High ranking – consistent with land use plans and contaminated material removed from site</u>

As shown on the chart, upland disposal provides greater environmental benefit. However, the core costs associated with upland disposal are disproportionate to the increase in environmental benefit. Based upon this evaluation, Unit 8 disposal is permanent to the maximum extent practicable and is the preferred cleanup option for Site Units 1A/1B and a portion of 1C.

5.6.2 Unit 5B

The Unit 8 disposal option presented an opportunity to improve the permanence of the cleanup action for Unit 5B sediments designated for capping in the original CAP. As discussed in the RI/FS, this portion of the site is subjected to periodic storm events with high wave energies. Any cap constructed in this area would need to be engineered to minimize the potential

for storm-induced cap erosion. The availability of the Unit 8 disposal location makes it possible to relocate the Unit 5B contaminated sediment (approx. 18,000 cubic yards) by dredging, and then contain them by capping in the protected, deeper-water location within Unit 8 rather than in the more exposed Unit 5B location. The cost of dredging of Unit 5B sediments and containment in Unit 8 is estimated at under \$900,000, see Appendix B-1. The cost of managing the Unit 5B materials as called for in the original CAP was estimated at approximately \$700,000 plus additional costs for armoring. As shown in Appendix B-1, the costs associated with cap armoring could increase this cost to over \$2.3 million. The relocation of the capping action at Unit 5B would provide added environmental benefit by improving the long-term effectiveness of the cleanup action without a disproportionate increase in cost. Therefore, relocating the Unit 5B materials to Unit 8 is the preferred cleanup option.

5.6.3 Project Schedule

The project schedule was also adjusted to reflect the implementation of the work as two construction actions or phases, each under its respective permits. This provides for expedited cleanup of the inner waterway, the Log Pond, and portions of the Site that are independent of Unit 8. This work also accommodates early redevelopment actions. The adjusted project schedule is attached to the Decree as Exhibit C, and is shown in Figure 7-2.

6 Description of the Proposed Cleanup Action

[No change]

6.1 Cleanup Actions by Site Area

[No change, except for the following language added at the end of the subsection:]

Pursuant to the First Amendment to the CAP, Figure 6-5 illustrates the elements of the cleanup action for Units 1A and 1B, a portion of 1C, 5B, and 8. Technologies used as part of the cleanup include removal with Subtitle D disposal, treatment, containment, and institutional controls.

6.1.1 Outer Whatcom Waterway (Unit 1)

[This subsection is replaced by updated text as shown in the redline/strikeout version below:]

Surface sediments in the outer portion of the Whatcom Waterway (Units 1A and 1B) comply with applicable cleanup standards. However, sediments need to be dredged in order to prevent disruption of subsurface contaminated sediments by future deep draft navigation uses in the Outer Whatcom Waterway.

An estimated 124,400 cubic yards of sediment removed during dredging will be placed in a barge and managed by confined disposal in Unit 8 (see Section 6.1.7). Post-dredging residual sediment contamination will be considered as part of design and permitting and will include the use of best practices.

Surface sediments in Unit 1C also comply with applicable cleanup standards. ~~Low level~~ ~~b~~uried contaminated sediments within Unit 1C that may be disturbed through future dredging and navigation activities will be removed by dredging to the extent technically feasible. The depth of dredge cuts is expected to range from 35 feet to 41 feet below MLLW in Unit 1C. The dredging will need to address geotechnical and structural integrity limitations associated with existing piers and structures in the Bellingham Shipping Terminal area. It is expected that most portions of Unit 1C will be remediated by removal.

A stable side-slope will be established in between Unit 1C and the sediments in the adjacent Inner Whatcom Waterway (Unit 2C). The design of that side-slope will be addressed as part of remedial design, and will anticipate future navigation maintenance dredging within the channel and the effects of vessel prop wash and seismic effects on sediment stability.

Approximately 56,500 cubic yards of sSediments removed during dredging of 1C will be barged to an offload facility and transferred to rail cars or trucks for transportation to a Subtitle D landfill facility. Post-dredging residual sediment contamination will be considered as part of design and permitting and will include the use of best practices.

An estimated 67,800 cubic yards of sediment removed during dredging of 1C will be placed in a barge and managed by confined disposal in Unit 8 (see Section 6.1.7). Post-dredging residual sediment contamination will be considered as part of design and permitting and will include the use of best practices.

~~Surface sediments in the outer portion of the Whatcom Waterway (Units 1A and 1B) comply with applicable cleanup standards. They are also anticipated to comply with criteria applicable to PSDDA disposal and beneficial reuse, and may need to be removed in order to accommodate future deep draft navigation uses in the Outer Whatcom Waterway. Alternative 6 assumes that dredging of these sediments is required to support navigation uses and that these sediments will be dredged and managed by PSDDA disposal, subject to an updated characterization and suitability determination. Potential beneficial reuse options for these materials will be evaluated as part of project design and permitting. No institutional controls are anticipated for this area of the site.~~

No institutional controls are anticipated for this area of the site.

6.1.2 Inner Whatcom Waterway (Units 2 and 3)

[No change]

6.1.3 Log Pond (Unit 4)

[No change]

6.1.4 Areas Offshore of ASB (Unit 5)

[This subsection is replaced by updated text as shown in the redline/strikeout version below:]

~~Exceedances of sitecleanup standardsgoals within Unit 5B will be addressed by dredging. Sediments removed during dredging will be placed in a barge and managed by confined disposal in Unit 8 (see Section 6.1.7). The dredging volume is expected to be 18,000 cubic yards. After dredging, the surface of the dredged area will be restored by backfilling the excavation with clean material. capping. The design is expected to include the use of sand materials below 12 ft MLLW and in cap sub-grades. An offshore submerged wave break will be constructed using clean material from the ASB berm. The wave break will be placed in water depths of approximately 8 feet and will extend~~

~~to approximately 3 feet MLLW. The wave break will be exposed only in extreme low tides. The cap thickness will be at least 3 feet. Institutional controls will be required for this area of the site to ensure the long term integrity of the remedial action (Section 6.4).~~

~~The RI/FS included a preliminary evaluation of wind and wave forces affecting the Unit 5-B area. Additional evaluations will be conducted during remedial design and permitting prior to finalizing the cap design details. To minimize wave energies affecting the cap during storm events, the cap surface elevation will be established at an elevation deeper than 4 feet MLLW. Some dredging in shallow water areas of Unit 5-B will be required prior to cap placement to maintain minimum cap thicknesses. This dredging volume is estimated at less than 2,500 cubic yards, assuming a maximum final cap elevation between 4 and 6 feet MLLW.~~

The remaining areas of Unit 5 ~~do not exceed~~ comply with site specific cleanup ~~standards~~ goals. ~~However, these areas will still~~ be addressed using Monitored Natural Recovery. No sediment capping or dredging is ~~required~~ proposed for these areas at this time. Additional evaluations of sediment stability will be conducted as part of remedial design. These areas will be monitored to ensure continued compliance with cleanup standards. Institutional controls will be required for these areas of the site to ensure the long term integrity of the natural cap (Section 6.4).

6.1.5 Areas near Bellingham Shipping Terminal (Unit 6)

[No change]

6.1.6 Starr Rock (Unit 7)

[No change]

6.1.7 ASB (Unit 8)

[This subsection is replaced by updated text as shown in the redline/strikeout version below:]

~~Pursuant to the First Amendment to the CAP, Under the proposed cleanup action, contaminated ASB sludges and impacted sediments immediately underlying the sludges (transition ~~sediments~~ sands) exceeding cleanup standards will be dredged disposed in a permitted upland landfill. An estimated 340,000 cubic yards of clean material will then be removed and stockpiled for later use. ~~and managed by upland disposal. Some clean ASB berm sediments and stone materials will also be removed for use in other cleanup actions at the site.~~~~

The design concept for cleanup of Unit 8 is based on ~~an 8-step process, five-step process.~~ The steps are outlined below, although some aspects of this process may change in remedial design. First, the water level in the ASB will be lowered and the connection between the ASB and the ~~connection between the ASB and the outfall will be sealed, outfall plugged.~~

Second, the water treatment equipment (aerators, weirs, etc.) will be removed, and the tops of the berms removed. These berm materials consist of clean sand and stone materials used to construct the ASB and can be used within other portions of the project area. ~~The exterior of the berm will be reduced in elevation between 14 and 18 feet above MLLW. The interior of the berm will be removed to elevations approximately 10 feet above MLLW. Sheet piling may be driven along the berm to allow for subsequent dewatering of the interior of the ASB.~~

Third, the ~~majority of the contaminated~~ ASB sludges will be removed, ~~likely by hydraulic dredging.~~ The ~~hydraulic dredged materials slurry~~ will be treated to enhance separation of sludge solids from the entrained waters. Solids separated from the dredge slurry will be shipped by rail ~~and disposed in a permitted for upland landfill disposal.~~ Produced waters from dredging and materials handling will be returned to the ASB in a closed-loop system ~~or will be treated and properly disposed, to minimize the overall generation of contaminated waters.~~ The ~~use of hydraulic dredging and~~ maintenance of a water layer overlying the sludges during removal was identified in the RI/FS as a method for minimizing odors and potential wildlife exposures during sludge removal.

During the fourth step, ~~the impacted waters from the ASB will be pumped out, treated to remove suspended and dissolved contaminants, and then discharged to the sanitary sewer. If sewer capacity is limited, the treated waters will be managed using a permitted temporary surface water discharge.~~

~~Finally, the residual solids within the dewatered ASB will be removed by land-based excavation equipment. By conducting this final phase of removal without overlying water, the result will maximize sludge removal and minimize residual contamination. These five steps will be revisited as part of remedial design and permitting, and may be modified as necessary to optimize cleanup performance.~~

~~Following cleanout of the sludges, any installed sheet piling may be removed from the ASB, the ASB filled to appropriate elevations with surface water, and the berm opened. Some additional impacted sediment will be generated for upland disposal at the time the new access channel to the ASB (Unit 2-B) is created.~~

~~No institutional controls are anticipated for this area of the site.~~

~~the transition sands at the bottom of the ASB will be removed and transferred to the uplands for use elsewhere or disposal, depending on contaminant concentrations determined during engineering design.~~

~~Fifth, the clean sands underlying the transition sands will then be excavated by dredging and stockpiled for use elsewhere. Hydraulic dredging will likely be used for this dredging, with recirculation of generated water to the ASB.~~

~~Sixth, approximately 210,200 cubic yards of sediment exceeding cleanup standards from Units 1A, 1B, 5B, and a portion of 1C will be placed in the deep-excavated portion of Unit 8. The placement area is to be located shoreward of the Inner Harbor Line, and targeted placement elevations will be deeper than -18 feet MLLW. Transition sands from the ASB berms will then be removed and placed within the placement area below elevation -18 ft MLLW.~~

~~Seventh, the placement area will be covered by a layer of clean sediment, or cap, to provide for long-term containment of the placed sediments (see Figure 6-5). The cap will have a nominal thickness of at least 3 feet and is expected to consist of sandy sediments. The target elevation of the top of the cap is estimated to be -14 feet MLLW or deeper, consistent with planned navigation uses of Unit 8. The final cap elevation, composition, and thickness will be determined during engineering design.~~

~~Finally, the berm between Unit 8 and Bellingham Bay will be opened. Water quality within the basin will be verified prior to opening of the berm. Clean sand from berm opening will be used as part of Unit 8 capping.~~

~~Institutional controls and monitoring will be implemented within Unit 8 to monitor the integrity of the sediment cap.~~

6.1.8 Remaining Area of the Site (Unit 9)

[No change]

6.2 Types, Levels and Amounts of Contamination Remaining On Site

[This subsection is replaced by updated text as shown in the redline/strikeout version below:]

The information presented in the RI/FS documents conditions at the site prior to the cleanup action. As described in the RI/FS, the principal sediment contaminants at the site include mercury, 4-methylphenol, and phenol.

Based on sampling completed at the Site, Ecology determined that mMost surface sediments at the site comply with applicable cleanup standards as measured using chemical and biological testing, and also comply with the site-specific bioaccumulation screening level developed using Human Health Risk Assessment procedures. The ~~proposed~~-remedy addresses the few areas of surface sediment contamination through dredging and/or capping. Subsurface sediment contamination will be addressed using a range of technologies, with capping and removal used to address unstable sediments, and monitored natural recovery used to address sediments that are safely buried.

The ~~proposed~~-cleanup action will remove contaminated ~~subsurface~~-sediments from the Outer Whatcom Waterway (Unit 1) adjacent to the Bellingham Shipping Terminal, from an area off-shore of the ASB (Unit 5), and from the ASB (Unit 8). In other site areas, hazardous substances will remain in stable, subsurface sediments. These sediments will be managed by capping and monitored natural recovery. Monitoring and institutional controls will be used to ensure the long-term stability of these subsurface sediments. These measures are described in Sections 6.3 and 6.4 of this CAP respectively.

Following the removal of contaminated material from Unit 8, the cleanup action will remove approximately 340,000 cubic yards of clean material and stockpile it for later use. Contaminated material from Units 1A/B, 5B, and part of 1C will then be placed in Unit 8 and capped. Monitoring and institutional controls will be used to ensure the long-term stability of these sediments. These measures are described in Sections 6.3 and 6.4 of this CAP respectively.

Figures 6-1~~through~~, 6-2, and 6-3 summarize the RI/FS subsurface sediment data for areas of the site where contaminated subsurface sediments will be managed on-site using monitored natural recovery or capping. Subsurface sediment conditions vary according to site unit. Figures 6-1 and 6-2 provide a summary of the average subsurface sediment quality, expressed as the average sediment quality at depths 0.4 feet to 4 feet below the sediment mud-line. In order to provide the reader with a better overall sense of subsurface contaminant distribution throughout the site prior to initiation of remedial efforts, the Log Pond area is shown prior to completion of the Interim Remedial Action. Figure 6-3 summarizes discrete sampling data for subsurface mercury within the Whatcom Waterway. The estimated dredge and cap elevations are shown on the cross-section, subject to final remedial design and permitting.

Figure 6-5 depicts the Unit 8 confined disposal area and the average contaminant concentrations of the sediments (Units 1A, 1B, 5B, and part of 1C) placed and capped within Unit 8.

6.3 Compliance Monitoring and Contingency Responses

[No change]

6.3.1 Cleanup Action Monitoring Requirements

[No change]

6.3.2 Contingency Response Actions

[No change]

6.4 Institutional Controls

[No change]

6.4.1 Use Assumptions

[No change]

6.4.2 Restrictive Covenants

[No change]

6.4.3 Review Process for Navigation Dredging and Other Construction Activities

[No change]

7 Implementation of the Cleanup Action

[No change]

7.1 Coordination with Other Actions

[No change except the following new subsection 7.1.8 is inserted into the CAP at the end of this subsection:]

7.1.8 Over Water Walkway Project

The City is currently conducting engineering design and permitting for a project known as the Over Water Walkway. The Over Water Walkway is planned as a pedestrian trail between Boulevard Park and the Cornwall Landfill area. The Over Water Walkway project has been included in multiple City of Bellingham planning documents between 2002 and 2010, including the following recent documents:

- Parks, Recreation and Open Space Plan, 2008 (an element of the City's Comprehensive Plan);
- City of Bellingham Capital Facilities Plan, 2008-2010;
- State Transportation Improvement Program 2008;
- City of Bellingham Transportation Improvement Program, 2008; and,
- Draft Shoreline Master Program, 2009.

It has also been included in the draft Waterfront District Draft Sub-Area Plan, 2010 prepared by the Port in cooperation with the City. The project includes placement of new pilings and over-water walkway structures within Site Unit 9.

7.2 Anticipated Schedule for Design and Implementation

[This subsection is replaced by updated text as shown in the redline/strikeout version below:]

The design and implementation of the cleanup of the site will be implemented in two construction actions or phases, over a period of approximately six years, with a subsequent period of long-term monitoring. Each phase will address separate areas of the Site. Phase 1 of the project includes Site Units

2A, 2C, 3B, 4, and a portion of Unit 1C. Phase 2 includes the balance of Site Unit 1, and Units 2B, 5B, 6B, 6C, and 8. Units 3A, 5A, 5C, 6A, 7, and 9 are designated for monitored natural recovery. Monitoring will be performed consistent with the Compliance Monitoring and Contingency Response Plan, to be prepared during design and permitting.

The ~~anticipated~~ schedule for design and implementation of the Whatcom Waterway cleanup is attached to the Decree as Exhibit C and is illustrated in Figure 7-2. The considerations for the schedule selected are, ~~and is~~ described below:

- **Engineering Design and Permitting:** ~~The project is significant in scope, and design and permitting~~ Phase 1 design and permitting is ~~are~~ expected to require approximately 21-2 years to complete and Phase 2 is expected to require 2-3 years to complete. ~~, though~~ These anticipated permitting time-frames are subject to the discretion of the regulatory agencies involved. Pre-design data collection activities will be necessary to document current conditions (e.g., current bathymetric data, supplemental coring data in planned dredge areas, sediment geotechnical data, current eel grass distribution) for design and permitting. It is anticipated that public review of the MTCA Engineering Design Report for each project phase will be conducted jointly with the public review of the Corps permit submittals. The ~~final~~ compliance monitoring plans will be developed as part of the design process.
- **Phased Duration and Timing of Cleanup Construction:** Because the project phases involves more in-water construction activities than can be completed in a single construction season, multiple construction ~~seasons~~ phases will be required. ~~Cleanup construction will likely take place in three discrete phases.~~ Timing of most in-water work activities will be limited by permit-specified “fish windows” to appropriate time-periods when those activities are least likely to affect migrating juvenile salmonids and other fish/aquatic species. These time limitations will affect the amount of work that can be completed within a given construction season, and particularly affect the overall time required to complete dredging, capping and shoreline restoration activities. Other work does not require in-water activity (e.g., upland sediment staging/transport, ASB sludge removal prior to berm opening, etc.) but is subject to other logistical constraints.

Cleanup construction for the Phase 1 work is ~~reasonably~~ expected to require at least three ~~two~~ construction seasons. ~~phases, spanning a period of approximately 4 years.~~ Cleanup construction for the Phase 2 work is also expected to require at least two construction

~~seasons. The initial construction phase is anticipated to include ASB preparation, completion of contaminated sediment dredging within the Waterway, and initial sediment capping and shoreline stabilization activities within the Waterway area. The second construction phase is anticipated to include ASB sludge removal, dewatering and final ASB cleanout. The final construction phase is anticipated to include opening of the ASB berm, and completion of final dredging and capping activities within the Waterway areas.~~

- **Recording of Institutional Controls:** Restrictive covenants will be recorded upon completion of the active cleanup measures required by the CAP. These controls will remain in place indefinitely unless removal is approved by Ecology.
- **Post-Construction Monitoring:** Post-construction monitoring will be performed as defined in the final Compliance Monitoring and Contingency Response Plan, to be prepared during final design and permitting. As described in Section 67, the monitoring framework anticipates completion of monitoring activities in years 1, 3, 5, 10, 20 and 30 following completion of construction.

The above-described schedule may be affected by the time required for permitting and to complete construction within permit-required “fish windows.” Requests for an extension of schedule in the event of delays will be governed by Section XVI of the Consent Decree.

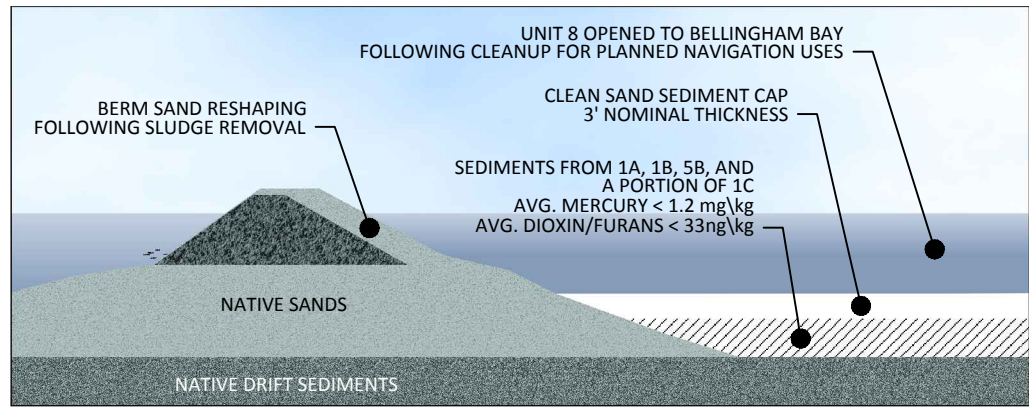
8 References Cited

[No change, except for the following added reference:]

Anchor QEA, 2010. *Pre-Remedial Design Investigation Data Report*. Prepared for the Port of Bellingham.

Figures – First Amendment

Appendix B-1
Estimated Remedial Costs – First Amendment



NOTE: The final cap elevation, composition, and thickness to be determined during engineering design.

CROSS-SECTION A-A'

SLUDGE REMOVAL, DEWATERING AND UPLAND DISPOSAL FOLLOWED BY REMOVAL OF APPROXIMATELY 340,000 CY OF CLEAN SAND. PLACEMENT OF APPROXIMATELY 210,200 CY OF CONTAMINATED SEDIMENT FROM 1A, 1B, 5B, AND A PORTION OF 1C FOLLOWED BY CAPPING AND OPENING OF UNIT 8 TO BELLINGHAM BAY FOR PLANNED NAVIGATION USES.

DREDGE APPROXIMATELY 192,200 CY WITH CONFINED DISPOSAL IN UNIT 8

DREDGE APPROXIMATELY 18,000 CY WITH CONFINED DISPOSAL IN UNIT 8

DREDGE APPROXIMATELY 56,500 CY WITH UPLAND LANDFILL DISPOSAL

PLANNED ACCESS CHANNEL CONNECTING UNIT 8 TO BELLINGHAM BAY FOLLOWING CLEANUP (LOCATION TO BE FINALIZED DURING ENGINEERING DESIGN)

UNIT 1A

UNIT 1B

FEDERAL CHANNEL

UNIT 1C

30-FT DEPTH

LOCALLY-MANAGED MULTI-PURPOSE CHANNEL

22-FT DEPTH

20-FT DEPTH

18-FT DEPTH

18-FT DEPTH

OUTER HARBOR LINE

INNER HARBOR LINE

LEGEND:

- Dredge with confined disposal in Unit 8
- Dredge with upland landfill disposal
- Sludge to be removed
- Outer boundary of Unit 8 confined disposal area
- Existing dock or wharf

SOURCE: Figure 4-6 Cleanup Action Plan, Whatcom Waterway Site, Sept. 2007
 HORIZONTAL DATUM: Washington State Plane North, NAD 83 Feet.
 VERTICAL DATUM: Mean Lower Low Water (MLLW).

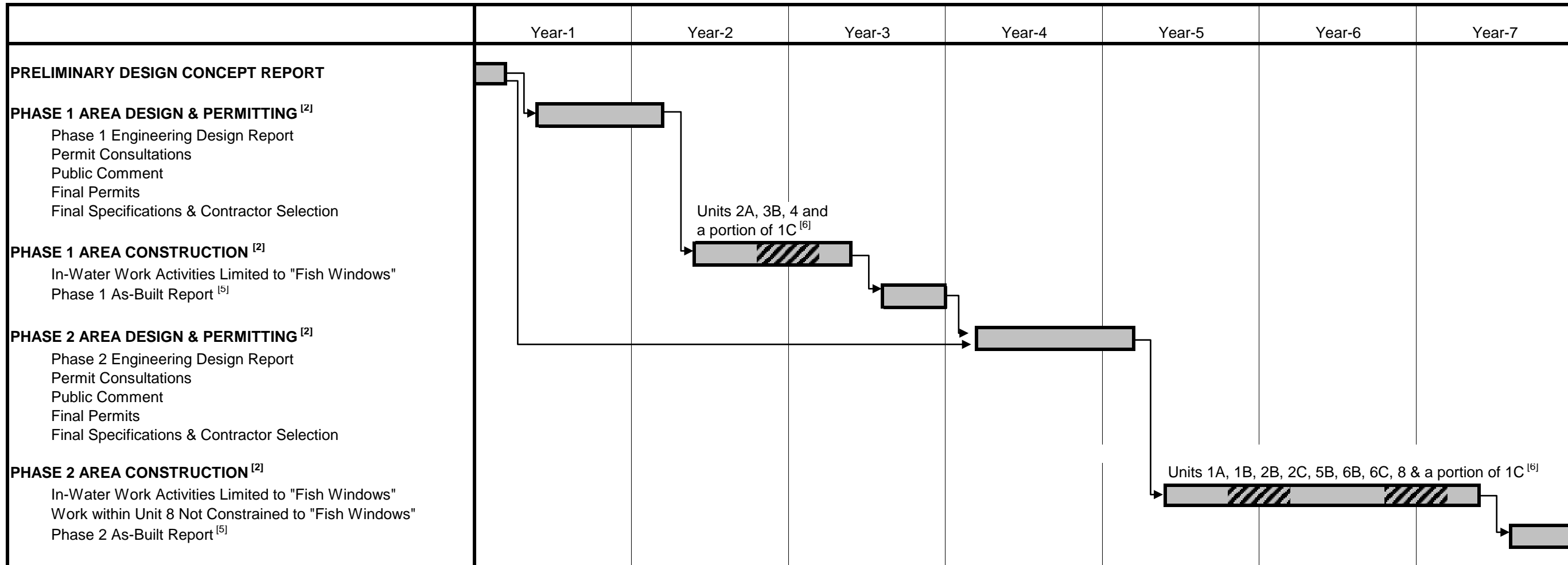


K:\jobs\080007-Whatcom Waterway\08000701\08000701-RP-027.dwg FIG 6-5
 Jan 06, 2011 4:27pm cdavidson





Figure 6-5
 Whatcom Waterway Cleanup Action - First Amendment

Figure 7-2. Implementation Schedule - First Amendment to Cleanup Action Plan ^{[1][4]}



Legend:

 Project Activity

 "Fish Window" ^[3]

- Notes:**
- 1 This figure illustrates the anticipated schedule for design, permitting and construction activities under the First Amendment to the Cleanup Action Plan. Actual duration is subject to change based on time required for permitting, and the construction sequence specified in project permits.
 - 2 The phasing and construction sequence is subject to change based on permit requirements and final design. Each project phase is separate from the other and can be implemented independently.
 - 3 Construction activities within Bellingham Bay surface waters are expected to be limited to appropriate seasonal "fish windows" specified in project permits, to avoid impacts to juvenile salmonids.
 - 4 Long-term monitoring activities are not shown. As described in Section 6, these are expected to include monitoring events 1, 3, 5, 10, 20 and 30 years after completion of construction.
 - 5 Restrictive Covenants to be filed prior to Ecology approval of the as-built report.
 - 6 Units 3A, 5A, 5C, 6A, 7, and 9 are designated for monitored natural recovery. Monitoring will be performed consistent with the Compliance Monitoring and Contingency Response Plan, to be prepared during design and permitting.

APPENDIX B-1. ESTIMATED REMEDIAL COSTS - FIRST AMENDMENT

Summary of Core Dredge Material Management Costs for Units 1A, 1B and a Portion of 1C

Order of Magnitude Estimate of Probable Cost - Preliminary 30% Estimate (2010\$) ¹

	Probable Cost	Contingency	Probable Cost with Contingency
Management of Unit 1A, 1B, and Portion of 1C by Upland Disposal			
Core Dredge Material Management Costs	\$ 20,540,000	\$ 3,033,000	\$ 23,573,000
Management of Unit 1A, 1B, and a Portion of 1C by Confined Disposal within Unit 8			
Core Dredge Material Management Costs	\$ 5,279,338	\$ 1,583,801	\$ 6,863,139

Common Items Not Included in Costs Above: Only costs directly associated with dredge material management, and that are different between the two alternatives are shown. Costs are only shown for management of dredge material from Units 1A, 1B and a portion of 1C. The cost items that are the same or similar between the two alternatives and that are not included above include the following:

- Mobilization & Demobilization costs
- Dredging and materials management costs separate from Units 1A, 1B, and a portion of 1C (the cost for managing the remainder of Unit 1C by upland disposal is not shown above as this cost is the same under both alternatives).
- Capping, excavation backfill and residuals management costs (other than incremental costs associated with confined disposal site)
- Design, permitting and construction management costs
- Monitoring and surveys during construction
- Site preparation costs common to each alternative
- Costs associated with remediation of Unit 8 common to either alternative.

Other Excluded Costs: The costs of excavating clean sand from Unit 8 that is suitable for beneficial reuse are excluded from the above costs since the reuse value of the material within the project (e.g., for capping) offsets the costs to excavate the materials.

Notes:

Refer to attached cost tables for cost details.

1. Costs are presented in 2010\$ without adjustment for future cost escalation.

APPENDIX B-1. ESTIMATED REMEDIAL COSTS - FIRST AMENDMENT

Core Costs - Dredge Units 1A, 1B and a Portion of 1C with Upland Disposal

Order of Magnitude Estimate of Probable Cost - Preliminary 30% Estimate (2010\$) ¹

ITEM	QUANTITY	UNIT	LOWER PROBABLE UNIT COST	PROBABLE UNIT COST	UPPER PROBABLE UNIT COST	LOWER PROBABLE TOTAL COST	PROBABLE TOTAL COST	UPPER PROBABLE TOTAL COST	PROBABLE TOTAL COST	ESTIMATED CONTINGENCY	PROBABLE TOTAL COST WITH CONTINGENCY
Dredging, Offloading, and Disposal (Portion of Unit 1C)											
Dredge and Offload (Portion of Unit 1C)	60,000	CY	\$ 12.00	\$ 14.00	\$ 17.00	\$ 720,000	\$ 840,000	\$ 1,020,000	\$ 840,000	30%	\$ 1,092,000
Rehandle at Stockpile, Load Railcars	101,700	TON	\$ 3.00	\$ 4.00	\$ 5.00	\$ 305,100	\$ 406,800	\$ 508,500	\$ 406,800	30%	\$ 528,840
Transport and Dispose	101,700	TON	\$ 45.00	\$ 50.00	\$ 60.00	\$ 4,576,500	\$ 5,085,000	\$ 6,102,000	\$ 5,085,000	10%	\$ 5,593,500
Unit 1A/1B Dredging, Offloading, and Disposal											
Dredging and Offload	124,400	CY	\$ 12.00	\$ 14.00	\$ 17.00	\$ 1,492,800	\$ 1,741,600	\$ 2,114,800	\$ 1,741,600	30%	\$ 2,264,080
Rehandle at Stockpile, Load Railcars	186,600	TON	\$ 3.00	\$ 4.00	\$ 5.00	\$ 559,800	\$ 746,400	\$ 933,000	\$ 746,400	30%	\$ 970,320
Transport and Dispose	186,600	TON	\$ 45.00	\$ 50.00	\$ 60.00	\$ 8,397,000	\$ 9,330,000	\$ 11,196,000	\$ 9,330,000	10%	\$ 10,263,000
Under-Dock Work (Unit 1C)											
Under-Dock Hydraulic Dredging and Dewatering	7,800	CY	\$ 93.00	\$ 100.00	\$ 137.00	\$ 725,400	\$ 780,000	\$ 1,068,600	\$ 780,000	30%	\$ 1,014,000
Subtotal - Construction											
Sales Tax		8.5%				\$ 16,777,000	\$ 18,930,000	\$ 22,943,000	\$ 18,930,000		\$ 21,726,000
Subtotal Including Sales Tax						\$ 18,203,045	\$ 20,539,050	\$ 24,893,155	\$ 20,539,050	use effective	\$ 23,572,710
Total - Construction						\$ 18,204,000	\$ 20,540,000	\$ 24,894,000	\$ 20,540,000		\$ 23,573,000
Incremental Long-Term Monitoring Costs for Unit 8 ²	1	LS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	30%	\$ -
Total - Non-Construction Costs											
Contingency		PERCENT		15%		\$ -	\$ 3,033,000	\$ -	\$ -		\$ -
CORE DREDGING AND DISPOSAL COSTS (Units 1A, 1B & 1C)						\$ 18,204,000	\$ 23,573,000	\$ 24,894,000	\$ 20,540,000	14.8%	\$ 23,573,000

Common Items Not Included in Costs Above: Only costs directly associated with dredge material management, and that are different between the two alternatives are shown. Costs are only shown for management of dredge material from Units 1A, 1B and a portion of 1C.

The cost items that are the same or similar between the two alternatives and that are not included above include the following:

- Mobilization & Demobilization costs
- Dredging and materials management costs separate from Units 1A, 1B, and a portion of 1C (the cost for managing the remainder of Unit 1C by upland disposal is not shown above as this cost is the same under both alternatives).
- Capping, excavation backfill and residuals management costs (other than incremental costs associated with confined disposal site)
- Design, permitting and construction management costs
- Monitoring and surveys during construction
- Site preparation costs common to each alternative
- Costs associated with remediation of Unit 8 common to either alternative.

Notes:

1. Costs are presented in 2010\$ without adjustment for future cost escalation.
2. The Cleanup Action Plan contains requirements for compliance monitoring that remain active under the First Amendment to the Consent Decree, with the monitoring plan established during engineering design. Monitoring costs that are the same between the alternatives are not shown. Additional monitoring requirements will be associated with the Unit 8 sediment disposal option as shown in page 3.

APPENDIX B-1. ESTIMATED REMEDIAL COSTS - FIRST AMENDMENT

Core Costs - Dredge Units 1A, 1B and a Portion of 1C with Confined Disposal in Unit 8

Order of Magnitude Estimate of Probable Cost - Preliminary 30% Estimate (2010\$) ¹

ITEM	QUANTITY	UNIT	LOWER PROBABLE UNIT COST	PROBABLE UNIT COST	UPPER PROBABLE UNIT COST	LOWER PROBABLE TOTAL COST	PROBABLE TOTAL COST	UPPER PROBABLE TOTAL COST	PROBABLE TOTAL COST	ESTIMATED CONTINGENCY	PROBABLE TOTAL COST WITH CONTINGENCY
Dredging, Offloading, and Disposal (Unit 1C)											
Dredge, Offload and Backfill within ASB (Unit 1C)	60,000	CY	\$ 15.00	\$ 19.00	\$ 24.00	\$ 900,000	\$ 1,140,000	\$ 1,440,000	\$ 1,140,000	30%	\$ 1,482,000
Unit 1A/1B Dredging, Offloading, and Disposal											
Dredging, Offload and Backfill in ASB	124,400	CY	\$ 15.00	\$ 19.00	\$ 24.00	\$ 1,866,000	\$ 2,363,600	\$ 2,985,600	\$ 2,363,600	30%	\$ 3,072,680
Place Thick Cap in ASB (incremental over residuals management placement)											
Place 2 Feet Berm Cutback and Marina Opening Sand	83,200	CY	\$ 4.00	\$ 6.00	\$ 12.00	\$ 332,800	\$ 499,200	\$ 998,400	\$ 499,200	30%	\$ 648,960.00
Under-Dock Work (Unit 1C)											
Under-Dock Hydraulic Dredging, Dewatering, Backfill within ASB	7,800	CY	\$ 93.00	\$ 100.00	\$ 137.00	\$ 725,400	\$ 780,000	\$ 1,068,600	\$ 780,000	30%	\$ 1,014,000
Subtotal - Construction						\$ 3,824,200	\$ 4,782,800	\$ 6,492,600	\$ 4,782,800		\$ 6,217,640
Sales Tax		8.5%				\$ 325,057	\$ 406,538	\$ 551,871	\$ 406,538	use effective	\$ 528,499
Subtotal Including Sales Tax						\$ 4,149,257	\$ 5,189,338	\$ 7,044,471	\$ 5,189,338		\$ 6,746,139
Total - Construction						\$ 4,149,257	\$ 5,189,338	\$ 7,044,471	\$ 5,189,338		\$ 6,746,139
Incremental Long-Term Monitoring Costs for Unit 8 ²	1	LS	\$ 90,000	\$ 90,000	\$ 90,000	\$ 90,000	\$ 90,000	\$ 90,000	\$ 90,000	30%	\$ 117,000
Total - Non-Construction Costs						\$ 90,000	\$ 90,000	\$ 90,000	\$ 90,000		\$ 117,000
Effective Contingency		PERCENT		30%		\$ -	\$ 1,583,801	\$ -	\$ -		
CORE DREDGING AND DISPOSAL COSTS (Units 1A, 1B & 1C)						\$ 4,239,257	\$ 6,863,139	\$ 7,134,471	\$ 5,279,338	30.0%	\$ 6,863,139

Common Items Not Included in Costs Above: Only costs directly associated with dredge material management, and that are different between the two alternatives are shown. Costs are only shown for management of dredge material from Units 1A, 1B and a portion of 1C. The cost items that are the same or similar between the two alternatives and that are not included above include the following:

- Mobilization & Demobilization costs
- Dredging and materials management costs separate from Units 1A, 1B, and a portion of 1C (the cost for managing the remainder of Unit 1C by upland disposal is not shown above as it this cost is the same under both alternatives).
- Capping, excavation backfill and residuals management costs (other than incremental costs associated with confined disposal site)
- Design, permitting and construction management costs
- Monitoring and surveys during construction
- Site preparation costs common to each alternative
- Costs associated with remediation of Unit 8 common to either alternative.

Other Excluded Costs: The costs of excavating clean sand from Unit 8 that is suitable for beneficial reuse are excluded from the above costs since the reuse value of the material within the project (e.g., for capping) offsets the costs to excavate the materials.

- Notes:**
1. Costs are presented in 2010\$ without adjustment for future cost escalation.
 2. Sediment compliance monitoring will be extended into Unit 8 to monitor the performance of the cap over the sediment disposal site. The monitoring plan will be established during engineering design. Only incremental monitoring costs associated with the expansion of monitoring into Unit 8 are shown above (other project monitoring costs do not change). Costs shown above assume implementation of monitoring events at 1, 3, 5, 10, 20 and 30 years after completion of remedy construction, with a current incremental cost of \$15,000 per event.

APPENDIX B-1. ESTIMATED REMEDIAL COSTS - FIRST AMENDMENT

Unit 5B - Dredge with Confined Disposal in Unit 8

Order of Magnitude Estimate of Probable Cost - Preliminary 30% Estimate (2010\$)¹

ITEM	QUANTITY	UNIT	LOWER PROBABLE UNIT COST	PROBABLE UNIT COST	UPPER PROBABLE UNIT COST	LOWER PROBABLE TOTAL COST	PROBABLE TOTAL COST	UPPER PROBABLE TOTAL COST	PROBABLE TOTAL COST	ESTIMATED CONTINGENCY	PROBABLE TOTAL COST WITH CONTINGENCY
Unit 5B Dredge and Backfill											
Dredge, Offload and Backfill within ASB	18,000	CY	\$ 15.00	\$ 19.00	\$ 24.00	\$ 270,000	\$ 342,000	\$ 432,000	\$ 342,000	30%	\$ 444,600
Load ASB Reuse Deep Sands onto Barge	18,000	CY	\$ 2.00	\$ 4.00	\$ 6.00	\$ 36,000	\$ 72,000	\$ 108,000	\$ 72,000	30%	\$ 93,600
Place Clean Backfill Material within Unit 5B	18,000	CY	\$ 11.00	\$ 13.00	\$ 15.00	\$ 198,000	\$ 234,000	\$ 270,000	\$ 234,000	20%	\$ 280,800
Subtotal - Construction						\$ 504,000	\$ 648,000	\$ 810,000	\$ 648,000		\$ 819,000
Sales Tax		8.5%				\$ 42,840	\$ 55,080	\$ 68,850	\$ 55,080	use effective	\$ 69,615
Subtotal Including Sales Tax						\$ 546,840	\$ 703,080	\$ 878,850	\$ 703,080		\$ 888,615
Total - Construction						\$ 546,840	\$ 703,080	\$ 878,850	\$ 703,080		\$ 888,615
Effective Contingency		PERCENT		26%		\$ -	\$ 185,535	\$ -	\$ -		
CORE DREDGING AND DISPOSAL COSTS (Unit 5B)						\$ 546,840	\$ 888,615	\$ 878,850	\$ 703,080	26.4%	\$ 888,615

Unit 5B - Partial Dredge with Upland Disposal and Capping²

Order of Magnitude Estimate of Probable Cost - Preliminary 30% Estimate (2010\$)

ITEM	QUANTITY	UNIT	LOWER PROBABLE UNIT COST	PROBABLE UNIT COST	UPPER PROBABLE UNIT COST	LOWER PROBABLE TOTAL COST	PROBABLE TOTAL COST	UPPER PROBABLE TOTAL COST	PROBABLE TOTAL COST	ESTIMATED CONTINGENCY	PROBABLE TOTAL COST WITH CONTINGENCY
Dredging and Disposal											
Dredge and Offload	2,300	CY	\$ 12.00	\$ 14.00	\$ 17.00	\$ 27,600	\$ 32,200	\$ 39,100	\$ 32,200	30%	\$ 41,860
Rehandle at Stockpile, Load Railcars	3,450	TON	\$ 3.00	\$ 3.00	\$ 4.00	\$ 10,350	\$ 10,350	\$ 13,800	\$ 10,350	30%	\$ 13,455
Transport, Dispose Subtitle D Landfill	3,450	TON	\$ 45.00	\$ 52.00	\$ 60.00	\$ 155,250	\$ 179,400	\$ 207,000	\$ 179,400	10%	\$ 197,340
Capping											
Purchase and Transport Cap Material	15,000	TON	\$ 10.00	\$ 11.00	\$ 18.50	\$ 150,000	\$ 165,000	\$ 277,500	\$ 165,000	30%	\$ 214,500
Purchase and Transport Armor Material	34,080	TON	\$ 19.00	\$ 21.00	\$ 23.00	\$ 647,520	\$ 715,680	\$ 783,840	\$ 715,680	30%	\$ 930,384
Load Material onto Barges	10,000	CY	\$ 2.00	\$ 2.00	\$ 3.00	\$ 20,000	\$ 20,000	\$ 30,000	\$ 20,000	30%	\$ 26,000
Place Cap Material	10,000	CY	\$ 11.00	\$ 13.00	\$ 15.00	\$ 110,000	\$ 130,000	\$ 150,000	\$ 130,000	30%	\$ 169,000
Place Armor Material	21,300	CY	\$ 14.00	\$ 18.00	\$ 22.00	\$ 298,200	\$ 383,400	\$ 468,600	\$ 383,400	30%	\$ 498,420
Subtotal - Construction						\$ 1,418,920	\$ 1,636,030	\$ 1,969,840	\$ 1,636,030		\$ 2,090,959
Sales Tax		8.5%				\$ 120,608	\$ 139,063	\$ 167,436	\$ 139,063	use effective	\$ 177,732
Subtotal Including Sales Tax						\$ 1,539,528	\$ 1,775,093	\$ 2,137,276	\$ 1,775,093		\$ 2,268,691
Total - Construction						\$ 1,539,528	\$ 1,775,093	\$ 2,137,276	\$ 1,775,093		\$ 2,268,691
Effective Contingency		PERCENT		28%		\$ -	\$ 493,598	\$ -	\$ -		
CORE DREDGING AND DISPOSAL COSTS (Unit 5B)						\$ 1,539,528	\$ 2,268,691	\$ 2,137,276	\$ 1,775,093	27.8%	\$ 2,268,691

Common Items Not Included in Costs Above: Only costs directly associated with the remediation of Unit 5B sediments and that are different between the two alternatives are shown. The cost items that are the same or similar between the two alternatives and that are not included above include the following:

- Costs for remediation of areas other than Unit 5B.
- Mobilization & Demobilization costs
- Development, capping and monitoring of the disposal site within Unit 8 (costs are shown on page 3)
- Design, permitting and construction management costs
- Monitoring and surveys during construction

Other Excluded Costs: For the Unit 8 disposal option, the costs associated with capping and monitoring Unit 5B materials disposed in Unit 8 are excluded since these costs are already part of the Unit 8 disposal costs detailed on Page 3.

Notes:

1. Costs are presented in 2010\$ without adjustment for future cost escalation.
2. Required cleanup action under original cleanup action plan.

Exhibit 2
First Amendment to
Consent Decree Re: Whatcom
Waterway Site, Bellingham, WA

First Amendment to EXHIBIT C
Schedule of Work and Deliverables

SCHEDULE OF WORK AND DELIVERABLES

Written Notification to Ecology of selected contractor name and qualifications	Within 45 days of the Effective Date of the Consent Decree. (Completed)
Draft Project Plans for Pre-Design Investigation ^[1]	Within 90 days of the Effective Date of the Consent Decree. (Completed)
Final Project Plans for Pre-Design Investigation	Within 30 days of Receipt of Ecology's comments on the Draft Project Plans. (Completed)
Pre-Design Investigation Report	Within 270 days of Submittal to Ecology of the Final Project Plans unless Ecology approves an alternate schedule. (Completed)
Preliminary Design Concept Report	Within 120 days of the Effective Date of the First Amendment to the CD
Ecology Review Draft Phase 1 Engineering Design Report ^[2]	Within 150 days of receipt of Ecology's written comments on the Preliminary Design Concept Report
Public Review Draft of Phase 1 Engineering Design Report	Within 60 days of receipt of Ecology's comments on the Ecology Review Draft
Final Draft Phase 1 Engineering Design Report	Within 90 days of receipt of Ecology's comments on the Phase 1 Public Review Draft, following public review, and issuance of final permits (whichever occurs later in time)
Final Phase 1 Engineering Design Report	Within 30 days of receipt of Ecology's comments on the Final Draft Phase 1 Engineering Design Report.
Begin Construction of Phase 1 of the Cleanup Action	Construction to begin within 1 year of Ecology approval of Final Phase 1 Engineering Design Report unless Ecology approves an alternate schedule. Construction schedule to be consistent with Ecology-approved Final Phase 1 Engineering Design Report.
Draft Institutional Controls Plan (IC Plan) including proposed Restrictive Covenants	At completion of the active cleanup measures required by the CAP
Final IC Plan, Implement IC Plan and Record Restrictive Covenants	Within 60 days of receipt of Ecology comments on Draft IC Plan and proposed Restrictive Covenants
Phase 1 As-Built Report to Ecology	Within 120 days of completion of Phase 1 construction activities.
Phase 1 Completion Letter	Provided by Ecology upon approval of Phase 1 As-Built Report
Ecology Review Draft of Phase 2 Engineering Design Report ^[2]	Within 270 days of Ecology written approval of the Phase 1 As-Built Report
Public Review Draft Phase 2 Engineering Design Report	Within 60 days of receipt of Ecology's comments on the Ecology Review Draft

Final Draft Phase 2 Engineering Design Report	Within 90 days of receipt of Ecology's comments on the Public Review Draft, following public review, and issuance of final permits (whichever occurs later in time).
Final Phase 2 Engineering Design Report	Within 30 days of receipt of Ecology's comments on the Final Draft Engineering Design Report.
Begin Construction of Phase 2 of the Cleanup Action	Construction to begin within 1 year of Final Phase 2 Engineering Design Report submitted to Ecology approves an alternate schedule. Construction schedule to be consistent with Ecology-approved Final Phase 2 Engineering Design Report.
Draft Institutional Controls Plan (IC Plan) including proposed Restrictive Covenants	At completion of the active cleanup measures required by the CAP
Final IC Plan, Implement IC Plan and Record Restrictive Covenants	Within 60 days of receipt of Ecology comments on Draft IC Plan and proposed Restrictive Covenants
Phase 2 As-Built Report to Ecology	Within 120 days of completion of construction activities.
Phase 2 Completion Letter	Provided by Ecology upon approval of Phase 2 As-Built Report

1. Project Plans include the following: Work Plan, Sampling and Analysis Plan, Quality Assurance Project Plan, and Health and Safety Plan. Ecology will not approve the Health and Safety Plan, however it must be submitted for Ecology review and comment. All Plans will include a schedule for implementation, as applicable.
2. Phase 1 and Phase 2 Engineering Design Reports to include a Construction Quality Assurance Project Plan and a Compliance Monitoring and Contingency Response Plan. Each Engineering Design Report will include a schedule for implementation of all work, as applicable. Ecology will not approve the Final Engineering Design Report until the required permits have been obtained.