STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
King County, Washington	No. DE 5068

TO: King County
Department of Natural Resources,
Wastewater Treatment Division
King Street Center
201 South Jackson Street
Seattle, WA 98104-3855

TABLE OF CONTENTS

I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and King County, through its Wastewater Treatment Division (King County), under this Agreed Order (Order) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Order requires King Count to conduct an interim action at the Denny Way Combined Sewer Overflow (CSO) Site to remediate contaminated sediments present in two nearshore areas next to a city park and an existing sediment cap in the immediate vicinity of the former Denny Way CSO outfall that currently exceed Sediment Quality Standards (SQS) chemical criteria. Ecology believes the actions required by this Order are in the public interest.

II. JURISDICTION

This Agreed Order is issued pursuant to the Model Toxics Control Act (MTCA), RCW 70.105D.050(1).

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such party to comply with this Order. King County agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter King County's responsibility under this Order. King County shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms in this Order.

A. Site: The Site is referred to as the Denny Way CSO Site and is generally located at 3165 Alaskan Way, Seattle, Washington. The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. The Site is more particularly described in the Site Diagram (Exhibit A). The Site constitutes a Facility under RCW 70.105D.020(4).

B. Parties: Refers to the State of Washington, Department of Ecology and King County.

C. Agreed Order or Order: Refers to this Order and each of the exhibits to this Order. All exhibits are integral and enforceable parts of this Order. The terms “Agreed Order” or “Order” shall include all exhibits to this Order.

V. FINDINGS OF FACT

The Department of Ecology (hereinafter “Ecology”) makes the following Findings of Fact, without admission of such facts by King County.

The Denny Way Combined Sewer Overflow ("CSO") Site ("the Site") encompasses property owned by the State of Washington and managed by the Washington Department of Natural Resources ("DNR"). The DNR has provided an easement for a portion of state-owned aquatic lands to King County for the operation of the Denny Way/Lake Union CSO outfall.

The Denny Way CSO was constructed in the 1960s, and until 2002 the discharge point was at the shoreline. This outfall was previously exposed during normal low tide and discharged directly across the beach. Upgrades to the system completed by King County in 2005significantly reduced the discharge of wastewater from the CSO and included extensions of the outfall into deeper water.

In 1990, King County and the U.S. Army Corps of Engineers sponsored the Denny Way CSO capping project to test the feasibility of capping contaminated sediments. A 3-foot layer of clean dredged sand was placed over a 3-acre area of the Site. For the past 15 years, King County has monitored the effectiveness of the Site cap at containing contaminated sediment.

A 1997 study performed by King County characterized surface and subsurface sediment contamination at the Site, both inshore and offshore of the existing sediment cap. Based on these and other sampling data, hazardous substances found at the Site include, but are not limited to, cadmium, copper, lead, mercury, silver, polychlorinated biphenyls ("PCBs"), polycyclic aromatic hydrocarbons ("PAHs"), bis(2-ethylhexyl)phthalate, and butyl benzyl phthalate. Sources of releases include the historical Denny Way CSO outfall from King County facilities.

In order to protect human health and the environment and to prevent the release or threatened release of hazardous substances from the Site, an interim action is necessary to eliminate or substantially reduce pathways for exposure to hazardous substances on the portion of the site north of the new outfall pipe, located inshore of the existing cap up to the shoreline.

Ecology has not performed a Potentially Liable Party search for the Site. Additional parties may be potentially liable for releases and contamination at the Site.

VI. ECOLOGY DETERMINATIONS

A. King County is an "owner or operator" as defined in RCW 70.105D.020(12) of a "facility" as defined in RCW 70.105D.020(4).

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(20) and RCW 70.105D.020(7), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a PLP status letter to King County dated June 19, 2007, pursuant to RCW 70.105D.040, -.020(16) and WAC 173-340-500. King County voluntarily waived its rights to notice and comment and accepted Ecology's determination that King County is a PLP under RCW 70.105D.040.

D. Pursuant to RCW 70.105D.030(1) and -.050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

E. Under WAC 173-340-430, an interim action is a remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially

reducing one or more pathways for exposure to a hazardous substance, that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed, or that is needed to provide for completion of a site hazard assessment, remedial investigation/feasibility study or design of a cleanup action. This interim action will remediate contaminated sediments present in two nearshore areas next to a city park and an existing sediment cap in the immediate vicinity of the former Denny Way CSO outfall that currently exceed Sediment Quality Standards (SQS) chemical criteria. The action is warranted, consistent with WAC 173-340-430, because it is necessary to reduce a threat to human health and the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance. The proposed interim action will include disposal of dredged materials, capping, armoring, post-dredging confirmation sampling and baseline sediment condition survey at the project area. Detailed descriptions for all the remedial efforts King County proposes in this stage can be found in Exhibit B – Statement of Work.

F. Under WAC 173-204, a ten-year monitoring event will be implemented at the nearshore and offshore sediment caps at the site after the completion of this sediment dredging project. Based on the evaluation for the sediment quality and the cap conditions at the end of the monitoring period, Ecology will determine if further cleanup action is necessary.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that King County take the following remedial actions at the Site and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein:

A. King County will conduct the Interim Remedial Action at the Site in accordance with WAC 173-340-350 and Chapter 173-204 WAC and within the attached Scope of Work (Exhibit B). Exhibit B is incorporated by reference and is an integral and enforceable part of this Order.

B. The schedule of performance and list of deliverables is described in Section VII of Exhibit B.

C. If, at any time after the first exchange of comments on drafts, Ecology determines that insufficient progress is being made in the preparation of any of the deliverables required by this Section, Ecology may complete and issue the final deliverable.

VIII. TERMS AND CONDITIONS OF ORDER

A. Public Notice

RCW 70.105D.030(2)(a) requires that, at a minimum, this Order be subject to concurrent public notice. Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that this Order is inadequate or improper in any respect.

B. Remedial Action Costs

King County shall pay to Ecology costs incurred by Ecology pursuant to this Order and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under Chapter 70.105D RCW, including remedial actions and Order preparation,

negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the issuance of this Order. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). King County shall pay the required amount within ninety (90) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to paragraph VIII.J. (Dispute Resolution), King County may dispute any itemized billing statements. Failure to Pay Ecology's uncontested costs and costs for which a final decision has been issued under the Dispute Resolution process with 90 days of receipt of the itemized statement of costs or the date of the Dispute Resolution final decision will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

C. Implementation of Remedial Action

If Ecology determines that King County has failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to King County, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of King County's failure to comply with its obligations under this Order, King County shall reimburse Ecology for the costs of doing such work in accordance with Section VIII. B (Remedial Action Costs) provided that King County is not obligated under this Section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Order.

Except where necessary to abate an emergency situation, King County shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

D. Designated Project Coordinators

The project coordinator for Ecology is:

Grant Yang
Ecology, NWRO
3190 160th Ave., SE
Bellevue, WA 98008
425-649-7126

The project coordinator for King County is:

John Phillips
201 S. Jackson St KSC-NR-0512
Seattle, WA 98104
206-263-6543

Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and King County, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The

project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Decree.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

E. Performance

All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction, as necessary, of a geologist licensed in the State of Washington or under the direct supervision of an engineer registered in the State of Washington, except as otherwise provided for by Chapters 18.220 and 18.43 RCW.

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic or engineering work shall be under the seal of an appropriately licensed professional as required by Chapter 18.220 RCW or RCW 18.43.130.

King County shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), contractor(s) and subcontractor(s), and others to be used in carrying out the terms of this Order, in advance of their involvement at the Site.

F. Access

Ecology or any Ecology authorized representative shall have the full authority to enter and freely move about all property at the Site that King County either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing King County ’s progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by King County. King County shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by King County where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by King County unless an emergency prevents such notice. All persons who access the Site pursuant to this Section shall comply with any applicable Health and Safety Plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

G. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, King County shall make the results of all sampling, laboratory reports/test results and field records generated by it or on its behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats (i.e., Ecology's Sediment Quality Information System – SEDQUAL) in accordance with Section VII (Work to be Performed), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, King County shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by King County pursuant to implementation of this Order. King County shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow King County and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII.F (Access), Ecology shall notify King County prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under Chapter 173-50 WAC for the specific analyses to be conducted, unless otherwise approved by Ecology.

H. Public Participation

A Public Participation Plan is required for this Site. Ecology shall review any existing Public Participation Plan to determine its continued appropriateness and whether it requires amendment, or if no plan exists, Ecology shall develop a Public Participation Plan alone or in conjunction with King County.

Ecology shall maintain the responsibility for public participation at the Site. However, King County shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop appropriate mailing list, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

2. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify King County prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by King County that do not receive prior Ecology approval, King County shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

3. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions or as a presenter.

4. When requested by Ecology, arrange and/or continue information repositories to be located at the following locations:

a. Seattle Public Library
Central Library, 100 Fourth Avenue
Seattle, WA 98104

b. Ecology's NW Regional Office
Central File Room
3190 160th Ave., S.E.
Bellevue, WA 98008

At a minimum, copies of all public notices, fact sheets, and press releases; all quality assured monitoring data; remedial action plans and reports, supplemental remedial planning documents, and all other similar documents relating to performance of the remedial action required by this Order shall be promptly placed in these repositories.

I. Retention of Records

During the pendency of this Order, and for ten (10) years from the date of completion of work performed pursuant to this Order, King County shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, King County shall make all records available to Ecology and allow access for review within a reasonable time.

J. Resolution of Disputes

1. In the event a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement under Section VIII.B (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

a. Upon receipt of Ecology’s project coordinator's written decision or the itemized billing statement, King County has fourteen (14) days within which to notify Ecology's project coordinator in writing of its objection to the decision or itemized statement.

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

c. King County may then request regional management review of the decision. This request shall be submitted in writing to the Northwest Region Toxics Cleanup Section Manager within seven (7) days of receipt of Ecology's project coordinator's written decision.

d. The Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of King County's request for review. The Section Manager's decision shall be Ecology's final decision on the disputed matter.

2. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

K. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

a. The deadline that is sought to be extended;

b. The length of the extension sought;

c. The reason(s) for the extension; and

d. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on King County to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of King County including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by King County;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

c. Endangerment as described in Section VIII.M (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of King County.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give King County written notification of any extensions granted pursuant to this Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a substantial change, it shall not be necessary to amend this Order pursuant to Section VIII.L (Amendment of Order) when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner;

b. Other circumstances deemed exceptional or extraordinary by Ecology; or

c. Endangerment as described in Section VIII.M (Endangerment).

L. Amendment of Order

The project coordinators may verbally agree to minor changes to the work to be performed without formally amending this Order. Minor changes will be documented in writing by Ecology within seven (7) days of verbal agreement.

Except as provided in Section VIII.N (Reservation of Rights), substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of both Ecology and King County. King County shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to this Order represents a substantial change, Ecology will provide public notice and opportunity to comment. Reasons for the disapproval of a proposed amendment to this Order shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII.J (Resolution of Disputes).

M. Endangerment

In the event Ecology determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct King County to cease such activities for such period of time as it deems necessary to abate the danger. King County shall immediately comply with such direction.

In the event King County determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment, King County may cease such activities. King County shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction King County shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with King County's cessation of activities, it may direct King County to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to Section VIII.M (Endangerment), King County's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in accordance with Section VIII.K (Extension of Schedule) for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

N. Reservation of Rights

This Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any of Ecology's rights or authority. Ecology will not, however, bring an action against King County to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against King County regarding remedial actions required by this Order, provided King County complies with this Order.

Ecology nevertheless reserves its rights under Chapter 70.105D RCW, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

O. Transfer of Interest in Property

For the duration of this Order, no voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by King County without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to King County's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, King County shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, King County shall notify Ecology of said transfer. Upon transfer of any interest, King County shall restrict uses and activities to those consistent with this Order and notify all transferees of the restrictions on the use of the property.

P. Compliance with Applicable Laws

1. All actions carried out by King County pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090. The permits or specific federal, state or local requirements that the agency has determined are applicable and that are known at the time of entry of this Order have been identified in Section V of Exhibit C.

2. Pursuant to RCW 70.105D.090(1), King County is exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals. However, King County shall comply with the substantive requirements of such permits or approvals. The exempt permits or approvals and the applicable substantive requirements of those permits or approvals, as they are known at the time of entry of this Order, have been identified in Exhibit C.

King County has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or King County determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or King County shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, King County shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by King County and on how King County must meet those requirements. Ecology shall inform King County in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. King County shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

3. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the State to administer any federal law, the exemption shall not apply and King County shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

Q. Indemnification

King County agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property to the extent arising from or on account of acts or omissions of King County, its officers, employees, agents, or contractors in entering into and implementing this Order. However, King County shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing this Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon King County's receipt of written notification from Ecology that King County has completed the remedial activity required by this Order, as amended by any modifications, and that King County has complied with all other provisions of this Agreed Order.

X. ENFORCEMENT

Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site.

C. In the event King County refuses, without sufficient cause, to comply with any term of this Order, King County will be liable for:

a. Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply; and

b. Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

Effective date of this Order: NOVEMBER 19, 2007

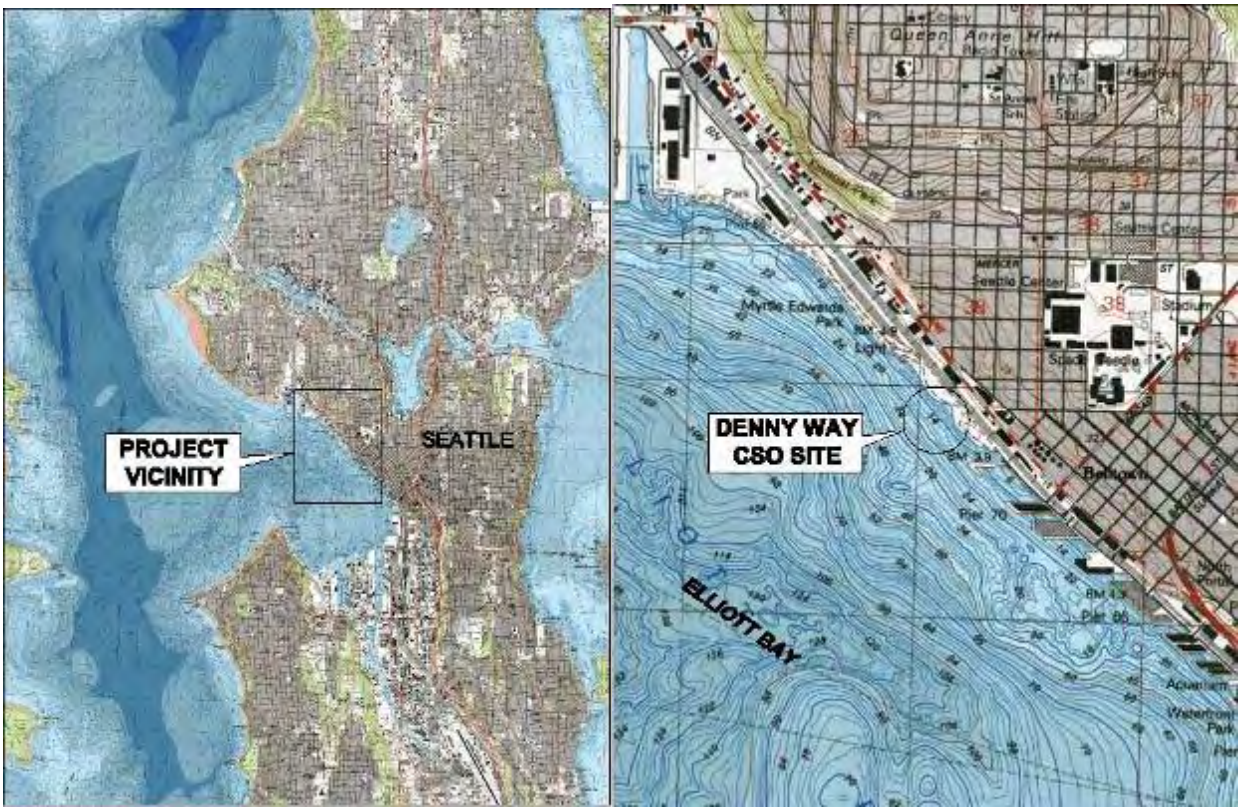
KING COUNTY
Department of Natural Resources
Wastewater Treatment Division

Christie True
Division Director
Telephone: 206-684-1280

STATE OF WASHINGTON,
DEPARTMENT OF ECOLOGY

Robert W. Warren
Section Manager
Toxics Cleanup Program
Northwest Regional Office
Telephone: 425-649-7054

EXHIBIT A
DENNY WAY INTERIM ACTION SITE VICINITY AND PROJECT PLAN



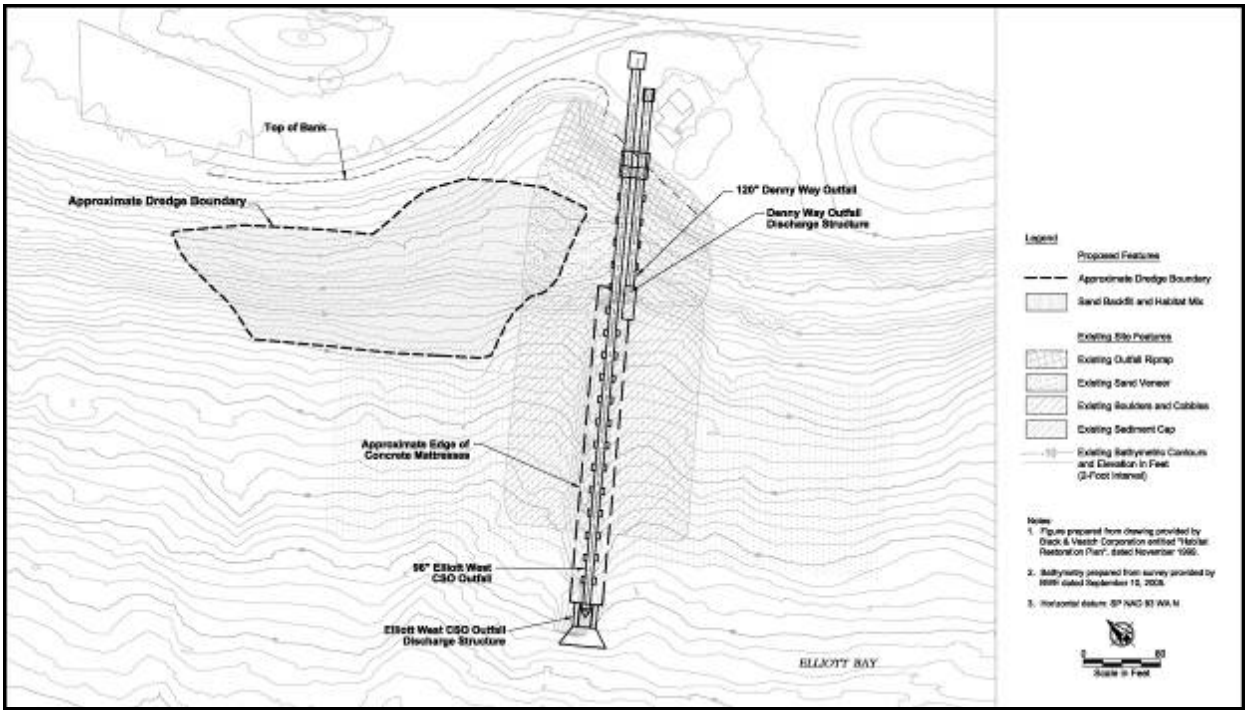


EXHIBIT B - STATEMENT OF WORK
INTERIM REMEDIAL ACTION
DENNY WAY CSO SITE, SEATTLE, WASHINGTON

TABLE OF CONTENTS

I. PURPOSE

The purpose of this statement of work (SOW) is to describe the work that will be conducted to implement an interim action at the Denny Way Combined Sewer Overflow (CSO) Site. The Denny Way CSO is located along the northeastern shoreline of Elliott Bay and is adjacent to Myrtle Edwards Park at the foot of Denny Way (the Site; Figure 1). This Interim Action SOW for the Site implements the Agreed Order entered into by Ecology and King County, to which this SOW is Exhibit B.

This SOW presents a concise narrative discussion of the action, performance standards and the work that will be performed.

II. INTRODUCTION

A. Background

The Denny Way CSO was constructed in the 1960s when the Municipality of Metropolitan Seattle (Metro; now King County) built the present system of interceptors and treatment plants that collect, transport, and treat wastewater in the greater Seattle area. Previous to that period, it was a raw sewage and stormwater discharge. Until 2002, the discharge point of the Denny Way CSO was at the shoreline. This outfall was exposed during normal low tide and frequently discharged directly across exposed intertidal sediment. The Denny Way/Lake Union construction project completed by King County in 2005 significantly reduced the discharge of wastewater from the CSO. In 2002, as part of that project, the primary discharge point was moved offshore to a depth of approximately -60 feet mean lower low water (MLLW). A secondary overflow discharge, located just south of the primary discharge point, was also constructed in 2002 and discharges at approximately -15 feet MLLW.

The Denny Way CSO interim action will remediate contaminated sediments present in two nearshore areas (Areas A and B) in the immediate vicinity of the former Denny Way CSO outfall that currently exceed Sediment Quality Standards (SQS) chemical criteria. Work areas are located immediately offshore of Myrtle Edwards Park and occur between elevations of approximately +10 feet to -30 feet mean lower low water (MLLW). A combination of dredging, backfilling, and armoring will be employed to remediate the nearshore areas. In addition, beneficial in-water kelp substrate will be incorporated into the sediment remediation activities at the Site.

King County issued a Determination of Non-Significance (DNS) under the State Environmental Policy Act for the proposed interim action on May 8, 2007. The DNS was completed on May 25, 2007.

B. Rationale for the Interim Action

As described in the following paragraphs, the purpose of the interim action at the Denny Way CSO Site is to remediate contaminated sediments, restore habitat and, to the extent practicable, beneficially reuse clean dredge materials.

The proposed interim action will achieve cleanup standards through dredging to the extent practicable of contaminated sediments within inshore areas of the Site, reducing the threat to human health and the environment, including the offshore exciting sediment cap, by eliminating exposure pathways. Dredging will occur between depths of approximately +10 feet to -35 feet MLLW. Immediately following dredging, the area will be backfilled with clean sand and gravel to restore pre-project bathymetric conditions. Quality of the clean backfilling materials will be gauged by Ecology's SQS and/or the DMMP open-water disposal criteria.

Nearshore zones of Elliott Bay, including the Site area, have been identified as important estuarine habitat restoration areas. The interim action will be designed to avoid habitat impacts by backfilling the dredge areas with more than 10 feet of clean material to return the areas as close to their original elevations as possible. The backfill area will be armored with gravel to restore the site to its current condition and provide protection from wave action and erosion. The overall design of the interim action is expected to help restore critical habitat in this area.

The Denny Way CSO Site interim remedial action may also consider beneficially reusing clean maintenance dredging sediments if the materials are available at the time. In the absence of this project, clean sediments dredged as a result of separate U.S. Army Corps of Engineers (Corps) maintenance of this federal channel would be disposed (without beneficial reuse) at the PSDDA open-water disposal site in Elliott Bay. The proposed project will allow for the beneficial reuse of a portion of the dredged materials, thus significantly reducing the amount of material that would otherwise be placed at the open-water, unconfined disposal site. The proposed project schedule has been developed with the Corps to ensure effective coordination of these efforts.

III. EXISTING CONDITIONS

In 1990, King County and the Corps sponsored the Denny Way CSO capping project to test the feasibility of capping contaminated sediments in Elliott Bay with clean dredged material from the Duwamish Waterway. A 3-foot layer of clean sand, dredged from the upper Duwamish Waterway during routine maintenance, was placed over a 3-acre area in water depths ranging from approximately -25 feet to -60 feet MLLW. King County has monitored the effectiveness of the cap at containing contaminated sediment for the past 15 years. Results show that the cap is stable, is not eroding, and has successfully isolated the underlying contaminated sediments. However, chemical concentrations on several locations of the cap(offshore of the Denny Way CSO, identified as Areas C, D and E)) increased after cap construction, suggesting possible recontamination from the continued CSO discharges from Denny Way, or potential redistribution of remaining contaminated sediments from the intertidal area and the inshore edge of the cap.

In 1997, King County characterized the nature and extent of surface and subsurface sediment contamination in the outfall area, as well as areas inshore and offshore of the existing sediment cap. Areas of concern that exceeded SQS chemical criteria were identified. Monitored natural recovery is a prospective cleanup remedy for the offshore areas. These areas will continue to be evaluated by Ecology and King County to determine if a more active cleanup remedy is required.

Sediments sampled within inshore areas of the Site contain elevated concentrations of cadmium, copper, lead, mercury, silver, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), bis(2-ethylhexyl)phthalate, and butyl benzyl phthalate. The sediment characterization data revealed that contaminant concentrations above SQS chemical criteria were present to a depth of approximately 10 feet below the existing mudline. Unlike offshore areas of the Site, natural recovery

rates with the inshore sediment areas appeared to be progressing relatively slowly. In order to accelerate cleanup of the Site and minimize the risk of future recontamination to other Site areas, including the offshore cap, the interim action for the Site described in this SOW includes dredging as practicable to remove impacted sediments, and backfill to restore the grade to close to pre-project conditions.

IV. DESCRIPTION OF THE INTERIM ACTION

The Denny Way CSO Site interim action will remediate contaminated sediments and restore nearshore habitat. This will be accomplished through a combination of dredging and backfilling. The specifics of the interim action are described below.

Approximately 20,000 cubic yards (cy) of contaminated sediments will be dredged from roughly +10 feet MLLW to approximately -35 feet MLLW within the 1-acre interim action area. The material within the dredge footprint will be mechanically dredged using a clamshell bucket deployed from a derrick barge. Subsurface core data available for interim action area show SQS exceedances extending to a depth of 10 feet below the mudline. Dredging will remove up to 10 feet of sediment (including a 1-foot overdredge allowance) to ensure the contaminated material is removed to the extent possible.

A sloping dredge cut approximately 10 feet thick will be needed to reach the vertical limit of the dredge prism to remove the maximum practicable volume. Deeper dredging would require removal of large areas of the existing upland shoreline, which is not considered practicable without adverse impact on the Myrtle Edwards Park shoreline. The southern boundary of the project is constrained by the presence of the existing outfall structures (and armoring) and the dredge prism will be offset to avoid impacting these features. Therefore, some material may necessarily be left behind at depth after dredging because deeper dredge cuts would destabilize shoreline banks, the outfall structure, and the existing sediment cap located offshore.

Dredged material will initially be placed on a barge stationed adjacent to the derrick. The sediments placed on the barge will be passively dewatered; the dewatering area on the barge will be contained in a filtration system, such as straw bales and geotextile material. Conservation measures will be in place to ensure water quality standards are met and that no material falls back into the water during transport.

The dredged material will be transported to the upland staging and rehandling area in a regional location provided by the contractor. The material will be fully contained within the barges transporting the material during transportation to the upland facility.

At the upland staging area, the sediments will be transferred from the barge and allowed to further dewater if necessary prior to disposal. To prevent dredged material from falling back into the water, a solid barrier “spill plate” will be placed between the upland facility and the material barge during all offloading activities. The sediment will be contained within ecology blocks, straw bales, or other appropriate containment materials. All water collected within the containment area will be pumped into a large storage tank. The dredged material will be loaded directly into sealed trucks and/or rail cars for shipment to an approved (RCRA Subtitle D) upland disposal site.

Following the completion of dredging operations, sediment grab and core samples will be collected by King County adjacent to the dredged areas to document post-dredge sediment quality conditions in the project area. Sediment backfill operations will commence immediately after collection of the

post-dredge samples, given the protective design of the backfill layer. Working with Ecology, King County will also perform post-backfill sediment quality sampling in the interim action area. Contingency cover placement will be determined based on post-backfilling monitoring results, and areas that do not meet SQS chemical criteria will be covered with a minimum 6-inch layer of clean sand. The selected areas to be covered will be determined by Ecology in consultation with King County. King County will continue on going sediment sampling at this location under the Biological Opinion for the Denny Way /Lake Union CSO Project dated June 19, 2000.

Habitat impacts will be avoided by backfilling the dredge areas with clean material to return the areas as close to their original elevations as possible. Clean material used for these purposes will be obtained locally and brought into the project area on barges. Beneficial reuse of maintenance dredge material is a priority for the region. The Corps is planning to dredge approximately 66,000 cy of sediment ranked "low moderate" from the Duwamish River Turning Basin and has identified this area as a good source of beneficial use material (e.g., backfilling) and suitable for open water disposal. Therefore, subject to timing and contractual agreements, material from the Duwamish River Turning Basin is a prospective source of backfill sands. Backfill materials will be placed by uniformly discharging them hydraulically, from a conveyor, or by controlled release from a bottom discharge clamshell bucket or barge. Only materials with concentrations below SQS chemical criteria will be used for the backfill layers.

For this interim action, the dredged area will be backfilled with an average thickness of more than 10 feet of material. Approximately 16,000 cy of well-graded clean sand will be armored with approximately 4,000 cy of habitat enhancing gravel.

In-water work will not occur between February 16 and July 15 for the protection of bull trout, and between March 3 and July 1 for the protection of Puget Sound Chinook salmon. Construction is expected to take approximately 3 to 4 months to complete and will occur during the work window (July 16 through February 15) following authorization of the project by Ecology and King County's receipt of the Corps Nationwide 38 permit. The work sequence is currently anticipated as follows:

- Mobilization/Dredging: November 2007 to December 31, 2007
- Backfilling: January 2 to February 10, 2008
- Post-construction monitoring: February 11 to February 15, 2008

V. PERFORMANCE STANDARDS

The interim action must meet the requirements of State of Washington Model Toxics Control Act (MTCA; WAC 173-340) and the State of Washington Sediment Management Standards (SMS; WAC 173-204). These requirements are described below.

A. Sediment Management Standards

The SMS establish numerical limits for chemical constituents and biological effects limits in sediments that are protective of human health and the environment. SMS requirements are implemented under the MTCA law (Chapter 70.105D RCW) and Cleanup Regulations (WAC 173-340). The performance standards to be used to verify that construction of the remedial action is complete are the numerical sediment quality standards (SQS) chemical and biological effects criteria summarized in WAC 173-204.

B. Surface Water Quality Standards

Section 401 of the Clean Water Act (CWA) requires that in-water operations shall not violate applicable effluent or water quality standards. This determination allows for the designation of mixing zones within which standards may be exceeded, but beyond which applicable standards must be met. Applicable water quality standards are listed in WAC 173-201A. These standards are consistent with the following related requirements:

- Section 304 of the CWA (33 U.S.C. §1314), which requires EPA to publish Water Quality Criteria for the protection of human health and aquatic life; and
- Sections 301, 302, and 303 of the CWA (33 U.S.C. §1311, 1312, and 1313), and 40 CFR Part 131, which require states to develop Water Quality Standards. Washington Water Quality Standards are promulgated under the Washington Water Pollution Control Act (Chapter 90.48 Revised Code of Washington [RCW]; Chapter 173-201A WAC).

Consistent with other regional dredging and backfill projects, the applicable water quality parameters for this interim action are turbidity and dissolved oxygen (DO). Washington State surface water quality standards for parameters such as turbidity and DO have been established to protect sensitive habitat, other characteristic uses of the water body, and to provide for ecosystem and human health protection (Chapter 173-201A-210). For excellent quality marine waters such as Elliott Bay, the applicable turbidity standard is as follows:

"*Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.*"

During the months of November through February when construction is anticipated, background turbidity in the vicinity of the Site is typically less than 50 NTU. Thus, the turbidity standard for this action will normally be defined as a 5 NTU turbidity increase. As set forth in Chapter 173-201A-210:

"The turbidity criteria established under WAC 173-201A-210 (1)(e) shall be modified, without specific written authorization from the department, to allow a temporary area of mixing during and immediately after necessary in-water construction activities that result in the disturbance of in-place sediments. This temporary area of mixing is subject to the constraints of WAC 173-201A-400 (4) and (6) and can occur only after the activity has received all other necessary local and state permits and approvals, and after the implementation of appropriate best management practices to avoid or minimize disturbance of in-place sediments and exceedances of the turbidity criteria."

During construction, turbidity and DO standards must be met at a point 300 feet from the location of dredging or backfill material release into Elliott Bay. Other similar dredging and backfill projects performed in the Puget Sound area have successfully achieved this turbidity standard. King County will perform water quality monitoring during the dredging and backfilling operations to verify that turbidity and DO are maintained within applicable water quality standards listed in WAC 173-201A. A water quality sampling plan will be developed as part of remedial design.

C. Other Requirements

As set forth in RCW 70.105D.090, Ecology will ensure substantive compliance of this action with the Shoreline Substantial Development Ordinance normally administered by the City of Seattle and

Hydraulic Project Approval normally administered by the Washington Department of Fish and Wildlife.

Other requirements will be evaluated to ensure that cleanup of the Site is in substantial compliance with applicable or relevant and appropriate laws and regulations. The requirements to be evaluated include:

Endangered Species Act (ESA; 16 USC 1536 (a) – (d); 50 CFR Part 402). Grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical.

- Rivers and Harbors Act of 1899 (Section 10; 42 U.S.C. Section 6901 *et seq.*). Establishes permit requirements for any activity that will obstruct or alter a navigable waterway.
- Washington Hydraulics Code (Chapter 75.20 RCW; Chapter 220-100 WAC). Sets requirements for performing work that would use, divert, obstruct, or change the natural flow or bed of any salt or fresh waters.
- Washington Department of Fisheries Habitat Management Policy (POL-410). Sets forth a policy of no net loss of productive capacity of the habitat of food and shellfish resources.
- U. S. Fish and Wildlife Mitigation Policy (46 FR 7644). Establishes guidance to protect and conserve fish and wildlife resources.
- Clean Air Act (42 U.S.C. Section 7401; 40 CFR Part 50). Establishes ambient air quality standards for chemicals and particulates.
- Coastal Zone Management Act (16 USC 1451 et seq.; 15 CFR 923). Requires federal agencies to act consistently with state and local shoreline regulations.
- Washington State Confined Disposal Facility Standards. Establishes procedures to develop and evaluate sediment confinement designs. Relevant and appropriate seismic design guidelines are described in American Society of Civil Engineer's Technical Council on Lifeline Earthquake Engineering Monograph No. 12, "Seismic Guidelines for Ports", March 1998.

VI. WORK TO BE PERFORMED

Work to be performed includes remedial design, remedial action/construction, and performance monitoring, as described below.

A. Remedial Design Activities

Remedial design activities will include the completion of all planning activities and deliverables associated with preparation for implementation of the remedy. The remedial design will develop a technical package (or packages) including detailed descriptions and supporting engineering data/calculations justifying the basis for design, methods for dredging and placement of backfill materials, and construction monitoring.

King County shall submit the Draft Final Design, which shall include the following:

- **Design Analysis**, providing a concise narrative discussion of performance standards and the remedy design, and how the remedy meets standard professional engineering practices. The following sections will be included in the Design Analysis Report:
  - Introduction
  - Site Description
  - Remedial Action
    - Sediment Characteristics
    - Cleanup Boundaries
    - Permit Requirements
    - Remedial Areas and Volumes
    - Sequence of Cleanup Work
  - Dredging
    - Equipment Selection
    - Dredge Plan Layout
    - Positioning and Depth Control
    - Dredge Cut Stability Analysis
  - Sediment Handling, Transport, and Disposal
    - Initial Handling
    - Transport
    - Disposal
    - Other Materials, Not Requiring Remediation
  - Backfill
    - Source Material
    - Erosion Evaluation
    - Backfill Slope Stability
    - Equipment Selection
  - Post Dredging Sediment Conformation sampling at the project area
    - Grab sampling for the surface sediment at the new sediment cap
    - Evaluation for the laboratory results

        - Implementation for the contingency plan if required
    - Water Quality
        - Water Quality Criteria
        - Construction Monitoring Plan
        - Controls and Procedures to Limit Water Quality Impacts
    - Cost Estimate

- **Construction Quality Assurance Plan (CQAP),** including cleanup verification methods and methods for determining compliance with performance standards.
- **Health and Safety Plan (HSP),** including specifications for use by a remedial action contractor to develop a Remedial Action Health and Safety Plan.
- **Plans and Specifications,** conforming to standard engineering practice.
- **Project Schedule** for construction, identifying timing for initiation and completion of all critical path tasks, and the contracting strategy.

The Draft Final Design shall serve as the Final Design if Ecology has no further comments and issues the notice to proceed. Otherwise, the Final Design shall fully address all comments made to the Draft Final Design.

B. Remedial Action Activities

All construction actions will conform to the approved Final Design.

C. Final Inspection

After King County makes a preliminary determination that construction is complete, Ecology shall be notified for the purposes of conducting a final inspection. The inspection is to determine whether the project is complete and consistent with the Final Design. Any outstanding construction items discovered during the inspection shall be identified and noted. The Final Inspection Report, in the form of a punch list, shall outline any outstanding construction items, actions required to resolve items, and completion dates for these items, if applicable.

D. Cleanup Report

After the final inspection is performed, King County will submit a cleanup report including as-built drawings of the interim action and construction quality assurance data collected during construction.

VII. SCHEDULE FOR SUBMISSION & APPROVAL OF MAJOR DELIVERABLES

To support overall coordination and schedule objectives of this project, Ecology will endeavor to perform review of deliverables as quickly as practicable. The schedule for submission of deliverables described in this SOW is presented below:

Submission		Due Date
1.	Draft Final Design	Thirty (30) days after the Effective Date of the Agreed Order
2.	Final Design	Thirty (30) days after receipt of Ecology's comments on the Draft Final
3.	Completion of Construction	As approved by Ecology in Final Design Schedule
4.	Final Inspection	Thirty (30) days after completion of Construction
5.	Final Inspection Report	Sixty (60) days after completion of final Inspection
6.	Cleanup Completion Report	Two hundred forty (240) days after completion of construction

EXHIBT C
LIST OF FEDERAL, STATE AND LOCAL PERMITS

1) U.S. Army Corps of Engineers - Section 404 and 10 –Nationwide Permit 38

2) Washington Department of Fish and Wildlife - Hydraulic Permit Approval

3) Washington Department of Natural Resources - Right of Entry

4) Washington Department of Ecology - 401 Water Quality Certification

5) Washington Department of Ecology - Coastal Zone Management Permit

6) City of Seattle - Shoreline Management Act Substantial Development Permit

EXHIBIT D
SEDIMENT MANAGEMENT STANDARDS
INTERIM ACTION WORK PLAN:
DENNY WAY COMBINED SEWER OVERFLOW SITE
SEATTLE, WASHINGTON

Prepared by
Washington State Department of Ecology
Toxics Cleanup Program
Bellevue, WA 98008

August 2007

TABLE OF CONTENTS

I. INTRODUCTION AND SUMMARY

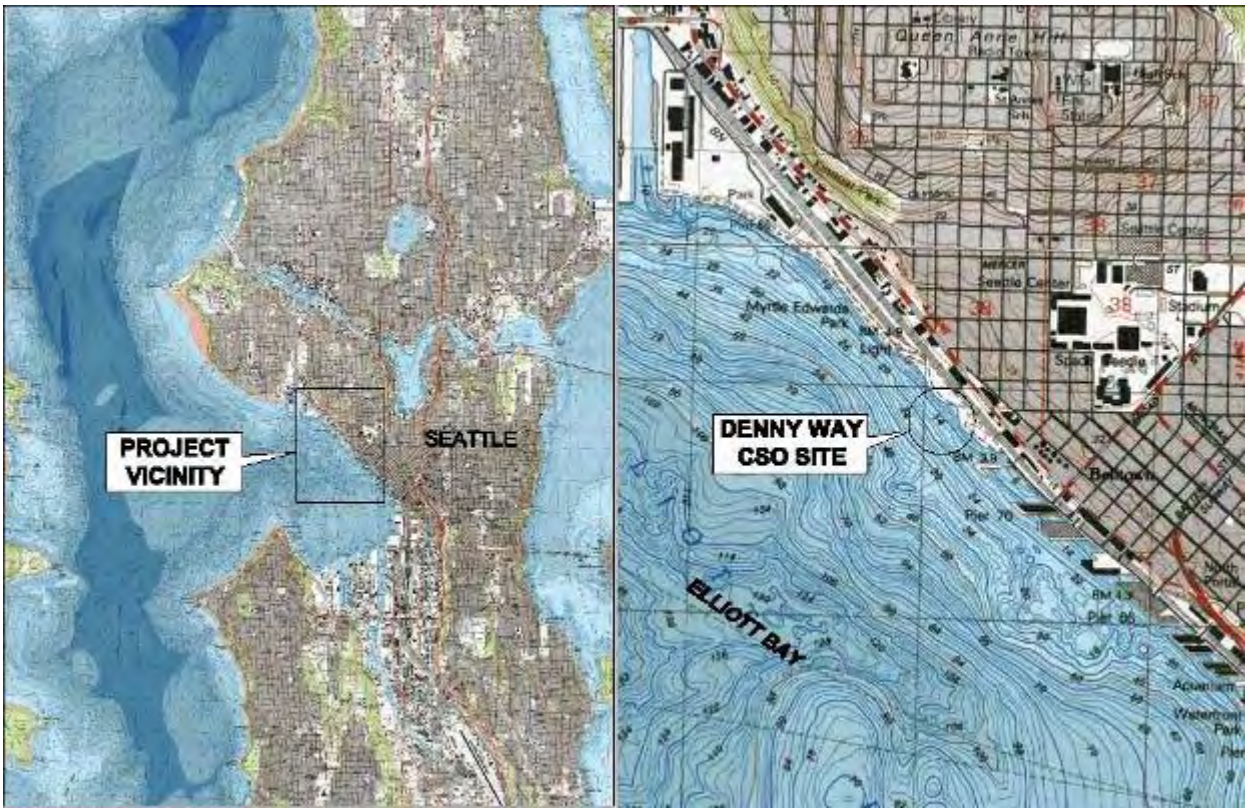
This Interim Action Work Plan has been prepared by the Washington State Department of Ecology (Ecology) for cleanup of contaminated sediment within a portion of the Denny Way Combined Sewer Overflow (CSO) site. The Denny Way CSO is located along the northeastern shoreline of Elliott Bay and is adjacent to Myrtle Edwards Park at the foot of Denny Way (Figure 1). The purpose of the interim action is to remediate nearshore contaminated sediments, remove an ongoing source of recontamination to the Denny Way cap, restore shoreline habitat and, to the extent practicable, beneficially reuse clean dredge materials. The interim action is being conducted under the terms of an Agreed Order entered into by Ecology and King County. Final cleanup actions at the site will be developed following completion of the interim remedial action.

A series of detailed sediment characterization studies have been performed at the Denny Way CSO site to evaluate sediment conditions with respect to chemical criteria as defined in the Sediment Management Standards (SMS) (Chapter 173-204 Washington Administrative Code [WAC]). Results of these characterization studies are discussed in the sections below.

Contaminated sediments present in two nearshore areas (Areas A and B) in the immediate vicinity of the former Denny Way CSO outfall currently exceed Sediment Quality Standards (SQS) chemical criteria. Approximately 20,000 cubic yards (cy) of contaminated sediment will be dredged from a 1-acre area (Figure 2). Work areas are located immediately offshore of Myrtle Edwards Park and occur between elevations of approximately +10 feet to -35 feet mean lower low water (MLLW). A combination of dredging and backfilling will be employed to remediate the nearshore areas. Habitat-enhancing gravel (habitat mix) and sand will be placed once dredging is completed to restore existing site conditions (Figure 3). The proposed interim action will achieve cleanup standards within inshore areas of the site, reducing the threat to human health and the environment, including within the area of the existing offshore sediment cap, by eliminating exposure pathways.

It is anticipated that dredging and backfill actions would occur between November 1, 2007 and February 15, 2008. This schedule will be refined based on specific permitting requirements, procurement schedules, and contractor availability.

Figure 1. Denny Way Interim Sediment Cleanup Action Site Vicinity and Project Plan



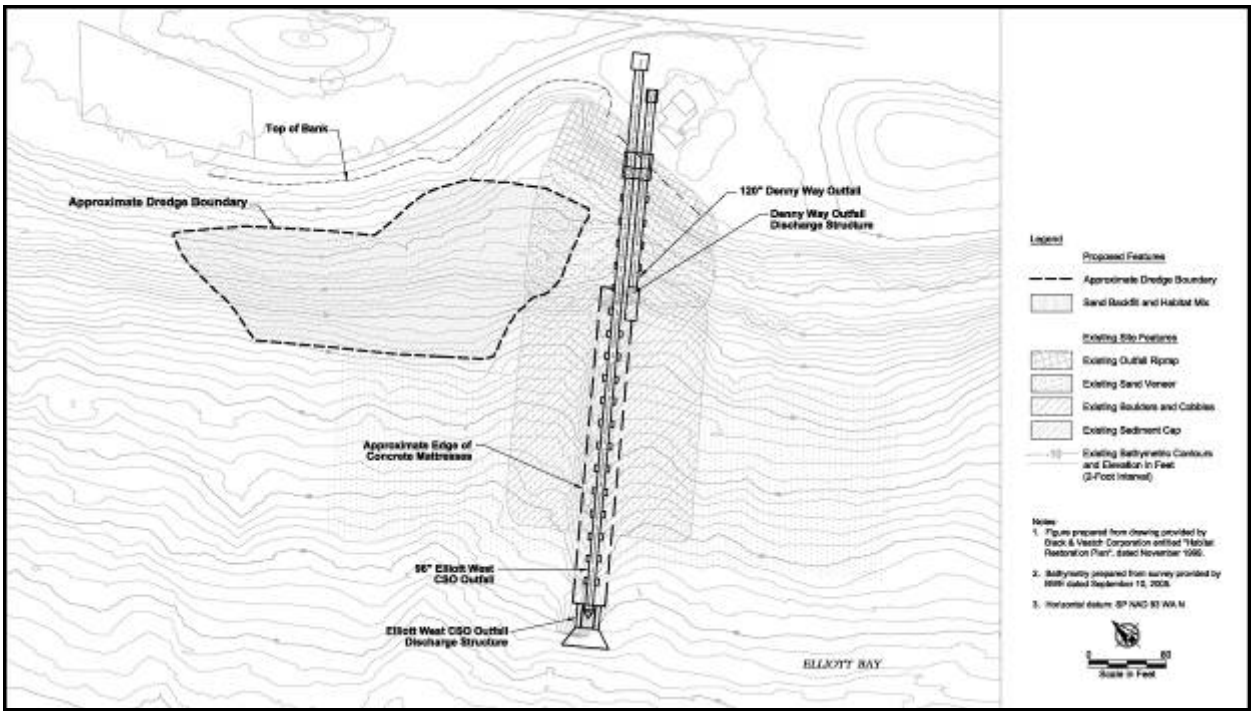


Figure 2. Interim Sediment Cleanup Action Dredge Plan

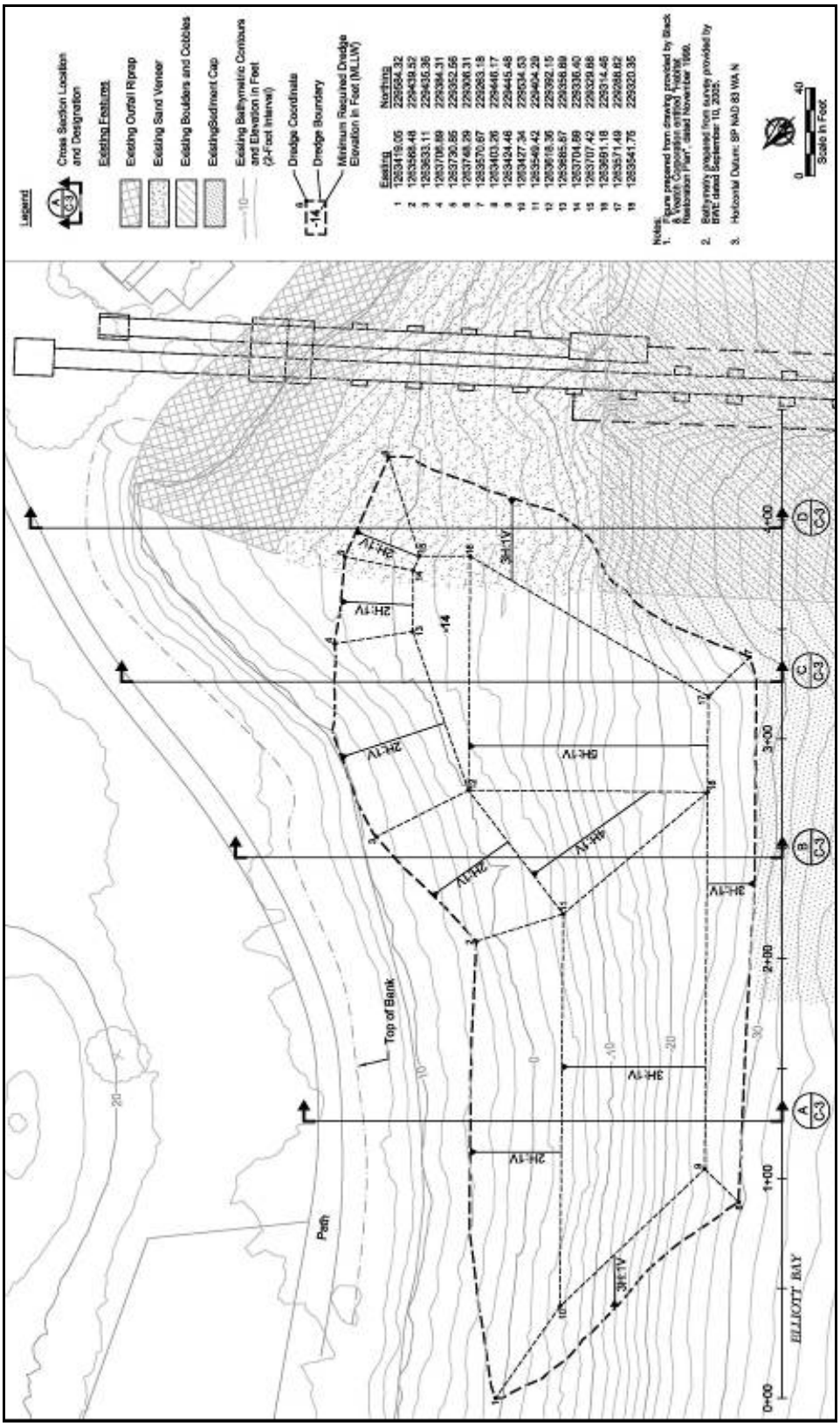
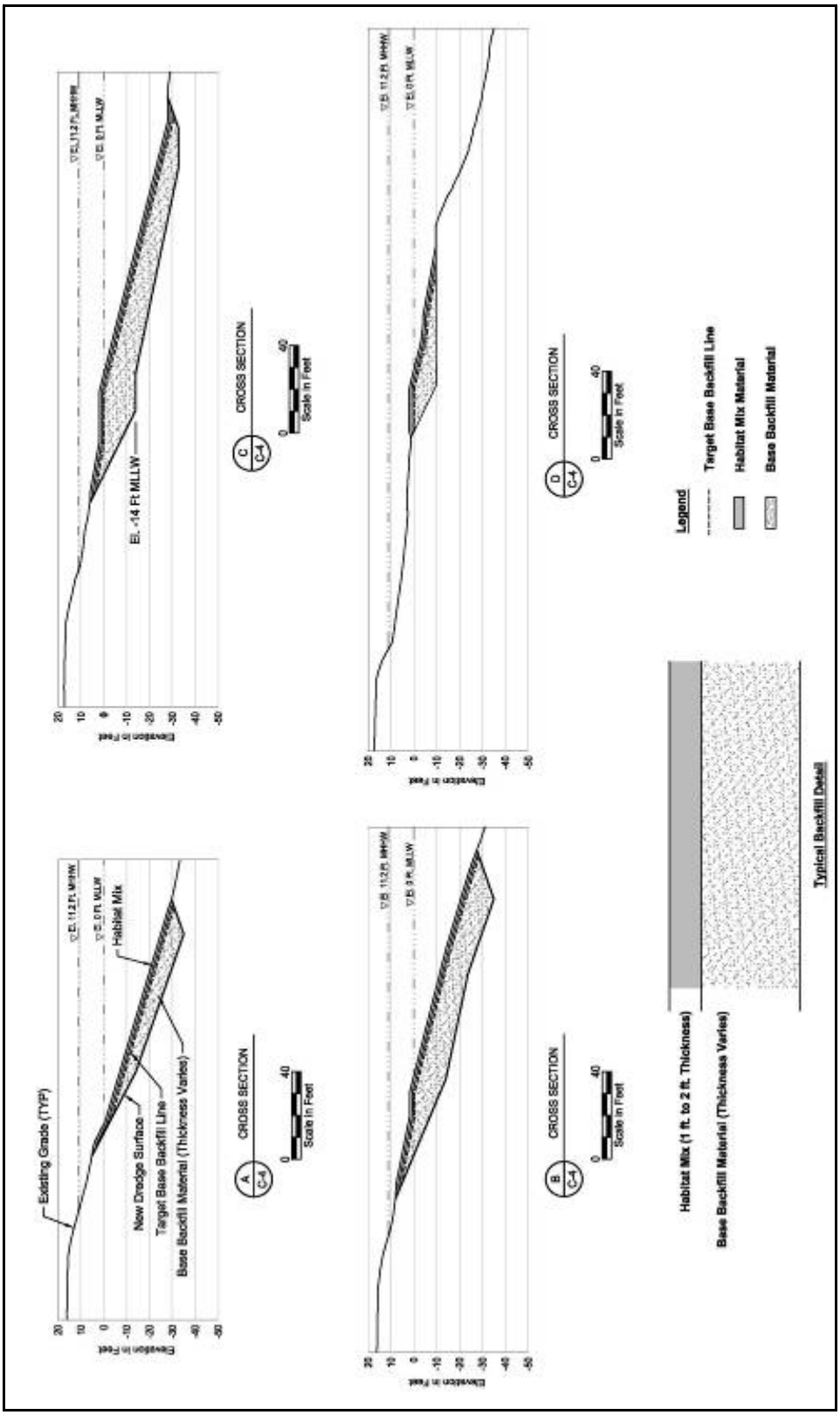


Figure 3. Dredge and Backfill Sections



Nearshore zones of Elliott Bay, including the site area, have been identified as important estuarine habitat restoration areas. The interim action will be designed to avoid habitat impacts by backfilling the dredge areas with more than 10 feet of clean material to return the areas as close to their original elevations as possible. The backfill area will be armored with an approximate 2-foot-thickness of sandy gravel habitat mix to restore existing substrate conditions and to provide protection from wave action and erosion. The overall design of the interim action is expected to help restore critical habitat in this area.

The Denny Way CSO site interim remedial action also capitalizes on the potential opportunity to beneficially reuse clean maintenance dredging sediments from the Duwamish River Turning Basin. In the absence of this project, clean sediments dredged as a result of separate U.S. Army Corps of Engineers (Corps) maintenance of this federal channel would be disposed (without beneficial reuse) at the Puget Sound Dredge Disposal Analysis (PSDDA) open-water disposal site in Elliott Bay. Subject to scheduling and contractual arrangements, the proposed project may allow for the beneficial reuse of a portion of the Duwamish River Turning Basin dredged materials, thus significantly reducing the amount of material that would otherwise be placed at the open-water, unconfined disposal site. The proposed project schedule has been developed with the Corps to ensure effective coordination of these efforts.

This Interim CAP provides Ecology's determination that the interim cleanup action is consistent with the requirements of the Model Toxics Control Act (MTCA; Chapter 173-340 WAC), and Chapter 173-204 WAC SMS. This determination was made following review of the available data for the project site, as generally summarized in the sections below. Following implementation of this Interim CAP, Ecology and King County will continue to evaluate environmental conditions at the site and discuss technical issues related to determining the nature and scope of final sediment cleanup actions.

This Interim Action Work Plan is part of a larger set of documents prepared to support the project:

- Joint Aquatic Resources Permit Application Form (JARPA) prepared by King County (submitted April 2007)
- The State Environmental Policy Act (SEPA) checklist, SEPA checklist addendum, and Determination of Non-Significance (DNS) prepared by King County (completed June 2007)
- Biological Evaluation and addendum, Interim Sediment Cleanup Action, prepared by Anchor Environmental, L.L.C. (completed June 2007)
- Draft Final (90 Percent) Remedial Design, Interim Sediment Cleanup Action, prepared by Anchor Environmental, L.L.C. (completed June 2007)

II. SITE DESCRIPTION

The Denny Way CSO site consists of State of Washington aquatic lands adjacent to the existing and former CSO outfalls. The Denny Way CSO was constructed in the 1960s when the Municipality of Metropolitan Seattle (Metro; now King County) built the present system of interceptors and treatment plants that collect, transport, and treat wastewater in the greater Seattle area. Until 2004, the discharge point of the Denny Way CSO was at the shoreline. This outfall was exposed during normal low tide and frequently discharged directly across exposed intertidal sediment. The Denny Way/Lake Union construction project completed by King County in 2005 significantly reduced the discharge of wastewater from the CSO. In 2004, as part of that project, the primary discharge point was moved offshore to a depth of approximately -60 feet MLLW (Figure 1). A secondary overflow discharge, located just south of the primary discharge point, was also constructed in 2004 and discharges at approximately -15 feet MLLW.

In 1990, King County and the Corps sponsored the Denny Way CSO capping project to test the feasibility of capping contaminated sediments in Elliott Bay with clean dredged material from the Duwamish Waterway. A 3-foot layer of clean sand, dredged from the upper Duwamish Waterway during routine maintenance, was placed over a 3-acre area in water depths ranging from approximately -25 feet to -60 feet MLLW. King County monitored the effectiveness of the cap at containing contaminated sediment for 10 years (Romberg et al. 1995, King County 2005). Results show that the cap is stable, is not eroding, and has successfully isolated the underlying contaminated sediments. However, chemical concentrations at several locations on the cap increased after cap construction, suggesting possible recontamination from the continued CSO discharges from Denny Way, or potential redistribution of remaining contaminated sediments from the intertidal area and the inshore edge of the cap.

In 1997, King County characterized the nature and extent of surface and subsurface sediment contamination in the outfall area, as well as areas inshore and offshore of the existing sediment cap (see discussion in Section 4.1). Areas of concern that exceeded SQS chemical criteria were identified. Monitored natural recovery is a prospective cleanup remedy for the offshore areas. These areas will continue to be evaluated by Ecology and King County to determine if the changed depositional environment resulting from the new CSO outfall configuration changes site conditions and if a more active cleanup remedy is required.

Sediments sampled within inshore Areas A and B of the Site contain elevated concentrations of cadmium, copper, lead, mercury, silver, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), bis(2-ethylhexyl)phthalate, and butyl benzyl phthalate. The sediment characterization data revealed that contaminant concentrations above SQS chemical criteria were present to a depth of approximately 10 feet below the existing mudline. Unlike offshore areas of the Site, natural recovery rates with the inshore sediment areas appeared to be progressing relatively slowly. In order to accelerate cleanup of the Site and minimize the risk of future recontamination to other Site areas, including the offshore cap, the interim action for the Site described in this Interim Action Work Plan includes dredging to the maximum extent practicable to remove impacted sediments, and backfill to restore the grade to close to pre-project conditions.

III. REGULATORY AUTHORITY AND TYPE OF CLEANUP

The SMS were promulgated under the authority of the State Water Pollution Control Act, Chapter 90.48 Revised Code of Washington (RCW) and the MTCA, Chapter 70.105D RCW, among others. Ecology may select either of these authorities under which a cleanup may be conducted, as described in WAC 173-204-550, Types of Cleanup and Authority. Ecology has selected Chapter 70.105D RCW, MTCA, as the appropriate authority for interim actions at the Denny Way CSO site.

IV. CLEANUP STUDY SUMMARY

Various plans and reports have been prepared to support the interim action. A list of relevant documents is provided in the bibliography at the end of this Interim CAP. This section summarizes sediment characterization information, alternatives for cleanup, and details of the interim cleanup action.

A. Sediment Characterization

In 1997, a pre-construction sediment characterization study was implemented to address the requirements of a Department of Natural Resources (DNR) lease land use authorization for the Denny Way CSO outfall and to evaluate the nature and extent of sediment contamination (Black and Veatch 1997). The 1997 investigation and follow-on studies performed by SEA (2000) and King County (2001) evaluated sediment cleanup requirements associated with the listing of the site on Ecology's SMS Site List.

Because of the potential for the new outfall construction to affect Puget Sound chinook salmon, consultation with the National Oceanographic and Atmospheric Administration (NOAA) was required under Section 7 of the Endangered Species Act (ESA). King County completed a biological assessment for the project (CH2M Hill 1999), and a Biological Opinion (BO) was issued by NOAA Fisheries (2000) that required pre- and post- construction monitoring. The pre-construction monitoring study was conducted in 2001 by King County (2001).

In 2005, King County (2005) and Anchor (2005) implemented an integrated work plan and sampling and analysis plan to address the ongoing monitoring requirements of the BO and concurrently collect sediment characterization data relevant to a remedial investigation/ feasibility study, respectively. All sediment site characterization data are available on Ecology's SEDQUAL database.

B. Sediment Dynamics

Circulation in Elliott Bay was summarized as part of the Elliott Bay Waterfront Recontamination Study (EBWRS, Ecology 1995). In general, currents in Elliott Bay adjacent to the eastern shore are slow and generally flow in a clockwise direction, although higher flows from the Duwamish River and waterfront features also influence current speed and direction.

Sediment accumulation rates have been estimated for several areas in Elliott Bay, including adjacent to the Denny Way CSO site. Estimates for the waterfront range from 0.19 to 0.7 centimeters (cm)/year and up to 3 cm/year in the basin (Ecology 1995). Estimates of sedimentation from core samples collected adjacent to the Denny Way CSO ranged from 0.7 cm/year to 1.4 cm/year (Romberg et al. 1987).

The resuspension of sediment by waves was evaluated as part of the EBWRS (Ecology 1995) and provides an estimate of resuspension potential in the area adjacent to the Denny Way CSO. The 1-year average wave and 1-year maximum wave were estimated to resuspend sediment at depths shallower than -7.5 feet or -25 feet MLLW, respectively. It should be noted that the estimates of the water velocity below which no resuspension occurs were conservatively based on the lower bounds of the velocity, grain size, resuspension relationship. Both Areas A and B are located in water less than -25 feet MLLW.

C. Extent of Sediment Contamination

Based on a review of the available site data, sediments in the interim action area generally consist of a heterogeneous mixture of sandy silt, silty sand and gravel, with solids content ranging from 38 to 85 percent. The sediments collected during the 2005 investigation contained significant debris and organics and typically had a sulfide and/or petroleum-like odor (Anchor 2005). These sediments likely represent deposits from historic CSO discharges that occurred prior to King County's work to upgrade the Denny Way CSO and move the discharge offshore.

Sediments sampled within inshore Areas A and B of the Denny Way CSO site contain elevated concentrations of cadmium, copper, lead, mercury, silver, PAHs, PCBs, bis(2-ethylhexyl)phthalate, and butyl benzyl phthalate. The 1997 sediment characterization study identified chemicals at concentrations above SQS chemical criteria in Areas A and B to depths of up to 8 feet below mudline (SEA 2000). More recent characterization data collected by Anchor in 2005 (available in SEDQUAL) indicated contaminated sediments are present at depths greater than 10 feet. In general, contaminant concentrations in surface and subsurface sediments are greatest adjacent to the former outfall cove, in Areas A and B.

The vertical limit of the interim action dredge prism is the maximum practicable removal, which will entail a sloping dredge cut on the order of 10 feet thick (Figures 2 and 3). Deeper dredging would require removal of large areas of the existing upland shoreline, which is not considered practicable without adverse impact on the Myrtle Edwards Park shoreline.

The lateral limits of the interim action are defined based on physical features and the extent of sediment contamination. The western boundary is constrained by the presence of the Denny Way cap. The southern boundary of the project is constrained by the presence of the existing outfall structures (and armoring) and the dredge prism here has been offset to avoid impacting these features. The inshore area immediately to the south of the outfall contained relatively low chemical concentrations, and was not identified as an area requiring remedial action (King County 1999, SEA 1999).

D. Biological Data

King County (2001) conducted three complementary studies to gather data to define the baseline condition of benthos adjacent to the Denny Way CSO:

- Benthic infaunal community assemblage evaluation
- Video survey
- Sediment profile imaging (SPI)

These studies suggested that benthic infaunal communities closest to the former CSO outfall (i.e., Areas A and B) were potentially impacted. However, physical sediment differences in grain size, organic carbon content, and depth confounded the analysis. The video survey found no indication of eelgrass, but limited patches of kelp were present in offshore areas. Macroinvertebrates, including sea stars, anemones and crabs, and fish were observed throughout the project area. The SPI evaluation of the cap immediately offshore of Areas A and B was limited due to poor penetration. Off of the cap, the SPI work revealed a well developed infaunal community with evidence of deep burrowing, head-down, deposit feeders.

E. Conceptual Site Model

This section presents a summary of relevant fate, transport, and receptor characteristics for chemicals of concern identified at the Denny Way CSO outfall site. A conceptual site model (CSM) is a representation of the environmental system and the physical, chemical, and biological processes that determine the transport of chemicals or other substances of concern from sources to receptors. For sediment sites, perhaps even more so than for other types of sites, the CSM can be an important element for evaluating risk and risk reduction approaches. The CSM is a set of hypotheses derived from existing site data and knowledge gained from other sites, and provides a basic understanding of the site based on available data. Essential elements of a CSM generally include information about sources, fate and transport pathways, and receptors. The CSM can also be a valuable tool in evaluating the potential effectiveness of cleanup alternatives.

Sources. The Denny Way CSO, the largest and most frequent overflow site on Elliott Bay, was constructed in the 1960s, when Metro (now King County) built the present system of interceptors and treatment plants that collect, transport, and treat wastewater in the greater Seattle area (Romberg et al. 1987). Until 2004, the discharge point of the Denny Way CSO was at the shoreline. The 2004 construction moved the primary discharge point off shore to a depth of approximately -60 feet MLLW (Figure 2). A secondary overflow discharge was also constructed in 2004 that discharges at approximately -15 feet MLLW.

The historical localized discharge of the Denny Way CSO at the shoreline resulted in chemicals of concern being concentrated in the water column and subsequently being deposited in nearby sediments. While loading from this ongoing source has decreased substantially over time due to upstream toxicant reduction measures, the historically deposited sediments inshore of the existing Denny Way cap are a repository, and potentially, an ongoing source of chemicals to the environment.

Fate and Transport. Building the outfalls was a major in-water project that required a bisecting excavation through the middle of the existing sediment cap in order to construct a supporting cradle for the outfall pipeline. For the area on the cap, the pipeline and cradle structure was subsequently covered with a concrete mattress and armored with boulders and cobble. Inshore of the cap, a habitat mix was placed up to the existing bulkhead and additional riprap was added to the shoreline slope. Based on construction plans and post-construction bathymetry, approximately 5 feet of material, including the concrete mattress covering and additional boulder and cobble cover materials, were added on top of the existing cap surface. Thus, contaminated sediment beneath the armoring is effectively isolated from the environment.

As noted above in Section 4.1.1, the physical characteristics of the nearshore sediments, including larger grain size and higher percent total solids, generally indicate a higher energy environment. In addition, the sediment resuspension potential along the Elliott Bay waterfront may occur in the shallow nearshore areas adjacent to the Denny Way CSO due to wave action. Areas A and B are within the potential resuspension zone identified by Ecology (1995).

Receptors. For the purpose of monitoring the Denny Way CSO project, the BO established that the evaluation of sediment chemistry was the appropriate endpoint to evaluate potential juvenile salmon exposure to contaminated sediment. In addition, the BO recommended that the site should be managed to minimize impacts to the benthic nearshore and intertidal habitat in the project area (NMFS 2000). Thus, the primary ecological receptors of concern at the Denny Way CSO site are the benthic community and indigenous salmonids, especially juvenile chinook salmon.

The pathway to juvenile chinook and other salmonids would be via potential food chain transfer of chemicals. Juvenile salmonids may be indirectly impacted by reduction in benthic prey abundance and quality. The primary impact to the benthic community would be direct contact with chemicals in sediments at concentrations exceeding SQS chemical criteria.

F. Cleanup Levels

Regulation of contaminated sediments in the marine environment of Washington State typically falls under the authority of Ecology. In 1991, Ecology adopted the Sediment Management Standards (SMS; Chapter 173-204 WAC) for designating marine sediments that have acute or chronic adverse effects on aquatic organisms. Three sets of standards were established under the SMS: sediment quality standards, sediment cleanup standards, and source control standards.

Sediment quality standards (SQS) correspond to a sediment quality that will result in no adverse effects, including acute or chronic adverse effects on biological resources and no significant health risk to humans. The SQS includes chemical concentration criteria for 47 chemicals. If sediment chemical concentrations exceed SQS chemical concentration criteria, the sediments being evaluated are designated as having an adverse effect on biological resources and fail the SQS. Sediments failing the SQS may be reevaluated using biological tests described in WAC 173-204-315 to confirm or refute the original designation.

If sediments exceed the SQS for any one of the 47 listed chemicals, they are subject to sediment cleanup standards set forth in WAC 173-204-520 which establish sediment chemical concentrations that determine if contaminated sediments require cleanup. Cleanup screening levels (CSL) set the maximum degree of concentration on a site before cleanup is required. Similarly, minimum cleanup levels (MCUL) establish the maximum degree of contamination to be allowed on a site after cleanup, and are to be used in the evaluation of cleanup alternatives as specified in the SMS. Minimum cleanup levels are set at the same concentration as CSLs.

A third set of standards, source control standards, define the maximum level of sediment contamination allowed in sediments impacted by ongoing discharges (WAC 173-204-420). Ecology has the ability to designate a zone (sediment impact zone or SIZ) in which contamination above cleanup standards is allowed provided that appropriate source control and remedial activities have occurred (WAC 173-204-500/510).

The point of compliance for sediment cleanup is the biologically active zone, which is operationally defined as surface sediments collected across the 0 to 10 cm (0 to 4-inch) interval below the mudline. The 10 cm biologically active zone is also consistent with the depth of bioturbation observed during site characterization (citation).

G. Cleanup Alternatives Evaluated

Several previous sediment cleanup analyses of the Denny Way CSO site (e.g., King County 1999) have described various alternatives for cleaning up contaminated sediments at the site. A wide range of technologies was initially considered and screened for applicability using the following criteria:

- Technical effectiveness
- Implementability
- Cost-effectiveness

- Environmental impacts

Sediment remediation technologies considered for the Denny Way CSO site have included source control/natural recovery, containment (i.e., capping), removal (e.g., dredging), upland disposal, and treatment. Among the range of potential technologies considered, only treatment is currently considered impracticable (King County 1999; EPA 2005).

Because this is a relatively small site in a dynamic estuarine environment, a focused feasibility analysis was considered more appropriate than a detailed evaluation of a wide range of alternatives. Using the criteria above, a number of technologies were screened out so the more realistic alternatives could be evaluated in detail. The results of the screening, which builds on King County (1999), SEA (1999), and EPA (2005) and incorporates more recent evaluations performed by Ecology and King County, are briefly discussed below:

- Natural Recovery—Natural recovery can be an effective alternative if it is determined that natural processes will, by themselves, result in an area cleaning itself up over time. Natural processes that may result in recovery include burial with clean sediments and degradation of organic chemicals. The allowable natural recovery period under the SMS is no more than 10 years. Thin layer placements of sand 6 to 12 inches thick can be used to accelerate natural recovery rates.
- Capping in Place—Capping contaminated sediments with a layer of clean sediment can be effective, provided that the cap design isolates chemicals of potential concern from the overlying biological environment. The cap design is engineered to provide the required isolation thickness and to remain stable against forces such as erosion. Sediments to be used as clean cap material can be obtained from navigation projects in clean areas. Caps made of sand are usually 3 feet thick and generally provide maximum isolation of underlying contaminated sediment. If conditions permit, caps can be placed without dredging the contaminated sediment. However, in some cases it is necessary to dredge some of the contaminated sediment before installing the cap to avoid increasing bottom elevations.
- Dredging Technologies—Mechanical dredging can be performed cost-effectively at the Denny Way CSO site, with manageable short-term water quality and dredge residual impacts. Conversely, hydraulic dredging is not practical at the site, as this removal method produces a large volume of sediment slurry that must be settled in settling ponds or mechanically dewatered. Sufficient land area for dewatering and/or treatment of the sediment slurry is not available in the Myrtle Edwards Park area. Moreover, because of the specific sediment conditions at the Denny Way CSO site, which include the presence of significant debris and consolidated (compacted) subsurface sediments, use of a digging clamshell bucket with a range of effective and appropriate best management practices (BMPs) demonstrated to be effective in controlling sediment resuspension will provide for the greatest degree of environmental protection, and represents the best application of current state-of-the-art dredging technology to this site. Mechanically dredged materials may be transported by barge, truck and/or rail to an upland landfill authorized for such purposes.

The preferred cleanup alternative selected by Ecology for the Denny Way CSO site interim action is mechanical dredging of Areas A and B to the maximum extent practicable. The dredging alternative is selected because, at this stage of the overall cleanup process, dredging is considered to provide a "presumptive remedy" and thus greater certainty of environmental protection. As discussed in Section 4.1.2, the vertical and horizontal limits of the interim action dredge prism are constrained by

slope stability and outfall protection requirements. The dredge prism will be backfilled with an approximate 10-foot-thickness of sand and habitat-enhancing gravel (habitat mix) to restore existing site conditions and provide an additional measure of protectiveness (Figure 3). Monitoring will be performed during and following implementation of the interim action to ensure environmental protection and to verify performance of the dredging and backfill action. In addition, Ecology and King County will continue to evaluate environmental conditions at the site and discuss technical issues related to determining the nature and scope of final sediment cleanup actions at the remainder of the site.

V. DESCRIPTION OF THE INTERIM REMEDIAL ACTION

The Denny Way CSO Site interim action will remove, to the maximum extent possible, contaminated sediments and restore nearshore habitat. The project will be conducted in a way to minimize the spread of contaminated material and provide for an efficient clean up. This will be accomplished through a combination of dredging, backfilling, and armoring with sandy gravel habitat mix. The specifics of the interim action are described below.

Approximately 20,000 cy of contaminated sediments will be dredged from roughly +10 feet MLLW to approximately -35 feet MLLW within the interim action area. The material within the dredge footprint will be mechanically dredged using a clamshell bucket deployed from a derrick barge. Subsurface core data available for interim action area show SQS exceedances extending to a depth of 10 feet below the mudline. Dredging will remove up to 10 feet of sediment (including a 1-foot overdredge allowance) to ensure the contaminated material is removed to the extent possible.

A sloping dredge cut approximately 10 feet thick will be needed to reach the vertical limit of the dredge prism to remove the maximum practicable volume. Deeper dredging would require removal of large areas of the existing upland shoreline, which is not considered practicable without adverse impact on the Myrtle Edwards Park shoreline. The southern boundary of the project is constrained by the presence of the existing outfall structures (and armoring) and the dredge prism will be offset to avoid impacting these features. The western boundary is constrained by the presence of the Denny Way cap. Therefore, some material may necessarily be left behind at depth after dredging because deeper dredge cuts would destabilize shoreline banks, the outfall structure, and the existing offshore sediment cap.

Dredged material will initially be placed on a barge stationed adjacent to the derrick. The sediments placed on the barge will be passively dewatered; the dewatering area on the barge will be contained in a filtration system, such as straw bales and geotextile material. Conservation measures will be in place to ensure water quality standards are met and that no material falls back into the water during transport.

The dredged material will be transported to the upland staging and rehandling area in a regional location provided by the contractor. The material will be fully contained within the barges transporting the material during transportation to the upland facility.

At the upland staging area, the sediments will be transferred from the barge and allowed to further dewater if necessary prior to disposal. To prevent dredged material from falling back into the water, a solid barrier “spill plate” will be placed between the upland facility and the material barge during all offloading activities. The sediment will be contained within ecology blocks, straw bales, or other appropriate containment materials. All water collected within the containment area will be pumped

into a large storage tank. The dredged material will be loaded directly into sealed trucks and/or rail cars for shipment to an approved (RCRA Subtitle D) upland disposal site.

Immediately following the completion of dredging operations, King County will collect sediment grab and core samples within the dredge prism footprint to document post-dredge sediment quality conditions in the project area. Given the protective design of the backfill layer, sediment backfill operations will commence immediately after collection of the post-dredge samples.

Working with Ecology, King County will also perform post-backfill sediment quality sampling immediately adjacent to the interim action area to characterize residuals that may have been dislodged or suspended by the dredging operation and subsequently redeposited adjacent to the dredging footprint. Contingency cover placement will be determined based on post-backfilling sampling results. Selected areas to be covered with a minimum 6-inch layer of clean sand will be determined by Ecology in consultation with King County.

In addition, following consultation with Ecology at the completion of the interim action, King County will continue ongoing sediment sampling in the Denny Way CSO site area, consistent with the requirements of the BO. Ecology and King County will continue to evaluate environmental conditions and discuss technical issues to determine the nature and scope of final sediment cleanup actions at the site.

Habitat impacts will be avoided by backfilling the dredge areas with clean material to return the areas as close to their original elevations as possible. Clean material used for these purposes will be obtained locally and brought into the project area on barges. Beneficial reuse of maintenance dredge material is a priority for the region. The Corps is planning to dredge approximately 66,000 cy of sediment ranked “low moderate” from the Duwamish River Turning Basin and has identified this area as a good source of beneficial use material (e.g., backfilling) and suitable for open water disposal. Therefore, subject to timing and contractual agreements, material from the Duwamish River Turning Basin is a prospective source of backfill sands. Backfill materials will be placed by uniformly discharging them hydraulically, from a conveyor, or by controlled release from a clamshell bucket or bottom discharge barge. Only materials with concentrations below SQS chemical criteria will be used for the backfill layers.

For this interim action, the dredged area will be backfilled and armored with an average thickness of more than 10 feet of material. Approximately 16,000 cy of well-graded clean sand will be armored with approximately 4,000 cy of sandy gravel habitat mix.

VI. PERFORMANCE STANDARDS

The interim action must meet the requirements of State of Washington Model Toxics Control Act (MTCA; WAC 173-340) and the State of Washington Sediment Management Standards (SMS; WAC 173-204). These requirements are described below.

Sediment Management Standards. The SMS establish numerical limits for chemical constituents and biological effects limits in sediments that are protective of human health and the environment. SMS requirements are implemented under the MTCA law (Chapter 70.105D RCW) and Cleanup Regulations (WAC 173-340). The performance standards to be used to verify that construction of the remedial action is complete are the numerical sediment quality standards (SQS) chemical and biological effects criteria summarized in WAC 173-204.

Surface Water Quality Standards. Section 401 of the Clean Water Act (CWA) requires that in-water operations shall not violate applicable effluent or water quality standards. This determination allows for the designation of mixing zones within which standards may be exceeded, but beyond which applicable standards must be met. Applicable water quality standards are listed in WAC 173-201A. These standards are consistent with the following related requirements:

- Section 304 of the CWA (33 U.S.C. §1314), which requires EPA to publish Water Quality Criteria for the protection of human health and aquatic life; and
- Sections 301, 302, and 303 of the CWA (33 U.S.C. §1311, 1312, and 1313), and 40 CFR Part 131, which require states to develop Water Quality Standards. Washington Water Quality Standards are promulgated under the Washington Water Pollution Control Act (Chapter 90.48 Revised Code of Washington [RCW]; Chapter 173-201A WAC).

Consistent with other regional dredging and backfill projects, the applicable water quality parameters for this interim action are turbidity and dissolved oxygen (DO). Washington State surface water quality standards for parameters such as turbidity and DO have been established to protect sensitive habitat, other characteristic uses of the water body, and to provide for ecosystem and human health protection (Chapter 173-201A-210). For excellent quality marine waters such as Elliott Bay, the applicable turbidity standard is as follows:

"Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU."

During the months of November through February when construction is anticipated, background turbidity in the vicinity of the Site is typically less than 50 NTU. Thus, the turbidity standard for this action will normally be defined as a 5 NTU turbidity increase. As set forth in Chapter 173-201A-210:

"The turbidity criteria established under WAC 173-201A-210 (1)(e) shall be modified, without specific written authorization from the department, to allow a temporary area of mixing during and immediately after necessary in-water construction activities that result in the disturbance of in-place sediments. This temporary area of mixing is subject to the constraints of WAC 173-201A-400 (4) and (6) and can occur only after the activity has received all other necessary local and state permits and approvals, and after the implementation of appropriate best management practices to avoid or minimize disturbance of in-place sediments and exceedances of the turbidity criteria."

For the Denny Way CSO site interim action, turbidity and DO standards must be met at a point 300 feet from the location of dredging or backfill material release into Elliott Bay. Other similar dredging and backfill projects performed in the Elliott Bay area have successfully achieved this turbidity standard. King County will perform water quality monitoring during the dredging and backfilling operations to verify that turbidity and DO are maintained within applicable water quality standards listed in WAC 173-201A. A water quality sampling plan will be developed as an element of remedial design.

The Contractor shall minimize turbidity and loss of resuspended sediments during dredging and transport operations and adhere to BMP and water quality requirements listed above and in the water quality sampling plan. At a minimum, the bucket shall be completely closed before rising from the bed. If the bucket is not closed completely because of debris obstruction, the operator shall not release the contents of the bucket at the surface to dislodge the debris, but shall complete the dredge

pass and dispose of the dredged material on the haul barge. Leveling of the completed dredging surface by dragging a beam or the clamshell bucket will not be permitted. King County will monitor work at all times during dredging and will be authorized to suspend dredging operations if water quality criteria are not met.

VII. PROJECT SCHEDULE

In-water work will not occur between February 16 and July 15 for the protection of bull trout, and between March 3 and July 1 for the protection of Puget Sound Chinook salmon. Construction is expected to take approximately 2 to 3 months to complete and will occur during the work window (July 16 through February 15) following authorization of the project by Ecology and King County's receipt of the Corps Nationwide 38 permit. The work sequence is currently anticipated as follows:

- Mobilization/Dredging: November 2007 to December 31, 2007
- Backfilling: January 2 to February 15, 2008

VIII. REGULATORY DETERMINATIONS

Based on the cleanup study results described above and the reports referenced in Section 6, Ecology makes the following determinations:

Pursuant to WAC 173-340-430, the Interim CAP will:

- Correct a problem at the site by removing contaminated sediment that could detrimentally impact aquatic organisms during the pendancy of further studies and planning leading up to a final cleanup;
- Provide a partial cleanup by removing contaminated sediment from a significant part of the site; and
- Not foreclose reasonable alternatives for the final cleanup action.

Based on the above findings, Ecology selects the interim remedial alternative set forth in Section 4.4 above for the Denny Way CSO site interim action.

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