

NOAA
Damage Assessment, Remediation and Restoration Program

**Guidance for Recognition and Use of Restoration
Banks in Natural Resource Damage Assessments**



Adopted December 1, 2016

Updated June 2021

NOAA Damage Assessment, Remediation, and Restoration Program (DARRP)

Guidance for Recognition and Use of Restoration Banks in Natural Resource Damage Assessments

Purpose

NOAA has developed this guidance for its agency's representatives to describe the considerations for evaluating whether, where, and when restoration banking would be appropriate as components of a restoration plan adopted by trustees.

NOAA's Damage Assessment, Remediation, and Restoration Program (DARRP) Trustee Management Team (TMT) has previously taken up the issue of restoration banking, both in approving such programs in specific cases, and in the form of the "Restoration Banking Preliminary Working Policy" (Preliminary Working Policy) issued by the TMT on February 6, 2007. The purpose of this guidance is to build upon the Preliminary Working Policy and draw on agency practice to develop updated natural resource damage restoration banking guidance. This guidance will outline NOAA's experience with restoration banking in natural resource damage assessment (NRDA) cases and identify a set of best practices to guide NOAA case teams in evaluating and determining whether to support specific restoration banking proposals. This guidance supersedes and replaces the Preliminary Working Policy.

The TMT intends this guidance to serve as a first statement and starting place for subsequent coordination with other NOAA programs and other federal natural resource trustee agencies. NOAA staff have coordinated with other federal trustee agencies on the development of this guidance, and the TMT will periodically update the guidance to be consistent with new information and current practice.

The intended audience for this guidance is NOAA DARRP case team members and other NOAA NRDA practitioners. It is presumed that the reader has a basic understanding of the NRDA process, the roles of natural resource trustees and potentially responsible parties (PRPs), and the settlement negotiation and approval process. While these matters will not be covered in detail here, references are provided for readers who desire more general information about the NRDA process (Appendix A). Unless defined specifically below, technical terms used in this guidance have the same meanings as defined in applicable statutes, regulations, and policies.

Background

NRDA restoration banking, as used in this guidance, covers any arrangement under which natural resource trustees agree to recognize and accept from a settling party restoration credits produced by a third party in lieu of payments of funds by the settling party or promises by the settling party to perform work. Restoration banking also covers situations where trustees directly purchase restoration credits generated by third party projects using funds separately recovered from PRPs. The restoration project producing the credits is often referred to as a restoration bank, and may consist of a project or projects developed by one or a group of PRPs who produce more restoration credits than required to satisfy their own liability. It may also consist of a project or projects developed by a non-PRP third party as an intended profit-making venture or to serve other goals.

Although restoration banking may not be appropriate or useful for all NRDA cases, it may be particularly useful in NRDA cases where there are multiple PRPs, and/or where restoration opportunities are limited due to availability of suitable land. In addition, when NRDA damages include injuries to species which benefit from larger, more intact parcels of habitat, the ability of the restoration banking approach to “pool” the liability of multiple PRPs and leverage larger restoration projects may be especially beneficial in compensating for natural resource injuries.

The operation of a NRDA restoration bank necessarily involves *restoration credits trading*, which is simply the buying and selling of restoration credits. The identification and valuation of restoration credits requires that the trustees for a NRDA site scale natural resource damage liability in some form of ecological currency, such as discounted ecological service acre-years, using methodologies like habitat equivalency analysis. Essential to the success of any NRDA restoration bank are the formal steps of *recognition* and *acceptance* by the affected trustees of the restoration bank and the nature and value of the credits it produces. Recognition of the bank and its credits typically is granted through an agreement between the trustees and the bank developer describing the bank and setting the conditions it must meet to generate the desired credits. Acceptance of the credits may occur when the trustees and the PRPs enter into a settlement agreement (usually in the form of a consent decree) under which the trustees accept and retire a specified number of credits in return for granting a covenant not to sue. Acceptance may also occur as a result of a transaction where trustees purchase credits directly from a restoration banker using cash-out settlement funds. Recognition and acceptance are often separate transactions but may occur in a single agreement where a settling PRP agrees to develop a project larger than needed to satisfy its own liability.

NRDA restoration banks can contribute to the success of trustees restoration goals. Because NRDA restoration bank projects often are larger than restoration projects implemented to address an individual PRP’s liability, they can potentially produce more diverse and robust environmental benefits with greater ecological function. Banks can, in effect, act as pooling mechanisms to aggregate the restoration needed to satisfy multiple parties’ liabilities, thereby producing one or more larger projects versus a number of smaller separate projects. Larger projects can be more durable and less subject to episodic or localized perturbation, thus increasing their probability of success. Also, larger projects can have significant economies of scale, potentially producing more ecological benefits per dollar spent.

Equally important in NRDA cases involving multiple PRPs (the usual setting for NRDA restoration banks) is the role of restoration banks in helping to mobilize and marshal PRPs to join in settlement negotiations. Restoration bank operators are incentivized to sell the produced credits and will usually expend some effort to encourage PRPs to enter into settlements with the trustees. Motivating multiple PRPs to enter into negotiations and to participate in multi-party settlements can greatly reduce the trustees’ costs and effort needed to resolve NRDA liabilities at such sites. Even in NRDA cases with a single PRP, restoration banks can facilitate settlement by offering opportunities for readily available restoration.

Potential challenges for the successful utilization of restoration banks include the risk that an underfunded or poorly managed bank may fail to deliver the promised restoration credits. In particular,

NRDA cases have some unique factors that can impact the development of restoration banks in unexpected ways. For example, the timing of settlement negotiations that give rise to the acceptance of credits is not fully under trustee control and delays that affect credit sales transactions may imperil bank developers' business plans. In addition to risks for the bank developers, there are also risks for trustees. For example, trustees who provide substantial technical support to bank developers without prior agreements for cost reimbursement could incur significant unrecoverable costs if the bank is undeveloped or fails. Even where trustees have obtained financial assurances to cover the estimated costs of developing and operating a project, having to step into a failed developer's shoes for the project will likely present additional costs and delays for the trustees in assuming project management.

The decision to recognize a restoration bank is an exercise of trustee discretion. No party has a right to have a restoration project recognized as a NRDA restoration bank. Consequently, the trustees may impose terms and conditions they determine necessary to address trustee general and site-specific goals and policies. For example, trustees may require that proposed restoration banks be designed or sited to address particular trust resources, species life stages, habitat features, or environmental justice considerations, etc., to ensure that the restoration project fully compensates for resource injuries. Recognition of a restoration bank does not guarantee that a given number of credits will be sold (if any), nor does it require the trustees to treat the acquisition of credits from the restoration bank as the exclusive means of resolving natural resource damage liability. Trustees also may recognize more than one restoration bank as applicable to a given site.

In addition, restoration banks can potentially serve both NRDA and other mitigation purposes. Multiple-purpose banks may result in larger projects that are more likely to restore self-sustaining ecosystem functions. Multi-purpose banks may also reduce financial risk to project developers by expanding their potential markets beyond NRDA liability. However, trustees must ensure that the accounting for different programs is coordinated to avoid double-counting (i.e., having the same credits being resold to offset different losses).

Trustee interest in public transparency for restoration decision making also extends to NRDA restoration banking decisions.

Guidance for NOAA NRDA Case Teams¹

- 1) Trustees for a waste site or spill may choose to make use of an existing or proposed restoration bank where the trustees determine that the bank will meet trustee objectives and goals for the site or spill, and the bank project is selected in accordance with the selection criteria and procedures required under applicable regulations.
- 2) Agreements by trustees to recognize restoration banks, provide technical assistance to restoration bank developers, and accept restoration bank credits will be made in writing and signed by the parties. Agreements must be submitted to and approved by the TMT. Restoration

¹ The use of "trustees" below is currently intended only to refer to NOAA NRDA case team members. Depending on future coordination with other federal trustee agencies this guidance may be revised and expanded to apply more broadly.

banking agreements may take the form of stand-alone agreements with third parties or be incorporated in the text or appendices of consent decrees or settlement agreements with PRPs.

- 3) Trustees may agree to provide technical assistance to restoration bank developers to aid in site selection, project design, planning for monitoring and adaptive management, and addressing other feasibility questions, provided the bank developer agrees to reimburse the costs of providing the assistance.
- 4) Trustees will agree to accept credits from a restoration bank only where they have a legally enforceable agreement that the environmental benefits of a banking project will be produced in a timely manner and persist long enough to generate the number of ecological credits accepted in a relevant settlement or purchased by the trustees. The agreement may be made directly with the bank developer and/or with settling parties who agree to guarantee the performance of the bank (see Appendix B for an example agreement with a bank developer; see Appendix C for an example consent decree with settling party responsibility for bank performance).
- 5) Trustees will retain the responsibility to determine how the credits from a restoration bank will be determined and measured (see example in Appendix D from the Final Lower Duwamish River NRDA Restoration Plan and Programmatic Environmental Impact Statement, June, 2013).
- 6) Trustees will only recognize and accept NRDA restoration bank credits that have a demonstrable reasonable nexus to the natural resource injuries giving rise to the relevant NRDA claims. Demonstrable reasonable nexus should take into account both biological and temporal considerations.
- 7) Trustees will only accept NRDA restoration bank credits produced under trustee oversight. Consequently, where trustees propose to make use of a pre-existing restoration bank, trustees will agree to accept only those restoration credits generated by the bank after an agreement is in place with the restoration bank developer. Trustees also will not agree to accept any NRDA restoration bank credits that are generated prior in time to the injuries to which they are intended to apply. By way of illustration, if a restoration bank is developed in year 1, and the trustees enter into a restoration banking agreement with the project developer in year 5, the trustees will agree to accept only those credits produced by the project in years 5 and following. Under the same scenario, if a spill to which the restoration project credits may be applicable occurs in year 8, the trustees will agree to accept only those credits produced in years 8 and following (see Appendix E for example illustrations).
- 8) Trustees will require that NRDA restoration bank recognition agreements include terms addressing:
 - The relevant bank service area (the area where resource injuries were experienced for which NRDA restoration bank credits will be accepted). The service area will be defined to ensure the injury-restoration nexus requirement is satisfied.
 - Protection of the bank property: The preferred form of protection is a permanent conservation easement. However, under some circumstances, lesser forms of protection may be sufficient; for example, a conservation easement may not be necessary if the property is publicly owned and subject to zoning or other restrictions that would ensure protection of habitat values. Property protection need not be

permanent in cases where a fixed duration is sufficient to ensure the project generates the agreed credit values.

- Project design, performance criteria, and credit calculations and projections: The trustees typically provide an initial estimate of credit that could be generated by implementing a particular project design. After the project is constructed, this estimate of credit is compared with as-built reports and revised, if necessary, to reflect acreages and habitat types that were actually constructed. In order to receive the full amount of estimated credit, the project must meet performance standards that are described in the site's monitoring and performance plan.
- Timing of credit releases: The bank's credit release schedule describes the timing of and requirements associated with release of credits from the bank. When credits are released from the bank, these credits become available for the bank developer to sell. A percentage of credits may be released in advance of construction, when certain conditions are met (see #10 below). Additional releases of credits occur as major project milestones are accomplished or as performance standards are met. A percentage of credits is commonly held back until all milestones and performance standards are met at the end of the performance period.
- Financial assurances for property development, monitoring, and adaptive management: Financial assurances are used to ensure that, in the event that a bank developer becomes unviable or is otherwise unable to complete the project and meet all relevant performance standards, the trustees have access to resources to complete the work according to the project plan and realize the anticipated benefits of the restoration bank. These assurances help balance the risk associated with permitting release of credits from a bank in advance of project completion. Assurances may take the form of bonds, letters of credit, insurance policies, escrow accounts, or other mechanisms mutually agreeable to trustees and the bank developer (see Appendix F for examples of financial assurances types and forms).
- Provisions for implementing and funding long-term stewardship of the site: Trustees must ensure that sufficient resources are set aside to address appropriate stewardship and maintenance of NRD restoration sites. Stewardship activities may include monitoring and adaptive management that are necessary to maintain the flow of ecological services for the period of time required to achieve full compensation of damages. The nature and amount of long-term stewardship required in a given case will be derived from the model or method used to assess ecological damages. To inform the establishment of a fund to support these activities, costs of long-term stewardship must be estimated using assumptions provided by the trustees. In addition, a plan for long-term stewardship must be developed which describes stewardship objectives for the site, roles and responsibilities of the site owner, manager, stewardship provider(s) and the trustees, and establishes a mechanism for investing, managing and dispersing funds for long-term stewardship (see Appendix G, Calculation of Long Term Stewardship Costs- Portland Harbor example; see Appendix H, National DARRP Policy on Long Term Stewardship).

- Credit sales accounting and transparency: Trustees should clearly explain the connection between the restoration banking project and the NRDA liability. In addition, the trustees should define trustee control and oversight for the credit transactions and for the restoration project performance. This will make sure that there is clear and shared understanding between the trustees and the restoration banker. This will also be important for providing assurances to the public that the restoration is appropriate for the NRDA liability and that there is accountability for credit sales and project performance.
 - Non-exclusivity of use of restoration bank credits to resolve NRDA liability: Trustees should indicate that purchasing of credits from the bank is not the only or preferred means of resolving natural resource damage claims and that the trustees are open to entering into similar restoration banking agreements with other parties.
- 9) Trustees will provide notice to PRPs and the public of any agreement to recognize NRDA restoration bank credits. The public notice should describe the agreement in sufficient detail to inform the public of the trustees' intention to accept credits generated by the bank in anticipated settlements.
 - 10) Trustees may permit the sale of, and accept in settlement, a portion of the credits in a restoration bank prior to project construction provided specific conditions are met (e.g., property ownership is permanently secured; financial assurances are in place to guarantee construction, performance, maintenance, monitoring, adaptive management, and permanent stewardship; and the Trustees have approved a timely construction schedule committed to by the bank developer). Trustees will require that a significant share of the total project credits not be sold before full achievement of ecological performance standards. This does not preclude a bank developer from selling options or other interests in a project to a potential project purchaser independently of a NRDA settlement agreement as a means of raising capital for the project.
 - 11) Trustees will ensure that NRDA restoration banks transparently account for all credits sold and will require that each credit accepted by the trustees be retired and not made available for resale. Trustees may authorize restoration bank developers to sell credits to address other regulatory mitigation requirements as well as NRDA liability provided that there is an accounting mechanism to ensure that credits associated with each regulatory program are accounted for separately (i.e., the same unit cannot be sold multiple times). Trustees may also agree to recognize and accept credits produced by a bank previously authorized under another regulatory mechanism, provided that a) the project has a demonstrable reasonable nexus to the natural resource injuries giving rise to the relevant NRDA claims; b) the project meets all standards and requirements imposed on other NRDA projects recognized by the trustees; and c) the bank generates credits after an agreement is in place with the restoration bank developer (see #7 above).

Coordination and Future Developments

The TMT intends for this guidance to serve as the starting point for inter-agency coordination. It also serves as the description of NRDA program policy to be addressed in the development of any more comprehensive NOAA restoration banking guidance.

List of Appendices:

- Appendix A: General NRDA Background Information
- Appendix B: Example of Agreement with Restoration Bank Developer
- Appendix C: Example of Consent Decree with Settling Party Responsibility for Bank Performance
- Appendix D: Example of Credit Denomination from Final Lower Duwamish River NRDA Restoration Plan and PEIS, June 2013
- Appendix E: Example illustrations of credit acceptance scenarios
- Appendix F: Examples of Financial Assurances (Types and Forms)
- Appendix G: Calculation of Long Term Stewardship Costs Template (Portland Harbor example)
- Appendix H: National DARRP Policy on Long Term Stewardship

Appendix A:
General NRDA Background Information



Damage Assessment, Remediation, and Restoration Program

DARRRP

Healing Our Coasts, Protecting Our Future

NOAA, our partners, and the public lead the way to successful restoration efforts

Getting to Restoration via a **Natural Resources Damage Assessment**



After a pollution event such as an oil spill or a hazardous waste release, a Natural Resource Damage Assessment (NRDA) may be initiated if it appears that significant impacts may have occurred to natural resources. The NRDA process is driven by law, science, economics, and public input, and is led by designated federal, state, and tribal trustee agencies. Through the NRDA process:

- ✓ **NOAA works together** with tribes, federal and state agencies, and responsible parties to identify injuries to the environment, including lost recreational uses, resulting from the incident.
- ✓ **Our experts determine** the extent of injuries, and—with public input—the best methods, amounts, and locations for restoration activities.
- ✓ **The rigorous scientific studies** necessary to identify the magnitude of injuries may take years. However, this process ensures an objective assessment—and that the public's resources are fully restored.

DARRP Project Spotlight

We collaborate with our partners and industry to accelerate restoration. Through settlement or litigation, we have recovered \$2.5 billion for restoration and integrated restoration into 500 waste site cleanups since 1988. These projects also provide economic benefits from recreation, green jobs, and coastal resiliency.



***M/T Athos I* Oil Spill**

What Happened?

On November 26, 2004, the *M/T Athos I* hit several submerged objects in the Delaware River. The vessel's bottom was punctured, releasing nearly 265,000 gallons of crude oil into the Delaware River and nearby tributaries.

What Were the Impacts?

Oil from the ruptured tanker spread 115 miles downriver, impacting 280 miles of shoreline in Pennsylvania, New Jersey, and Delaware. Natural habitats were adversely affected, as well as recreational uses such as boating, fishing, and hunting.

What's Happening Now?

In 2010, the trustees received \$27.5 million for ten restoration projects designed to benefit the environment, coastal communities, and economy in the Delaware River watershed.



Commencement Bay

What Happened?

A history of industrialization in Washington State's Commencement Bay resulted in the releases of hazardous substances from various industries, including shipbuilding, oil refining, and chemical manufacturing plants.

What Were the Impacts?

Contamination in the bay and its waterways has injured many species of fish and wildlife, including bottom-dwelling organisms, birds, and salmon. Consumption advisories are in effect for many fish species in the area.

What's Happening Now?

Since 1991, twenty settlements with polluters have resulted in more than \$70 million for restoration. To protect this enormous investment, the restoration will be maintained for the next 100 years and beyond.

How DARRP Works

Provide Scientific Expertise

During response and cleanup activities, we provide technical assistance to help assure long-term protection of fish, habitats, and wildlife.

Evaluate Environmental Harm

We respond to pollution that poses threats to marine resources. We collect scientific data to determine if natural resources have been injured and then assess the injury.

Hold Polluters Accountable

We work collaboratively with our partners to hold parties accountable for injuries to natural resources. Through settlement or litigation, we recover the funds needed to restore injured resources and compensate the public.

Implement Restoration

With public input, we plan and implement project to restore the resources and habitats that were harmed. We undertake projects—such as constructing or improving boat ramps, fishing piers, and beach trails—to compensate for lost recreational uses.



An NRDA team checks for oil in a marsh in Louisiana.

darrp.noaa.gov

Appendix B:

Example of Agreement with Restoration Bank Developer

**MEMORANDUM OF AGREEMENT BETWEEN THE NATURAL RESOURCE TRUSTEES
AND [DEVELOPER] FOR PROVIDING TECHNICAL ASSISTANCE RELATED TO HABITAT
RESTORATION PROJECTS TOWARD FUTURE SETTLEMENT OF NATURAL RESOURCE
DAMAGE CLAIMS AT THE PORTLAND HARBOR CERCLA SITE**

THIS MEMORANDUM OF AGREEMENT (“MOA”) is made and entered into by and among the National Oceanic and Atmospheric Administration (“NOAA”) on behalf of the Department of Commerce, the United States Fish and Wildlife Service (“USFWS”) on behalf of the Department of the Interior, the Oregon Department of Fish and Wildlife, the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Nez Perce Tribe (collectively, “the Trustees”) and [Developer] (“Developer”) (together, “the Parties”). The effective date of this MOA is the date of the signature of Developer and one Trustee.

RECITALS

WHEREAS, the Trustees are carrying out a damage assessment for the Portland Harbor Superfund site (“Site”), and anticipate bringing claims for injuries to natural resources under the Comprehensive Environmental Response Compensation and Liability Act, 42 USC § 9601, *et seq.* (“CERCLA”), the Oil Pollution Act, 33 U.S.C. § 3701 *et seq.* and other applicable laws and regulations; and

WHEREAS, the Parties desire to facilitate the creation of habitat in the Restoration Focus Area in advance of the Trustees’ completion of a damage assessment or the filing of actions against liable parties; and

WHEREAS, the Parties recognize that the terms of any natural resource damages (“NRD”) settlement, including any restoration project the Trustees propose as part of the settlement, must be subject to public review and comment and court approval, and therefore the Trustees can make no final determination to accept a restoration project prior to entering into a settlement agreement; and

WHEREAS, the Parties agree that, if a habitat restoration project developed pursuant to this MOA is included in an NRD settlement agreement, it is appropriate to credit the ecological value produced by the project prior to entering into the settlement agreement against the liability of the settling party or parties who were responsible for developing and/or funding the development of the project; and

WHEREAS, Developer is willing to develop one or more habitat restoration projects in the Restoration Focus Area with the intention of marketing the ecological value credits produced by such project(s) to one or more parties liable for NRD claims at the Site to be potentially used by such party or parties to offset some or all of their liability in settlements with the Trustees; and

WHEREAS, the Parties desire to work collaboratively to design and assess the value of one or more habitat restoration projects in the Restoration Focus Area;

NOW, THEREFORE, in consideration of the foregoing recitals the Parties mutually agree as follows:

AGREEMENT

1. Definitions

1.1 Project Baseline Condition. Solely for the purposes of this MOA, the “Project Baseline Condition” shall be the habitat conditions at the location of a habitat restoration project taking into account remedial measures that are, or are reasonably anticipated to be, required by the U.S. Environmental Protection Agency under CERCLA.

1.2 Covered Projects. “Covered Projects” shall refer to those habitat restoration projects as to which the Parties collaborate on project design and establishment of Forecast Settlement Credit Value pursuant to the terms of this MOA.

1.3 Forecast Settlement Credits Value. “Forecast Settlement Credits Value” shall be a determination of the value a habitat restoration project subject to this MOA is expected to generate taking into account the project’s anticipated habitat benefits beyond the Project Baseline Condition. Forecast Settlement Credits Value will be estimated based on discounted service acre years (“DSAYs”), or such other measurement of value that the Trustees employ for determining NRD for the Site and pursuing claims against liable parties for such damages.

1.4 Technical Assistance. “Technical Assistance” shall mean the provision by the Trustees of assistance to Developer in the evaluation, design and planning of Site area habitat restoration projects and the determination of Forecast Settlement Credits Value for such restoration projects. Technical Assistance shall include review and evaluation of proposed projects by Trustee technical and legal representatives as needed.

1.5 Final Settlement Credits Value. “Final Settlement Credits Value” shall be the value of a habitat restoration project that will be recognized as offsetting some or all of a party’s NRD liability in a formal settlement agreement.

1.6 Potentially Liable Party. “Potentially Liable Party” shall mean any party identified by the Trustees as having potential NRD legal liability arising from releases of hazardous substances at or to the Site.

1.7 Restoration Focus Area. “Restoration Focus Area” includes the Portland Harbor Superfund study area and the Broader Focus Area defined by the Trustee Council.

2. Collaboration on Habitat Project Design and Settlement Credits Value Assessment

2.1 Site Habitat Project Evaluations. The Trustees will collaborate with Developer in evaluating options for potential habitat restoration projects located in the Restoration Focus Area. Technical Assistance will be provided in an effort to maximize the ecological services of habitat restoration projects and the consistency of such projects with Trustee goals and responsibilities.

2.2 Payment of Trustee Technical Assistance Costs. Developer will reimburse the Trustees for the cost of Technical Assistance provided by the Trustees at Developer's request. In any future actions for or settlements of NRD claims with respect to the Site, the Trustees will not seek to recover any Technical Assistance costs paid by Developer pursuant to this MOA.

2.3 Billing Payment Procedures for Trustee Technical Assistance. Developer shall pay the cost of Technical Assistance annually on a projected basis. Developer shall make an initial payment of \$_____ to the Trustees within 30 days of the signing of this MOA by Developer and one Trustee, which is the projected cost of providing one year of Technical Assistance (see Attachment A, Budget). Payments will be made to the individual Trustees according to the amounts listed in the budget per the payment instructions (see Attachment B, Payment Instructions). The Trustees shall have no obligation to begin providing Technical Assistance prior to receiving the initial payment. However, if the Trustees elect to provide Technical Assistance prior to the effective date of this MOA, Developer will reimburse those costs as part of the initial payment. On an annual basis beginning one year after the effective date of this MOA, the Trustees will provide Developer with an invoice detailing the Technical Assistance work performed prior to that date (or, for subsequent invoices, since the date of the prior invoice) and the charges for such work, and detailing the Technical Assistance work the Trustees project performing during the succeeding year and the projected charges for such work. Within 30 days after the date of each such invoice, Developer shall pay the Trustees' projected costs, less any amounts paid previously that have not been expended by the Trustees.

3. Establishment and Use of Settlement Credits Value

3.1 Identification of Covered Projects and Establishment of Forecast Settlement Credits Values. The Parties shall jointly identify one or more proposed habitat restoration projects as Covered Projects under the terms of this MOA. The Parties shall jointly agree on a proposed design for each Covered Project, and shall in good faith meet and discuss the Forecast Settlement Credits Value for each Covered Project. If and when the Parties agree on the Forecast Settlement Credits Value of a Covered Project, that value shall be documented in written form by the Trustees and conveyed to Developer.

3.2 Future Adjustments to Credit Amounts. Prior to entering into any future NRD settlement in which the Trustees would propose to apply credits from a Covered Project, the Trustees and Developer shall in good faith meet and review the results of performance monitoring for each Covered Project and determine a Final Settlement Credits Value for each. The Trustees will allow for an upward adjustment from the Forecast Settlement Credits Value that has previously been established under paragraph 3.1 of this MOA, in the following circumstances: 1) The results of performance monitoring for the affected Covered Project

demonstrate the project has produced or is expected to produce greater ecological benefits than were estimated in developing the Forecast Settlement Credits Value; 2) the Trustees' protocols for the evaluation of habitat restoration projects change such that a greater Final Settlement Credits Value would be available under the new protocols; 3) additional habitat is planned or developed by Developer or others in the vicinity of a Covered Project such that a greater Final Settlement Credits Value should be available under the Trustees' protocols; or 4) any other circumstances under which Developer would have obtained a greater Final Settlement Credits Value for a Covered Project had Developer delayed working with the Trustees on the establishment of a Forecast Settlement Credit Value for that project. The Trustees will recognize a Final Settlement Credits Value that is lower than the Forecast Settlement Credits Value in the following circumstances: 1) The results of performance monitoring for the Covered Project demonstrate that the project has produced or is expected to produce lower ecological benefits than were estimated in developing the Forecast Settlement Credits Value; 2) remedial actions, development actions or other activities are planned or have occurred in the vicinity of a Covered Project such that a lower Final Settlement Credits Value should be available under the Trustees' protocols; or 3) a party has previously received credit for all or a portion of a Covered Project against environmental or habitat mitigation requirements under federal, state or local laws or ordinances or against NRD liability in another settlement agreement.

3.3 Further Collaboration. The Parties recognize that additional collaboration will be necessary to develop entitlement conditions for Covered Projects, including, but not limited to, real estate assurances (*e.g.*, conservation easement, deed restrictions), financial assurances (*e.g.*, performance bonds), a monitoring and stewardship protocol, and the applicability, sale and transfer of credits to Potentially Liable Parties. Some or all of such additional collaboration would require an addendum to this MOA or a separate MOA.

3.4 Effect of MOA on Natural Resource Damage Assessment Process. This MOA and the Parties' actions or determinations pursuant to this MOA are not intended to prejudice or affect the course of or obviate the need for the Trustees' natural resource damage assessment process for the Site.

4. Miscellaneous

4.1 Modifications. The Parties may modify the terms of this MOA by mutual written agreement signed by authorized representatives of the Parties.

4.2 No Admission of Liability; No Release of Non-Parties; and No Third Party Beneficiaries. This MOA shall not constitute nor shall it be used as evidence of any admission of law or fact, or a waiver of any right or defense by any Party, except as expressly set forth in this MOA. The Parties do not admit to any fact or to any liability under federal, state, or local law or regulation, and no part of this MOA shall constitute such an admission. This MOA is not intended to, nor shall it, release, discharge or affect any rights or causes of action that any of the Parties may have against any other person or entity, and each of the Parties reserves all such rights. This MOA is neither expressly nor impliedly intended for the benefit of any third party, and is neither expressly nor impliedly enforceable by any third party, including, but not limited to, local, state and federal governments and/or agencies. Nothing in this MOA is or shall be

construed to be a waiver of sovereign immunity by any of the Trustees.

4.3 Limitation. Nothing in this MOA shall be construed as obligating the Trustees, their officers, agents or employees, to expend any funds in excess of appropriations authorized by law.

4.4 Counterparts. This MOA may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

(Signatures on the following page)

SIGNATURES

FOR DEVELOPER

By: _____

Printed Name: _____

Date: _____

FOR THE PORTLAND HARBOR NATURAL RESOURCE TRUSTEE COUNCIL

Confederated Tribes of the Grand Ronde Community of Oregon

By: _____

Date: _____

Confederated Tribes of Siletz Indians

By: _____

Date: _____

Nez Perce Tribe

By: _____

Date: _____

Confederated Tribes of the Umatilla Indian Reservation

By: _____

Date: _____

Confederated Tribes of the Warm Springs Indian Reservation of Oregon

By: _____

Date: _____

Oregon Department of Fish and Wildlife

By: _____

Date: _____

U.S. Department of the Interior

By: _____

Date: _____

National Oceanic and Atmospheric Administration

By: _____

Date: _____

Appendix C:

Example of Consent Decree with Settling Party Responsibility for Bank Performance

HONORABLE RONALD B. LEIGHTON

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT TACOMA

UNITED STATES OF AMERICA, STATE OF)
WASHINGTON, PUYALLUP TRIBE OF)
INDIANS, and MUCKLESHOOT INDIAN TRIBE,) CIVIL NO. 15-5548RBL
Plaintiffs,) CONSENT DECREE

v.)

ADVANCE ROSS SUB COMPANY, BNSF)
RAILWAY COMPANY, BP PRODUCTS NORTH)
AMERICA, INC. AND ATLANTIC RICHFIELD)
COMPANY, BRANDRUD FURNITURE, INC.,)
NEMSHOFF CHAIRS, INC. AND HERMAN)
MILLER, INC., CANAM MINERALS/KLEEN)

CONSENT DECREE - 1

Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 BLAST DIV., CARSTENS COMPANY, CHEVRON)
 2 U.S.A. INC., UNION OIL COMPANY OF)
 3 CALIFORNIA, TEXACO DOWNSTREAM)
 4 PROPERTIES INC., CITY WATERWAY)
 5 INVESTMENTS, INC., CLOSING DAYS, INC.,)
 6 FORMERLY KNOWN AS RICHARD A. JOHNSON)
 7 CEDAR PRODUCTS, INC., FORMERLY D/B/A)
 8 JOHNSON POSTMAN COMPANY, EXXONMOBIL)
 9 OIL CORPORATION AND EXXON MOBIL)
 10 CORPORATION, F. S. HARMON)
 11 MANUFACTURING COMPANY,)
 12 GLACIER NORTHWEST, INC. (LONE STAR)
 13 NORTHWEST), GLOBE MACHINE)
 14 MANUFACTURING COMPANY, GULL)
 15 INDUSTRIES, INC., INVESTCO FINANCIAL)
 16 CORPORATION, J.M. MARTINAC)
 17 SHIPBUILDING CORPORATION, KING COUNTY)
 18 METRO TRANSIT DIVISION,)
 19 LOUISIANA-PACIFIC CORPORATION, MARINE)
 20 IRON WORKS, INC., MCFARLAND CASCADE)
 21 HOLDINGS, INC., CASCADE POLE AND)
 22 LUMBER COMPANY AND MCFARLAND)
 23 CASCADE POLE & LUMBER COMPANY,)
 24 MENASHA CORPORATION, MOORAGE)
 25 ASSOCIATES, LLC, MOUNTAIN STATES)
 26 POWER (PACIFICORP), MUFG UNION BANK,)
 27 N.A., NESTLÉ USA, INC., NICHOLS TRUCKING)
 28 COMPANY / JOHN AND ELDEENA NICHOLS,)
 NORTHWEST ETCH TECHNOLOGY, INC.,)
 OFFICEMAX INCORPORATED, OLYMPIC)
 CHEMICAL CORPORATION, OMYA, INC.,)
 PACIFIC NORTHERN OIL CORP., PETRICH)
 MARINE DOCK, LLC, PHILLIPS 66 COMPANY,)
 PRECISION MACHINE WORKS, INC., PREMIER)

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Michael McNulty
 USDOJ/ENRD/EES
 P.O. Box 7611
 Ben Franklin Station
 Washington, D.C. 20044
 (202) 514-1210

INDUSTRIES, INC., PUGET SOUND ENERGY,)
 RAINIER PLYWOOD CO., SHELL OIL)
 COMPANY, SHORE TERMINALS LLC,)
 SUPERVALU, INC., THE BOEING COMPANY,)
 THE DIL TRUST, INCLUDING ITS)
 PREDECESSOR THE DILLINGHAM)
 CORPORATION, THE JACK MORRIS ESTATE/)
 MORRIS FAMILY TRUSTS, THE JOSEPH L.)
 TRUCCO AND JEAN E. TRUCCO LIVING TRUST,))
 COLONIAL FRUIT & PRODUCE, INC., THE)
 WATTLES COMPANY, THREE RIVERS)
 MANAGEMENT, INC. FOR THE FORMER)
 HYGRADE FOOD PRODUCTS CORP.,)
 TRUCK-RAIL HANDLING, INC., UNION PACIFIC)
 RAILROAD COMPANY, WASHINGTON FLORAL)
 SERVICE, INC., WASHINGTON STATE)
 DEPARTMENT OF TRANSPORTATION, and)
 WOODWORTH & COMPANY, INC.)
)
 Defendants.)

I. INTRODUCTION

The United States of America (“United States”), on behalf of the National Oceanic and Atmospheric Administration (“NOAA”) and the United States Department of the Interior; the State of Washington (the “State”) through the Washington State Department of Ecology; the Puyallup Tribe of Indians; and the Muckleshoot Indian Tribe (collectively, “Plaintiffs”), have filed a complaint in this case against defendants Advance Ross Sub Company, BNSF Railway Company, BP Products North America, Inc. and Atlantic Richfield Company, Brandrud

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Michael McNulty
 USDOJ/ENRD/EES
 P.O. Box 7611
 Ben Franklin Station
 Washington, D.C. 20044
 (202) 514-1210

1 Furniture, Inc., Nemshoff Chairs, Inc. and Herman Miller, Inc., CanAm Minerals/Kleen Blast
 2 Div., Carstens Company, Chevron U.S.A. Inc., Union Oil Company of California, Texaco
 3 Downstream Properties Inc., City Waterway Investments, Inc., Closing Days, Inc., formerly
 4 known as Richard A. Johnson Cedar Products, Inc., formerly d/b/a Johnson Postman Company,
 5 ExxonMobil Oil Corporation and Exxon Mobil Corporation, F. S. Harmon Manufacturing
 6 Company, Glacier Northwest, Inc. (Lone Star Northwest), Globe Machine Manufacturing
 7 Company, Investco Financial Corporation, J.M. Martinac Shipbuilding Corporation, King
 8 County Metro Transit Division, Louisiana-Pacific Corporation, Marine Iron Works, Inc.,
 9 McFarland Cascade Holdings, Inc., Cascade Pole and Lumber Company and McFarland Cascade
 10 Pole & Lumber Company, Menasha Corporation, Moorage Associates, LLC, Mountain States
 11 Power (PacifiCorp), MUFG Union Bank, N.A., Nestlé USA, Inc., Nichols Trucking Company /
 12 John and Eldeena Nichols, Northwest Etch Technology, Inc., OfficeMax Incorporated, Olympic
 13 Chemical Corporation, OMYA, Inc., Pacific Northern Oil Corp., Petrich Marine Dock, LLC,
 14 Phillips 66 Company, and its predecessor-in-interest ConocoPhillips Company, Precision
 15 Machine Works, Inc., Premier Industries, Inc., Puget Sound Energy, Rainier Plywood Co., Shell
 16 Oil Company, Shore Terminals LLC, SUPERVALU, Inc., The Boeing Company, The DIL
 17 Trust, including its predecessor the Dillingham Corporation, The Jack Morris Estate/Morris
 18 Family Trusts, The Joseph L. Trucco and Jean E. Trucco Living Trust, Colonial Fruit & Produce,
 19 Inc., The Wattles Company, Three Rivers Management, Inc. for the former Hygrade Food
 20 Products Corp., Truck-Rail Handling, Inc., Union Pacific Railroad Company, Washington Floral
 21 Service, Inc., Washington State Department of Transportation, and Woodworth & Company, Inc.
 22

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 25 USDOJ/ENRD/EES
 26 P.O. Box 7611
 27 Ben Franklin Station
 28 Washington, D.C. 20044
 (202) 514-1210

(“Defendants”) pursuant to Section 107 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9607; the Model Toxics Control Act (MTCA), chapter 70.105D RCW; Section 311 of the Clean Water Act (CWA), 33 U.S.C. § 1321; the Washington Water Pollution Control Act (WPCA), chapter 90.48 RCW; and Section 1002(b)(2)(A) of the Oil Pollution Act of 1990 (OPA), 33 U.S.C. § 2702(b)(2)(A). This Consent Decree (the “Decree”) addresses the claims asserted in the Complaint against Defendants for Natural Resource Damages (as defined below) in the Commencement Bay Environment (as defined below).

II. RECITALS

A. The United States Department of Commerce, acting through NOAA; the United States Department of the Interior; the Washington Department of Ecology on behalf of the State of Washington; the Puyallup Tribe of Indians, and the Muckleshoot Indian Tribe (collectively, “the Trustees” and, individually, a “Trustee”), under the authority of Section 107(f) of CERCLA, 42 U.S.C. § 9607(f), Section 1321(f)(5) of CWA, Section 1006(b) of OPA, 33 U.S.C. § 2706(b), and 40 C.F.R. Part 300, subpart G, MTCA and the WPCA, serve as trustees for natural resources for the assessment and recovery of damages for injury to, destruction of, or loss of natural resources under their trusteeship.

B. Investigations conducted by the United States Environmental Protection Agency (“EPA”), the Trustees, and others have detected hazardous substances in the sediments, soils and groundwater of the Commencement Bay Environment, including but not limited to arsenic, antimony, cadmium, chromium, copper, mercury, nickel, lead, zinc, bis(2-ethylhexyl)-phthalate,

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 hexachlorobenzene, hexachlorobutadiene, polycyclic aromatic hydrocarbons (PAHs), and
2 polychlorinated biphenyls (PCBs). In particular, the Trustees have documented the presence of
3 over 23 hazardous substances in the marine sediments of Commencement Bay's Thea Foss and
4 Wheeler-Osgood Waterways.
5

6 C. The Trustees began assessing natural resource damages in the Commencement
7 Bay Environment in October 1991 by finding that hazardous substances had been released into
8 the Commencement Bay Environment; that public trust natural resources had likely been injured
9 by the releases; that data sufficient to pursue a natural resource damage assessment were
10 available or could likely be obtained at a reasonable cost; and that, without further action,
11 implemented and planned response actions would not adequately remedy the resource injuries.
12 *See* Preassessment Screen of Natural Resource Damages in the Commencement Bay
13 Environment Due to Activities Taking Place In and About the Commencement Bay/Nearshore
14 Tidelands (CB/NT) Superfund Site (October 29, 1991). The Trustees notified representatives of
15 known potentially responsible parties ("PRPs") of their intent to conduct a damage assessment.
16 The Trustees subsequently entered into a Funding and Participation Agreement for Phase 1 of the
17 Commencement Bay-Wide Natural Resource Damage Assessment, dated February 10, 1993,
18 with several of the major PRPs. The Trustees published a report on the results of Phase 1 of the
19 damage assessment process in June 1995. Those major PRPs did not participate in subsequent
20 stages of the damage assessment, and the Trustees continued the process independently. The
21 Trustees have now completed a series of studies during Phase 2 of the damage assessment,
22 focusing on impacts of contaminants on marine sediments, benthic organisms, flatfish and
23

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 salmonids. Results of those studies were published in a series of reports, consisting of
2 Commencement Bay Natural Resource Trustees, 1996, Hylebos Waterway Data and Data
3 Analysis Report; Collier, T.K., L.L. Johnson, M.S. Myers, C.M. Stehr, M.M. Krahn, and J.E.
4 Stein, 1998, Fish injury in the Hylebos Waterway in Commencement Bay, Washington; Mary R.
5 Arkoosh, Ed Casillas, Tracy K. Collier, Margaret M. Krahn and John E. Stein, 1998, Effects of
6 Chemical Contaminants from the Hylebos Waterway on Disease Resistance of Juvenile Salmon;
7 Ed Casillas, Bich-Thuy L. Eberhart, Frank C. Sommers, Tracy K. Collier, Margaret M. Krahn
8 and John E. Stein, 1998, Effects of Chemical Contaminants from the Hylebos Waterway on
9 Growth of Juvenile Chinook Salmon; and Ed Casillas, Bich-Thuy L. Eberhart, Tracy K. Collier,
10 Margaret M. Krahn and John E. Stein, 1998, Exposure of Juvenile Chinook Salmon to Chemical
11 Contaminants Specific to the Hylebos Waterway. While the Trustees' studies were specific to
12 the nearby Hylebos Waterway, the Trustees assert that the study results are equally applicable to
13 the circumstances of the Thea Foss and Wheeler-Osgood Waterways. Without admitting
14 Plaintiffs' allegations, the Plaintiffs and Defendants (collectively, the "Parties" and, individually,
15 a "Party") agree that no further natural resource damage assessment is required to effectuate the
16 purposes of this Consent Decree, with respect to Defendants.

17
18 D. Plaintiffs have filed a complaint (the "Complaint") pursuant to Section 107 of
19 CERCLA, 42 U.S.C. § 9607; MTCA, chapter 70.105D RCW; CWA, 33 U.S.C. §§ 1251 et seq.;
20 and OPA, 33 U.S.C. §§ 2701 et seq., seeking recovery from Defendants of damages for injury to,
21 destruction of, and loss of natural resources resulting from releases of hazardous substances into
22 the Commencement Bay Environment, including the costs of assessing the damages.

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P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 E. Plaintiffs allege in the Complaint that Defendants each own or in the past owned
2 and/or operated real property or facilities from which storm water, surface water runoff,
3 wastewater, other process discharges, and/or groundwater have flowed to the Commencement
4 Bay Environment. Plaintiffs also allege that investigations by EPA and others have detected
5 concentrations of hazardous substances in soils, groundwater or sediments on, in or adjacent to
6 those properties or facilities. Some of these hazardous substances are found in the sediments of
7 the Commencement Bay Environment.
8

9 F. Plaintiffs allege in the Complaint that hazardous substances have been released to
10 the Commencement Bay Environment from properties or facilities owned and/or operated by
11 each Defendant through direct discharge, surface water runoff, groundwater and seeps, and that
12 those hazardous substances have caused injury to, destruction of and loss of natural resources in
13 the Commencement Bay Environment under Plaintiffs' trusteeship, including fish, shellfish,
14 invertebrates, birds, marine sediments, and resources of cultural significance. Plaintiffs further
15 allege that each of them and the public have suffered the loss of natural resource services
16 (including ecological services as well as direct and passive human use losses) as a consequence
17 of those injuries.
18

19 G. Plaintiffs allege that each Defendant is either (a) the owner and/or operator of a
20 vessel or a facility; (b) a person who at the time of disposal or release of any hazardous substance
21 owned or operated any facility at which such hazardous substances were disposed of; (c) a
22 person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged
23 with a transporter for transport for disposal or treatment, of hazardous substances owned or
24

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P.O. Box 7611
Ben Franklin Station
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1 possessed by such person, by any other party or entity, or otherwise generated any hazardous
2 substance disposed of or treated, at any facility or incineration vessel owned or operated by
3 another party or entity and containing such hazardous substances; and/or (d) a person who
4 accepts or accepted any hazardous substances for transport to disposal or treatment facilities,
5 incineration vessels or sites selected by such person from which there is a release or a threatened
6 release of a hazardous substance that causes the incurrence of response costs within the meaning
7 of 42 U.S.C. § 9607 and RCW 70.105D.040.
8

9 H. Defendants each deny all the allegations of the Complaint.
10

11 I. Although the Trustees have initiated but not yet completed a natural resource
12 damage assessment for the Commencement Bay Environment, the Trustees have developed and
13 analyzed information sufficient to support a settlement that is fair, reasonable and in the public
14 interest.
15

16 J. To facilitate resolving natural resource damage claims, relying upon the results of
17 the damage assessment studies, remedial investigations, regulatory standards, and scientific
18 literature, the Trustees developed an estimate of the amount of injury to natural resources that
19 had occurred as a result of releases of hazardous substances to the Thea Foss and Wheeler-
20 Osgood Waterways. The Trustees quantified the effects of the injuries in terms of the losses of
21 ecological services over affected areas of the waterway and over time, discounted to the current
22 year. The Trustees used the term *discounted ecological service acre-years* (DSAYs) to describe
23 both the scale of the injuries, and the amount of habitat restoration they are seeking to
24 compensate for the injuries.
25

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P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 K. Plaintiffs assert that hazardous-substance releases to the Thea Foss and Wheeler-
2 Osgood Waterways have become dispersed and commingled to the extent that the effects of one
3 PRP's releases cannot be readily distinguished from another's. Plaintiffs further assert that the
4 circumstances of the contamination of the Thea Foss and Wheeler-Osgood Waterways make all
5 PRPs who contributed to the contamination jointly and severally liable for all injuries to natural
6 resources that have resulted from the contamination. As a consequence, Plaintiffs assert the right
7 to recover for the loss of all the calculated DSAYs and associated damage assessment costs from
8 any Thea Foss and Wheeler-Osgood Waterways PRP. Without prejudice to their position and
9 solely for purposes of facilitating settlement with individual PRPs, the Trustees have determined
10 that settling with Defendants for a portion of the natural resource damages attributable to all
11 waterway sources would result in a fair and equitable resolution of the Trustees' claims. Taking
12 into consideration prior settlements with other PRPs who bore some liability for hazardous
13 substance contamination of the Thea Foss and Wheeler-Osgood Waterways and releases of
14 hazardous substances by non-settling parties, the Trustees have agreed to settle their claims
15 against Defendants for the equivalent of 156.78 DSAYs, a portion of the Trustees' unreimbursed
16 damage assessment costs, plus providing funding for long-term habitat oversight and stewardship
17 activities for agreed restoration projects.

21 L. In settlement of this action Defendants have agreed, in lieu of and as equivalent to
22 monetary damages, (1) to contract with King County to secure permanently the right to use real
23 property for the purpose of natural resource restoration, to construct thereon the habitat
24 restoration project described in Appendix A ("Countyline Project" or "Project"), attached hereto

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
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(202) 514-1210

1 and by this reference incorporated herein, and perform any additional activities described in
2 Appendix A; (2) to permanently protect a portion of the bed and shoreline of the Wheeler-
3 Osgood Waterway ("Wheeler-Osgood Site," described in Appendix B) by executing and
4 recording the Wheeler-Osgood Site deed restriction, attached hereto as Appendix C, intended to
5 preserve the site in perpetuity for use as a habitat restoration site; (3) to pay \$50,000.00 to
6 support project oversight by the Trustees; (4) to pay \$188,894.00 toward the Trustees' long-term
7 restoration project oversight and stewardship activities and (5) to reimburse \$833,705.00 in
8 natural resource damage assessment costs incurred by the Trustees.
9

10
11 M. The Trustees have determined that the timely actions and expenditures to be
12 undertaken by Defendants under this Consent Decree are appropriate and necessary to protect
13 and restore the natural resources allegedly injured as a result of alleged actions or omissions of
14 Defendants that are addressed herein, that such timely actions and expenditures will produce
15 DSAYs sufficient to offset Defendants' allocated liability, and are adequate to redress
16 Defendants' responsibility for the Natural Resource Damages that are the subject of this
17 proceeding. In return the Trustees have agreed to covenant not to sue Defendants for Natural
18 Resource Damages as provided below in Paragraph 53.
19

20 N. Defendants do not admit any liability to Plaintiffs arising out of the transactions
21 or occurrences alleged in the Complaint and the matters alleged in this Consent Decree.
22

23 O. Plaintiffs and Defendants agree, and this Court by entering this Decree finds, that
24 this Decree has been negotiated by the Parties in good faith; that settlement of this matter will
25 avoid prolonged and complicated litigation between the Parties; and that this Decree is fair,
26

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 reasonable, and in the public interest.

2 NOW, THEREFORE, it is hereby Ordered, Adjudged and Decreed:

3 **III. JURISDICTION AND VENUE**

4
5 1. This Court has jurisdiction over the subject matter of this action pursuant to 28
6 U.S.C. §§ 1331, 1345 and 1367, and 42 U.S.C. §§ 9607 and 9613(b) and 33 U.S.C. § 2717(b).
7 The Court has personal jurisdiction over the Parties. Solely for the purposes of this Decree and
8 the underlying Complaint, the Parties waive all objections and defenses that they may have to
9 jurisdiction of the Court or to venue in this District. The Parties may not challenge the terms of
10 this Decree or this Court's jurisdiction to enter and enforce this Decree.
11

12 **IV. PARTIES BOUND**

13 2. This Decree is binding upon the United States, the State, the Puyallup Tribe of
14 Indians, the Muckleshoot Indian Tribe, each Defendant and their heirs, successors and assigns.
15 Any change in ownership or corporate or other legal status, including but not limited to any
16 transfer of assets or real or personal property, will in no way alter the status or responsibilities of
17 the Parties under this Decree.
18

19 3. Defendants shall provide a copy of this Consent Decree to each contractor hired
20 by them to perform any of the work required by this Consent Decree, and to each person
21 representing Defendants with respect to any such work, and shall condition all future contracts
22 entered into by Defendants hereunder upon performance of the work in conformity with the
23 terms of this Consent Decree. Defendants or their contractors shall provide written notice of the
24 Consent Decree to all subcontractors hired by Defendants' contractors to perform any portion of
25

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27 Michael McNulty
28 USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 the work. Defendants shall be responsible for ensuring that all work performed by their
 2 contractors and subcontractors is performed in accordance with this Consent Decree.

3 V. DEFINITIONS

4
 5 4. Unless otherwise expressly provided, terms used in this Decree that are defined in
 6 CERCLA or in regulations promulgated under CERCLA have the meanings assigned to them in
 7 CERCLA or in such regulations. Whenever the terms listed below are used in this Decree or in
 8 any attached appendix, the following definitions will apply:

9 a. "CERCLA" means the Comprehensive Environmental Response
 10 Compensation and Liability Act of 1980, as amended, 42 U.S.C. § 9601, *et seq.*

11 b. "Commencement Bay Environment" means the waters of Commencement
 12 Bay, State of Washington -- including the shoreline, intertidal areas, tributaries, drainage areas,
 13 estuaries and bottom sediments -- lying south of a line drawn from Point Defiance to Dash
 14 Point. These waters include the Thea Foss Waterway, Wheeler-Osgood Waterway, Middle
 15 Waterway, St. Paul Waterway, Puyallup River from the mouth south to the present City limits,
 16 Milwaukee Waterway, Sitcum Waterway, Blair Waterway, and Hylebos Waterway. This area
 17 includes but is not limited to the Commencement Bay Nearshore/Tideflats Superfund Site, as
 18 identified or amended by the EPA, including the B&L Landfill, and areas affected by releases of
 19 hazardous substances within the Commencement Bay Nearshore/Tideflats Superfund Site.

20 c. "Commencement Bay Restoration Account" means the Commencement
 21 Bay Natural Resource Restoration Account authorized by the Order Directing the Deposit of
 22 Natural Resource Damages into the Registry of the Court in United States v. Port of Tacoma,
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24 Michael McNulty
 25 USDOJ/ENRD/EES
 26 P.O. Box 7611
 27 Ben Franklin Station
 28 Washington, D.C. 20044
 (202) 514-1210

1 No. C93-5462B (W.D. Wash. Oct. 8, 1993) (attached as Appendix D).

2 d. "Consent Decree" or "Decree" means this Consent Decree and all attached
3 appendices. In the event of a conflict between this Consent Decree and any Appendix, the
4 Consent Decree will control.
5

6 e. "Countyline Project" or "Project" means the Countyline Project described
7 in Appendix A.

8 f. "Day" means a calendar day. In computing any period of time under this
9 Consent Decree, where the last day falls on a Saturday, Sunday, or federal holiday, the period of
10 time will run until the close of business of the next working day.
11

12 g. "DSAYs" means discounted ecological service acre-years, the metric
13 established by the Trustees to determine the scale of Natural Resource Damages liability
14 associated with the Thea Foss and Wheeler-Osgood Waterways and the natural resource
15 restoration efforts needed to compensate for injury to, destruction or loss of natural resources
16 giving rise to liability.
17

18 h. "Defendant" means each one of, and "Defendants" means all of, Advance
19 Ross Sub Company, BNSF Railway Company, BP Products North America, Inc. and Atlantic
20 Richfield Company, Brandrud Furniture, Inc., Nemshoff Chairs, Inc. and Herman Miller, Inc.,
21 CanAm Minerals/Kleen Blast Div., Carstens Company, Chevron U.S.A. Inc., Union Oil
22 Company of California, Texaco Downstream Properties Inc., City Waterway Investments, Inc.,
23 Closing Days, Inc., formerly known as Richard A. Johnson Cedar Products, Inc., formerly d/b/a
24 Johnson Postman Company, ExxonMobil Oil Corporation and Exxon Mobil Corporation, F. S.
25

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27 Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
28 (202) 514-1210

1 Harmon Manufacturing Company, Glacier Northwest, Inc. (Lone Star Northwest), Globe
 2 Machine Manufacturing Company, Investco Financial Corporation, J.M. Martinac Shipbuilding
 3 Corporation, King County Metro Transit Division, Louisiana-Pacific Corporation, Marine Iron
 4 Works, Inc., McFarland Cascade Holdings, Inc., Cascade Pole and Lumber Company and
 5 McFarland Cascade Pole & Lumber Company, Menasha Corporation, Moorage Associates,
 6 LLC, Mountain States Power (PacifiCorp), MUFG Union Bank, N.A., Nestlé USA, Inc., Nichols
 7 Trucking Company / John and Eldeena Nichols, Northwest Etch Technology, Inc., OfficeMax
 8 Incorporated, Olympic Chemical Corporation, OMYA, Inc., Pacific Northern Oil Corp., Petrich
 9 Marine Dock, LLC, Phillips 66 Company, and its predecessor-in-interest ConocoPhillips
 10 Company, Precision Machine Works, Inc., Premier Industries, Inc., Puget Sound Energy, Rainier
 11 Plywood Co., Shell Oil Company, Shore Terminals LLC, SUPERVALU, Inc., The Boeing
 12 Company, The DIL Trust, including its predecessor the Dillingham Corporation, The Jack
 13 Morris Estate/Morris Family Trusts, The Joseph L. Trucco and Jean E. Trucco Living Trust,
 14 Colonial Fruit & Produce, Inc., The Wattles Company, Three Rivers Management, Inc. for the
 15 former Hygrade Food Products Corp., Truck-Rail Handling, Inc., Union Pacific Railroad
 16 Company, Washington Floral Service, Inc., Washington State Department of Transportation, and
 17 Woodworth & Company, Inc.

21 i. “Entry of the Consent Decree” means the date that the Court signs and
 22 enters the Decree into the record of the above-captioned matter after the close of the public
 23 comment period.

25 j. “King County” means the King County Department of Natural Resources

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Michael McNulty
 USDOJ/ENRD/EES
 P.O. Box 7611
 Ben Franklin Station
 Washington, D.C. 20044
 (202) 514-1210

1 and Parks, as sponsor and implementer of the Countyline Project. It does not mean or include
 2 the King County Metro Transit Division, a named Defendant herein.

3 k. "MTCA" means the Model Toxics Control Act, Chapter 70.105D RCW.

4 l. "Natural Resources" means that definition as provided in 42 U.S.C. §
 5 9601(16).
 6

7 m. "Natural Resource Damages" means damages, including costs of damage
 8 assessment, recoverable under Section 107 of CERCLA, 42 U.S.C. § 9607; Chapter 70.105D
 9 RCW; Section 311 of the Clean Water Act (CWA), 33 U.S.C. § 1321; Chapter 90.48 RCW; and
 10 Section 1002(b)(2)(A) of the Oil Pollution Act of 1990 (OPA), 33 U.S.C. § 2702(b)(2)(A), for
 11 injury to, destruction of, or loss of natural resources resulting from releases of hazardous
 12 substances or discharges of oil to the Commencement Bay Environment at or from sites along,
 13 adjacent to or draining to the Thea Foss and Wheeler Osgood Waterways.
 14

15 n. "Parties" mean the United States, the State of Washington, the Puyallup
 16 Tribe of Indians, the Muckleshoot Indian Tribe and Defendants.
 17

18 o. "Plaintiffs" means the United States, the State of Washington, the
 19 Puyallup Tribe of Indians, and the Muckleshoot Indian Tribe.
 20

21 p. "Project Site" means the approximately 121 acre site composed of all or a
 22 portion of King and Pierce County tax parcels in Pacific and Sumner, Washington, and
 23 unincorporated Pierce County, Washington, as more particularly indicated in Appendix A, in
 24 which King County has or is in the process of obtaining real property interests sufficient to
 25 construct, repair, and maintain the Countyline Project in perpetuity, in a manner consistent with
 26

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Michael McNulty
 USDOJ/ENRD/EES
 P.O. Box 7611
 Ben Franklin Station
 Washington, D.C. 20044
 (202) 514-1210

1 the terms of this Consent Decree.

2 q. "Trustees" mean the United States Department of Commerce, acting
3 through NOAA; the Department of the Interior; the Washington State Department of Ecology, on
4 behalf of the State of Washington; the Puyallup Tribe of Indians; and the Muckleshoot Indian
5 Tribe.
6

7 r. "Wheeler-Osgood Site" means the approximately four-acre site composed
8 of a portion of Pierce County tax parcel 0320041028, in Tacoma, Washington, as indicated in
9 Appendix B, that is owned by Defendant BNSF Railway Company that will become subject to a
10 Deed Restriction (Appendix C) intended to preserve the site in perpetuity for use as a habitat
11 restoration site.
12

13 VI. GENERAL PROVISIONS

14 5. The Complaint states claims upon which relief may be granted.

15 6. Nothing in this Consent Decree shall be construed as an admission of liability by
16 any Defendant for any claims or allegations made in the Complaint or in this Consent Decree.
17

18 7. Except where otherwise expressly provided, each Defendant shall be jointly and
19 severally responsible for performing the obligations undertaken by Defendants under this
20 Consent Decree, including those obligations specifically undertaken by King County. Plaintiffs
21 may take such actions as provided below to enforce the terms of this Consent Decree against any
22 one or more of Defendants as Plaintiffs may choose.
23

24 8. All activities undertaken by Defendants pursuant to this Consent Decree shall be
25 performed in accordance with the requirements of all applicable laws and permits.

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
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1 9. Defendants shall ensure that all work performed under this Consent Decree shall
2 be conducted pursuant to the design and schedule approved by the Trustees in Appendix A
3 attached hereto and shall be subject to review by the Trustees. If the Trustees determine that
4 Defendants are not complying with the design and schedule set forth in Appendix A, the Trustees
5 shall provide prompt written notice to Defendants specifying the basis for their determination of
6 noncompliance. Defendants may correct the noncompliance or invoke the dispute resolution
7 procedures set forth in Section XVII below. Subject to the right of Defendants to invoke the
8 dispute resolution provisions, the Trustees may require Defendants to take actions, to alter,
9 suspend or cease ongoing activities, and to alter, postpone or refrain from taking proposed
10 actions, as the Trustees reasonably deem necessary to ensure compliance with the terms of this
11 Consent Decree and any plans or proposals adopted hereunder.

12 10. This Consent Decree is not, and shall not be construed to be, a permit issued
13 pursuant to any law.

14 11. Where any portion of the activities undertaken pursuant to this Consent Decree
15 requires a federal, state or local permit or approval, Defendants shall cause timely and complete
16 applications to be submitted and take all other actions necessary to obtain all such permits or
17 approvals. Defendants shall use best efforts to cause any necessary permits to be obtained, and
18 any delays in permit issuance that may occur despite such best efforts shall not constitute non-
19 compliance with the timelines set out in Appendix A.

20 12. The Plaintiffs do not, by their consent to the entry of this Consent Decree, warrant
21 or aver in any manner that Defendants' compliance with this Consent Decree will result in
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1 compliance with CERCLA or any other law. Compliance with this Consent Decree does not
 2 diminish or affect Defendants' responsibility to comply with any applicable federal, state or local
 3 law or regulation. The Parties agree that Defendants are responsible for achieving and
 4 maintaining complete compliance with all applicable federal, state and local laws, regulations
 5 and permits.
 6

7 VII. PROJECT SITE

8 13. King County has obtained or is in the process of obtaining all real property
 9 interests necessary to construct, operate, maintain and repair the Project Site forever for open
 10 space, flood protection and control, salmon recovery and conservation purposes. Each parcel or
 11 portion of a parcel constituting the Project Site as shown in Appendix E-1 hereto shall be subject
 12 to deed restrictions, the form of which are attached as Appendices E-2 and E-3 hereto, and which
 13 shall be recorded prior to the initiation of construction of the Project, and which shall bind such
 14 parcels in perpetuity to the restrictions and requirements of this Consent Decree.
 15
 16

17 VIII. PROJECT DEVELOPMENT

18 14. Defendants shall provide the funds and services and ensure that all necessary
 19 steps are taken to construct the Countyline Project and to perform any additional activities in
 20 accordance with the details, specifications and project development schedule set out in Appendix
 21 A.
 22

23 15. Defendants shall avoid taking any action on the Project Site property or adjacent
 24 property owned or controlled by Defendants that is inconsistent with this Consent Decree and
 25 that would interfere with the Countyline Project such that it would substantially decrease the

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1 likelihood of success of the Project. Provided, however, that Defendants (including their agents,
2 contractors, successors and assigns) are authorized to use, develop, and operate on adjacent
3 property as is consistent with existing or subsequently issued permits and is otherwise in
4 compliance with applicable law, and such use, development and operations shall not be
5 considered inconsistent with this Consent Decree or an interference with, or diminishment of, the
6 Countyline Project. Provided, however, that no Defendant shall take or permit to be taken any
7 action on adjacent property that constitutes a trespass on the Project Site. Defendants shall notify
8 the Trustees in writing at least 30 days prior to entering into any contracts for or applying for any
9 permits for the taking of any actions on the Countyline Project Site other than those identified in
10 Appendix A. Such notice shall include a narrative description of the proposed actions plus a site
11 diagram indicating the location of the proposed actions.

14 16. Within 120 days after completion of construction of the Countyline Project,
15 Defendants shall submit a written Notice of Completion to the Trustees. The Notice of
16 Completion shall include copies of all permits issued for the Countyline Project plus a set of as-
17 built project drawings. The Trustees shall review the course and results of the development of the
18 Countyline Project to determine whether the Project has been completed in accordance with
19 Appendix A. Within 60 days after receiving the Notice of Completion, the Trustees shall submit
20 to Defendants either (a) a written notice identifying specific deficiencies the Trustees determine
21 must be satisfied for the Countyline Project to be completed in accordance with Appendix A
22 (Notice of Deficiencies); or (b) a written notice of the Trustees' determination that the Project
23 has been so completed (Notice of Approval of Completion). Following receipt of a Notice of

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Deficiencies, Defendants shall correct the identified deficiencies and complete the Countyline Project in accordance with Appendix A, and submit to the Trustees an amended Notice of Completion for review and response in accordance with this Paragraph. Any delay in completing Countyline Project construction as a result of the operation of this Paragraph shall not in and of itself constitute grounds for relief from the requirement to pay stipulated penalties under Section XVIII for compliance delays.

17. Within 180 days following receipt of the Trustees' Notice of Approval of Completion for the Countyline Project, Defendants shall submit to the Trustees a Project Completion Accounting. The Project Completion Accounting shall itemize the costs incurred by King County in developing the Countyline Project and shall be substantially in the form of Appendix F attached hereto.

IX. POST-CONSTRUCTION MONITORING AND ADAPTIVE MANAGEMENT

18. To confirm that the Countyline Project produces the number of DSAYs needed to offset the Defendants' allocated liability, Defendants shall monitor the performance of the Project over a period not to exceed ten years ("Monitoring Period") to demonstrate that, on average, the White River inundates at least 32.5 acres of the Project Site ("Inundation Goal"). Such monitoring shall be performed in accordance with the following particulars:

a. Defendants shall monitor site inundation by means of an aerial photograph which shall be taken between February 1 and March 31 for each year of required monitoring ("Required Monitoring Event").

b. Except as provided in Paragraph 20, Defendants shall acquire the required

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1 aerial photograph in the first, third, fifth, seventh and tenth years following completion of
2 construction. Defendants may elect to acquire aerial photographs between February 1 and March
3 31 in other years during the Monitoring Period.

4
5 c. Defendants shall acquire the aerial photographs at a time of day, with sun
6 angle, image angle, weather and lighting conditions, elevation, and image resolution sufficient to
7 permit unambiguous determination of the extent of site inundation.

8
9 d. Defendants shall provide NOAA an electronic, ortho-rectified copy of the
10 photograph by May 31 in any year in which Defendants acquire aerial photographs under
11 Subparagraph 18.b.

12 19. The Trustees shall use the supplied photographs to calculate the acres of
13 inundation of the Project Site, and shall recalculate the average inundation acreage after each
14 Required Monitoring Event. The Trustees shall also perform such calculations for any other
15 years in which Defendants provide aerial photographs that satisfy the conditions of
16 Subparagraphs 18.a- d. The Trustees shall notify Defendants of the results of their calculations
17 within 45 days after each calculation or recalculation.

18
19 20. If the Trustees' calculation of the acres of inundation exceeds an average of 48.8
20 acres over the course of any three consecutive monitoring events, including Required Monitoring
21 Events and any monitoring conducted in other years as provided in Subparagraph 18.b, the
22 requirements of this Section shall be deemed fulfilled and Defendants shall have no further
23 monitoring or adaptive management requirements for the Project.

24
25 21. If, following the third Required Monitoring Event, the Trustees' calculation of
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1 average inundation of the Project Site demonstrates that the inundation does not exceed 29.3
2 acres, the Trustees and Defendants shall, within 60 days after the Trustees' notice to Defendants,
3 meet to discuss the conditions preventing the Project Site from achieving the Inundation Goal
4 and what measures Defendants will take to increase the likelihood of achieving the Inundation
5 Goal by the end of the Monitoring Period.
6

7 22. If, following the last Required Monitoring Event, the Trustees' calculations
8 demonstrate that the ten-year average inundation of the Project Site falls short of the Inundation
9 Goal, the Trustees shall so notify the Defendants by issuing a Notice of Deficiency. The Notice
10 of Deficiency shall identify the number of acres of average inundation and corresponding
11 number of DSAYs that the Site failed to produce.
12

13 a. Within 60 days following the date of the Trustees' Notice of Deficiency,
14 Defendants shall submit to the Trustees a proposed plan and schedule for taking actions, on the
15 Project Site or elsewhere in a location approved by the Trustees adjacent to or downstream of the
16 Project Site, to produce a sufficient number of DSAYs to offset the shortfall identified in the
17 Notice of Deficiency.
18

19 b. Within 45 days following receipt of the Defendants' proposed plan and
20 schedule, the Trustees shall respond with specific comments or a statement indicating the
21 Trustees' acceptance of the proposed plan and schedule.
22

23 c. Within 45 days following the date of the Trustees' comments, Defendants
24 shall either revise and implement the proposed plan and schedule consistent with the Trustees'
25 comments and thereafter commence work in accordance with the revised plan and schedule, or
26

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1 shall compensate the Trustees for the identified DSAY shortfall by paying the sum of \$66,000
 2 times the total DSAY shortfall, adjusted by the increase in the Consumer Price Index over the
 3 Monitoring Period. Payments in accordance with this Subparagraph will be made to the
 4 Department of the Interior's Natural Resource Damage Assessment and Restoration Revolving
 5 Fund, per instructions provided by the Trustees.
 6

7 X. ACCESS TO INFORMATION AND PROJECT SITE

8 23. To facilitate their oversight responsibilities, the Trustees shall have full access to
 9 all work in progress required under this Consent Decree.
 10

11 24. From and after the Effective Date, Defendants shall cause the Trustees and their
 12 contractors to have access at all reasonable times to the Project Site and to any property under
 13 the control of any Defendant to which access is required for the oversight or implementation of
 14 this Consent Decree. Where the property to which access is sought is not otherwise open to
 15 public access, the Trustees shall give notice to the property owner(s) and King County prior to
 16 access. Each Trustee shall have the authority to enter freely and move about such property at all
 17 reasonable times for the purposes of overseeing the requirements of this Consent Decree,
 18 including, but not limited to:
 19

20 a. Monitoring and assessing progress on the planning, development,
 21 maintenance and monitoring of the Countyline Projects;
 22

23 b. Verifying any data or information submitted to the Trustees;
 24

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1 c. Inspecting and copying records, operation logs, contracts or other
2 documents maintained or generated by Defendants or their contractors hereafter retained to
3 perform work undertaken pursuant to this Consent Decree;
4

5 d. Conducting such tests, investigations or sample collections as deemed
6 necessary to monitor compliance with this Consent Decree or to assist in further identifying and
7 quantifying natural resource injuries requiring restoration actions and in planning and carrying
8 out maintenance actions as provided in Subparagraph 24.f;
9

10 e. Using a camera, sound recording device or other type equipment to record
11 the work done under this Consent Decree or injuries to natural resources;
12

13 f. Undertaking any maintenance action as the Trustees determine
14 appropriate. Such maintenance actions shall only be taken with the approval of the property
15 owner(s) and King County, which approval may be withheld only upon a showing that the
16 proposed action would be inconsistent with the purposes of the Project as described in Appendix
17 A (including the Project's flood control purposes), would be inconsistent with other provisions of
18 this Consent Decree or other applicable law, or would impose costs or additional liability upon
19 Defendants or King County. For the purposes of this Subparagraph 24.f, "maintenance" does not
20 include any repair, modification, or alteration that changes the ecological function, character,
21 scope or size of the Project as described in Appendix A.
22
23
24

25 25. Defendants shall have the right to accompany any Trustee or its representative on
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the property. Anyone provided access through this Consent Decree shall comply with applicable health and safety requirements and shall not interfere with ongoing operations.

XI. IDENTIFICATION OF CONTRACTORS

26. Trustees and Defendants agree that the Countyline Project as described in Appendix A is to be constructed, operated, repaired and maintained by King County. The Defendants shall cause the Trustees to be notified in writing of all contractors selected by King County, in accordance with state and local procurement laws, to implement the Project, within 30 days of such selection by King County. Defendants shall ensure that contracts for implementation of the Project under the terms of this Consent Decree shall be consistent with Appendix A.

XII. REIMBURSEMENT OF RESTORATION OVERSIGHT COSTS

27. Defendants shall reimburse Trustee costs incurred in the oversight of the development and maintenance of the Countyline Project and in monitoring Project performance in the total amount of \$50,000. Sums paid under this Paragraph shall be deposited in the Commencement Bay Restoration Account for use as the Trustees shall determine in accordance with the terms of this Consent Decree and other applicable law. Payment shall be made as provided below in Paragraph 34.

XIII. PRESERVATION OF WHEELER-OSGOOD SITE

28. BNSF Railway Co. ("BNSF") owns the Wheeler-Osgood Site, as described in Appendix B.

29. Within 30 days of the Effective Date, BNSF shall record in the applicable real

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1 property records for the real property comprising the Wheeler-Osgood Site a deed restriction
2 intended to make the site available in perpetuity for the purposes of habitat preservation and
3 restoration and inform prospective purchasers or lessees of the existence of this Consent Decree
4 and of the fact that the transfer and use of the parcel are subject to the requirements and
5 restrictions of this Consent Decree (attached hereto as Appendix C).
6

7 30. As provided in Appendix C, BNSF shall not sell, grant, lease or otherwise transfer
8 to any party an interest in the real property comprising the Wheeler-Osgood Site other than as
9 specifically contemplated in this Consent Decree without the prior written consent of the
10 Trustees, and the United States Department of Justice ("DOJ").
11

12 31. Defendants shall avoid taking any action on the Wheeler-Osgood Site or on
13 adjacent property owned or controlled by any Defendant that would substantially diminish the
14 value of the Wheeler-Osgood Site as natural resource habitat. Provided, however, Defendants
15 (including their agents, contractors, successors and assigns) are authorized to use, develop and
16 operate on adjacent property as is consistent with existing or subsequently issued permits and is
17 otherwise in compliance with applicable law, and such use and operations shall not be
18 considered an interference with, or diminishment of, the deed restrictions for the Wheeler-
19 Osgood Site set forth in Appendix C. Provided, however, that no Defendant shall take or permit
20 to be taken any action on adjacent property that constitutes a trespass on the Wheeler Osgood
21 Site.
22
23

24 32. The Trustees may at any time implement, or authorize any third party to
25 implement, such further restoration actions on the Wheeler-Osgood Site as they determine

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1 appropriate. Such further restoration actions shall only be taken with the approval of BNSF
 2 Railway Co. and under a mutually acceptable access agreement between the Trustees and BNSF.
 3 BNSF's approval may be withheld only upon a showing that the proposed activity would be
 4 inconsistent with the purposes of preserving and enhancing the ecological value of the site,
 5 would be inconsistent with other provisions of this Consent Decree or other applicable law,
 6 would unreasonably interfere with BNSF Railway Co.'s use of adjacent property, or would
 7 impose costs upon BNSF Railway Co.
 8

9 XIV. PERMANENT RESTORATION PROJECT STEWARDSHIP

10 33. Defendants' agreement to develop the Countyline Project and to preserve the
 11 existing habitat values of the Wheeler-Osgood Site is intended to generate ecological services
 12 sufficient to offset Defendants' allocated liability for natural resource damages calculated by the
 13 Trustees in terms of DSAYs. The Trustees' computation of DSAYs assumes that restoration
 14 projects constructed as designed will produce ecological services in perpetuity. To ensure that
 15 the public receives the full benefit of the agreed restoration actions, Defendants also agree to
 16 contribute financially to the costs of long-term monitoring, maintenance and adaptive
 17 management of the Countyline Project after fulfilling all permit requirements as required by
 18 Section VIII. Defendants also agree to contribute financially to the costs of long-term
 19 monitoring, maintenance and adaptive management of the Wheeler-Osgood Site beginning on
 20 the Effective Date of this Consent Decree. Defendants' financial contributions to the costs of
 21 long-term monitoring, maintenance and adaptive management for the Countyline Project and
 22 Wheeler Osgood Site described in this Paragraph will be fully satisfied upon Defendants'
 23

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1 payment of the sums provided in Section XV below, and Defendants will have no other
 2 continuing funding obligations under this Decree.

3 XV. PAYMENT OF COSTS OF PROJECT OVERSIGHT,
 4 LONG TERM STEWARDSHIP AND
 5 NATURAL RESOURCE DAMAGE ASSESSMENT

6 34. Within 30 days of the Effective Date, Defendants will pay to the Trustees
 7 \$238,894.00, consisting of the \$50,000.00 for restoration project oversight costs as stipulated
 8 above in Paragraph 27, plus the \$188,894.00 to contribute to the Trustees' long-term oversight
 9 and stewardship activities as stipulated above in Paragraph 33. This payment will be made by
 10 electronic funds transfer per directions provided by the Clerk of the Court for deposit into the
 11 Commencement Bay Natural Resource Restoration Account.
 12

13 35. Within 30 days of the Effective Date, Defendants will pay to the Trustees
 14 additional sums totaling \$833,705.00 in natural resource damage assessment costs. These sums
 15 shall be paid in the following amounts and particulars:
 16

17 Trustee: National Oceanic and Atmospheric Administration
 18 Amount: \$269,615.47

19 Trustee: U.S. Department of the Interior
 20 Amount: \$379,452.65

21 Payments to NOAA and the U.S. Department of the Interior shall be made by FedWire
 22 Electronic Funds Transfer ("EFT") to the U.S. Department of Justice account in accordance with
 23 current EFT procedures. Payment shall be made in accordance with instructions provided to
 24 Defendants by the Financial Litigation Unit of the U.S. Attorney's Office of the Western District
 25

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1 of Washington. Any payments received by the Department of Justice after 4:00 p.m. Eastern
 2 Standard Time shall be credited on the next business day. Defendants shall provide at least five
 3 days' notice to the Financial Litigation Unit before making the transfer.

4
 5 Payments to the other Trustees shall be made by certified checks, or as otherwise directed
 6 by the recipient, with the notation "Thea Foss NRDA Mediation Group - Commencement Bay
 7 Assessment Costs," in the amounts indicated and made payable and addressed as follows:

8 Trustee: State of Washington
 9 Amount: \$63,485.02
 10 Payee: State of Washington/Department of Ecology
 11 Address: State of Washington
 12 Department of Ecology
 13 Attention: Cashiering Section
 14 P.O. Box 5128
 15 Lacey, WA 98503-0210

16 Trustee: Puyallup Tribe of Indians
 17 Amount: \$114,033.59
 18 Payee: Puyallup Tribe of Indians
 19 Address: Mr. William Sullivan
 20 Environmental Protection Department
 21 Puyallup Tribe of Indians
 22 2002 E. 28th Street
 23 Tacoma, WA 98404

24 Trustee: Muckleshoot Indian Tribe
 25 Amount: \$7,118.27
 26 Payee: Muckleshoot Indian Tribe
 27 Address: Mr. Rob Otsea
 28 Office of the Tribal Attorney
 Muckleshoot Indian Tribe

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Auburn, WA 98002

36. At the time of each payment Defendants will send notice that payment has been made to the Trustees and DOJ in accordance with Section XXV (Notices and Submissions). Such notice will reference Commencement Bay NRDA, DOJ case number 90-11-2-1049, and the civil action number set forth in the caption of this Consent Decree.

XVI. FAILURE TO MAKE TIMELY PAYMENTS

37. If Defendants fail to make any payment under Paragraphs 34-35 by the required due date, interest shall be assessed at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest is the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year. Interest will continue to accrue on the unpaid balance through the date of payment.

XVII. DISPUTE RESOLUTION

38. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree.

39. Any dispute which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the Trustees and Defendants. The period for informal negotiations shall not exceed twenty-one (21) days from the time the dispute

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1 arises, unless the parties to the dispute agree otherwise in writing. The dispute shall be
2 considered to have arisen when the Trustees send Defendants a written notice specifying the
3 nature of the dispute and requested relief ("Notice of Dispute") or Defendants send the Trustees
4 a written Notice of Dispute.

5
6 40. a. If the Parties cannot resolve a dispute by informal negotiations under the
7 preceding Paragraph, then the position advanced by the Trustees shall be considered binding
8 unless, within twenty-one (21) days after the conclusion of the informal negotiation period,
9 Defendants invoke the formal dispute resolution procedures of this Section by serving on the
10 Trustees a written Statement of Position on the matter in dispute, including, but not necessarily
11 limited to, any factual data, analysis or opinion supporting that position and any supporting
12 documentation relied upon by Defendants.
13

14
15 b. Within twenty-one (21) days after receipt of Defendants' Statement of
16 Position, the Trustees shall serve on Defendants their written Statement of Position, including,
17 but not necessarily limited to, any factual data, analysis or opinion supporting that position and
18 all supporting documentation relied upon by the Trustees.
19

20 c. An administrative record of the dispute shall be maintained by the
21 Trustees and shall contain all Statements of Position, including supporting documentation,
22 submitted pursuant to this Section.
23

24 d. The Defendants and the Trustees each shall identify a Formal Dispute
25 Resolution Representative, who shall meet to discuss the matter in dispute at the earliest

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1 available opportunity and who will meet and work in good faith to resolve the matter in dispute.
2 If the Parties fail to resolve the dispute within twenty-one (21) days after the initial meeting of
3 the Formal Dispute Resolution Representatives, then the position advanced by the Trustees in
4 their Statement of Position shall be considered binding upon Defendants, subject to any
5 agreements the Formal Dispute Resolution Representatives may have reached on one or more
6 issues. In such event, the Trustees shall within five (5) days of the conclusion of the formal
7 dispute resolution process notify Defendants in writing that the formal dispute resolution process
8 has concluded. Defendants may seek judicial review of the Trustees' Statement of Position (as
9 modified by any agreements the Formal Dispute Resolution Representatives may have reached)
10 pursuant to the following Subparagraph.
11

12
13 e. Any matter in dispute shall be reviewable by this Court, provided that a
14 motion for judicial review of the decision is filed by Defendants with the Court and served on all
15 Parties within twenty-one (21) days of receipt of the Trustees' letter notifying Defendant of the
16 conclusion of the formal dispute resolution process. The motion shall include a description of
17 the matter in dispute (including both Statements of Position), the efforts of the parties to resolve
18 the dispute, the relief requested, and the schedule, if any, within which the dispute must be
19 resolved to ensure orderly implementation of this Consent Decree. The Parties shall jointly
20 move the Court to establish a schedule under which the Plaintiffs file a response to Defendants'
21 motion within twenty-one (21) days of receipt of the motion, and Defendants file a reply brief
22 within five (5) business days of receipt of the response. If the Court does not grant the motion
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1 for such a schedule, then the Parties shall file the response and reply in accordance with the
 2 schedule set forth in the Local Rules for the Western District of Washington.

3
 4 f. The Court may rule based on the administrative record, with or without
 5 oral argument, and shall review Trustees' Statement of Position or its resolution of the dispute
 6 under the standards of the Administrative Procedures Act.

7
 8 g. The foregoing notwithstanding, the Parties acknowledge that disputes may
 9 arise that require resolution on an expedited basis. In such cases, the Parties shall agree on an
 10 expedited schedule or, absent prompt agreement, either Defendants or the Trustees may petition
 11 the Court for the imposition of an expedited schedule.

12
 13 41. The invocation of formal dispute resolution procedures under this Section shall
 14 not extend, postpone, or affect in any way any obligation of the Defendants under this Consent
 15 Decree, not directly in dispute, unless the Trustees or the Court agree otherwise. Stipulated
 16 penalties with respect to the disputed matter shall continue to accrue, but payment otherwise
 17 required under Section XVIII shall be stayed pending resolution of the dispute. Notwithstanding
 18 the stay of payment, stipulated penalties shall continue to accrue from the first day of
 19 noncompliance with any applicable provision of this Consent Decree. In the event that the
 20 Defendants do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as
 21 provided in Section XVIII (Stipulated Penalties).
 22

23 XVIII. STIPULATED PENALTIES

24
 25 42. The Parties stipulate that delays in carrying out the activities required herein may
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1 diminish the compensatory value attributable to those activities. Consequently, in the event that
 2 Defendants exceed the deadline provided for one of the activities described below (subject to any
 3 modifications agreed to under Section XXIX) and such delay is not excused through operation of
 4 the dispute resolution provisions (Section XVII) and/or the force majeure provisions (Section
 5 XIX), Defendants shall, as a stipulated penalty, increase the financial contributions it makes
 6 under this Consent Decree to fund habitat restoration actions, over and above any payments
 7 required elsewhere under this Consent Decree, as follows:

9 a. For each week Defendants fail to comply with a deadline under
 10 Paragraph 34 or 35 for making any payment; in the Countyline Project Development Schedule
 11 included in Appendix A; under Paragraph 16 for submitting a Notice of Completion; under
 12 Paragraph 17 for submitting a Project Completion Accounting; under Paragraph 18 for providing
 13 a performance monitoring photograph; under Subparagraph 22.a for submitting a proposed plan
 14 and schedule; under Subparagraph 22.c for implementing the plan or making the required
 15 payment; or under Paragraph 51 for providing copies of certificates of insurance and insurance
 16 policies, Defendants shall pay a stipulated penalty in the amount of \$1,000. Where the delay
 17 extends beyond the second week, the stipulated penalty shall apply to each additional day of
 18 delay for each such missed deadline. For purposes of this Subparagraph, a week shall equal a
 19 continuous period of seven days.

22 b. Stipulated penalties are due and payable within 30 days of the date of the
 23 demand for payment of the penalties by the Trustees. All payments to the Trustees under this
 24 Paragraph will be made by a certified check made payable to the Clerk of the Court. This check
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1 will be deposited in the Commencement Bay Restoration Account.

2 c. At the time of each penalty payment under this Paragraph, Defendants will
3 send notice that payment has been made to the Trustees and DOJ in accordance with Section
4 XXV (Notices and Submissions). This notice will reference Commencement Bay NRDA, DOJ
5 Case Number 90-11-2-1049, and the civil action number set forth in the caption of this Consent
6 Decree.
7

8 d. Penalties will accrue as provided in this Paragraph regardless of whether
9 the Trustees have notified Defendants of the violation or made a demand for payment, but the
10 penalties need only be paid upon demand. Penalties for late payments will begin to accrue on the
11 day after payment is due. All other penalties will begin to accrue on the day after the Trustees'
12 notice of noncompliance pursuant to Paragraph 9 and will continue to accrue through the date of
13 payment. Nothing in this Decree prevents the simultaneous accrual of separate penalties for
14 separate violations of this Decree.
15

16 e. Defendants may dispute the Trustees' right to the penalties identified
17 under Subparagraph a. above by invoking the dispute resolution procedures of Section XVII.
18

19 43. If Defendants fail to pay stipulated penalties when due, the Trustees may institute
20 proceedings to collect the penalties, as well as interest. Defendants shall pay Interest on the
21 unpaid balance, which shall begin to accrue on the date of demand made pursuant to
22 Subparagraph 42.b.
23

24 44. If Plaintiffs bring a motion or a separate action in court to enforce this Decree and
25 prevail, Defendants will reimburse Plaintiffs for all costs of such action, including but not limited

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28 USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
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1 to costs of attorney time.

2 45. Payments made under this Section are in addition to any other remedies or
3 sanctions available to Plaintiffs by virtue of Defendants' failure to comply with the requirements
4 of this Decree.
5

6 46. Notwithstanding any other provision of this Section, Plaintiffs may, in their
7 unreviewable discretion, waive payment of any portion of the stipulated penalties that have
8 accrued pursuant to this Decree. Payment of stipulated penalties does not excuse Defendants
9 from payment as required by Section XV or from performance of any other requirement of this
10 Consent Decree.
11

12 47. The Trustees may use sums paid as stipulated penalties under Paragraph 42 to pay
13 unreimbursed damage assessment costs and/or to fund or contribute to additional actions to
14 restore Commencement Bay natural resources.
15

16 XIX. FORCE MAJEURE

17 48. "Force majeure," for purposes of this Consent Decree, is defined as any event
18 arising from causes beyond the control of Defendants that delays or prevents the performance of
19 any obligation under this Consent Decree despite Defendants' best efforts to fulfill the
20 obligation. The requirement that Defendants exercise "best efforts to fulfill the obligation"
21 includes using best efforts to anticipate any potential force majeure event and use best efforts to
22 address the effects of any potential force majeure event (1) as it is occurring and (2) following
23 the potential force majeure event, such that the delay is minimized to the greatest extent possible.
24

25 "Force majeure" does not include financial inability to fulfill the obligation. The requirement

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27 Michael McNulty
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P.O. Box 7611
Ben Franklin Station
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1 that Defendants exercise “best efforts to fulfill the obligation” also includes, where necessary,
2 the filing of legal actions to compel contract performance in accordance with the design and
3 schedule approved by the Trustees herein.

4
5 49. a. If any event occurs or has occurred that may delay the performance of any
6 obligation under this Consent Decree, whether or not caused by a force majeure event,
7 Defendants shall notify the Trustees within 14 days of when Defendants first knew that the event
8 might cause a delay. Within 30 days thereafter, Defendants shall provide a written explanation
9 and description of the reasons for the delay; the anticipated duration of the delay; all actions
10 taken or to be taken to prevent or minimize the delay; a schedule for implementation of any
11 measures to be taken to prevent or mitigate the delay or the effect of the delay; and the rationale
12 for attributing such delay to a force majeure event (if Defendants intend to assert such a claim).
13 Defendants shall include with any notice all available documentation supporting their claim that
14 the delay was attributable to a force majeure event. Failure to comply with the above
15 requirements will preclude Defendants from asserting any claim of force majeure for that event.
16
17

18 b. If the Trustees agree that the delay or anticipated delay is attributable to a
19 force majeure event, the time for performance of the obligations under this Consent Decree that
20 are affected by the force majeure event will be extended by the Trustees for such time as is
21 necessary. An extension of the time for performance of the obligations affected by the force
22 majeure event shall not, of itself, extend the time for performance of any other obligation. If the
23 Trustees do not agree that the delay or anticipated delay has been or will be caused by a force
24 majeure event, the Trustees will notify Defendants in writing of their decision.
25

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28 USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
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(202) 514-1210

c. If Defendants elect to invoke the dispute resolution procedures set forth in Section XVII, above, regarding a claimed force majeure event it shall do so no later than 30 days after receipt of the Trustees' notice of disagreement. In any such proceeding Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will likely be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that Defendants exercised best efforts to fulfill the obligation in question, and that Defendants complied with the requirements of this Paragraph. If Defendants carry this burden, the delay at issue shall be deemed not to be a violation by Defendants of the affected obligation of this Consent Decree.

XX. INDEMNIFICATION; INSURANCE

50. a. The Plaintiffs do not assume any liability by entering into this agreement. Defendants shall, or shall cause King County to, indemnify, save and hold harmless each of the Plaintiffs and/or their officials, agents, employees, contractors, subcontractors, or representatives from any and all damage claims or causes of action arising from or on account of the acts or omissions of Defendants or King County and/or their officers, employees, agents, contractors, subcontractors, representatives, and any persons acting on their behalf or under their control, in carrying out the requirements of this Consent Decree. Further, Defendants agree to, or agree to cause King County to, pay the Plaintiffs all costs they incur, including but not limited to attorneys fees and other expenses of litigation and settlement, arising from or on account of damage claims made against the Plaintiffs based on acts or omissions of Defendants or King

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 County or their officers, employees, agents, contractors, subcontractors, representatives and any
2 persons acting on their behalf or under their control, in carrying out the requirements of this
3 Consent Decree. None of the Plaintiffs shall be held out as a party to any contract entered into
4 by or on behalf of Defendants in carrying out the requirements of this Consent Decree. Neither
5 Defendants nor King County shall be considered an agent of any Plaintiff, and Defendants shall
6 require King County to affirmatively acknowledge that it is not acting as an agent of any
7 Plaintiff.
8

9 b. Defendants shall waive, and shall cause King County to waive any claims
10 against the Plaintiffs for damages or reimbursement or for set-off against any payments made or
11 to be made to the Plaintiffs, arising from or on account of any contract, agreement or
12 arrangement between Defendants or King County and any other person in carrying out the
13 requirements of this Consent Decree, including, but not limited to, claims on account of
14 construction delays. In addition, Defendants shall, and shall cause King County to, indemnify
15 and hold harmless the Plaintiffs with respect to any claims for damages or reimbursement arising
16 from or on account of any contract, agreement, or arrangement between Defendants or King
17 County and any person in carrying out the requirements of this Consent Decree including, but
18 not limited to, claims on account of construction delays.
19
20

21 51. No later than 15 days before commencing any work involved in implementing
22 this Consent Decree, Defendants shall, or shall cause King County to, secure and maintain
23 comprehensive general liability insurance and automobile liability insurance with limits of
24 \$1,000,000 (one million dollars), combined single limit or provide evidence of their ability to
25

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P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
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1 self-insure to such limits. In addition, for the duration of any work conducted in carrying out this
2 Consent Decree Defendants shall ensure, or shall cause King County to ensure that all persons or
3 entities performing any work involved in implementing this Consent Decree comply with all
4 applicable laws and regulations regarding the provision of worker's compensation insurance. No
5 later than 15 days before commencing any work involved in implementing this Consent Decree,
6 Defendants shall, or shall cause King County to, provide to the Trustees evidence of King
7 County's, and any persons' or entities' performing such work under contract or subcontract with
8 King County, compliance with applicable laws and regulations regarding the provision of
9 worker's compensation insurance. Defendants shall, or cause King County to, resubmit such
10 evidence each year on the anniversary of the Effective Date of this Consent Decree. If
11 Defendants demonstrate by evidence satisfactory to the Trustees that any contractor or
12 subcontractor maintains insurance equivalent to that described above, or insurance covering the
13 same risks but in a lesser amount, then, with respect to that contractor or subcontractor,
14 Defendants need provide only that portion of the insurance described above that is not
15 maintained by the contractor or subcontractor.

19 52. The Trustees agree to require that any contractor who performs work for them in
20 the Countyline Project area or the Wheeler Osgood Site shall agree to indemnify and hold
21 harmless King County or BNSF, respectively, and their agents, employees and representatives,
22 against all claims of any nature, including, but not limited to, claims by third parties for death,
23 personal injury, or property damage, and claims for environmental liability that arise as the result
24 of negligent acts or omissions of such contractor, its employees, representatives and agents in
25

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 carrying out the provisions of this Consent Decree. Such indemnity shall be limited to actual
 2 damages only, and shall not extend to consequential damages or any other liability except as
 3 stated herein.

4 XXI. COVENANT NOT TO SUE BY PLAINTIFFS

5
 6 53. Except as specifically provided in Section XXII (Reservations of Rights) below,
 7 Plaintiffs covenant not to sue or to take administrative action against Defendants pursuant to
 8 Section 107(a) of CERCLA, 42 U.S.C. § 9607(a); Chapter 70.105D RCW; Section 311 of the
 9 Clean Water Act (CWA), 33 U.S.C. § 1321; or Section 1002(a) of the Oil Pollution Act of 1990
 10 (OPA), 33 U.S.C. § 2702(a), to recover Natural Resource Damages. This covenant not to sue
 11 will take effect upon the Effective Date of this Consent Decree and continue in effect
 12 conditioned upon the satisfactory performance by Defendants of their obligations under this
 13 Consent Decree. This covenant not to sue extends only to each Defendant and its heirs,
 14 successors and assigns, and does not extend to any other person.
 15
 16

17 XXII. RESERVATIONS OF RIGHTS

18 54. Plaintiffs reserve, and this Consent Decree is without prejudice to, all rights
 19 against Defendants with respect to all matters not expressly included within the Covenant Not to
 20 Sue by Plaintiffs in Paragraph 53. Notwithstanding any other provision of this Consent Decree,
 21 the Plaintiffs reserve all rights against Defendants with respect to:
 22

23 a. liability for costs of response incurred or to be incurred by Plaintiffs
 24 under any federal or State statute, provided, however, that nothing in this Subparagraph 54.a
 25 shall be deemed to supersede or conflict with the provisions of the consent decree[s] entered in

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Michael McNulty
 USDOJ/ENRD/EES
 P.O. Box 7611
 Ben Franklin Station
 Washington, D.C. 20044
 (202) 514-1210

1 United States v. Advance Ross Sub Company et al., W.D. Wash. Case number C03-5117RJB
2 (March 3, 2003) and United States v. Atlantic Richfield Company et al., W.D. Wash. Case
3 number C03-5117RJB (March 3, 2003);

4
5 b. liability for damages to natural resources (including assessment costs) as
6 defined 42 U.S.C. §§ 9601(6 & 16) that are not expressly included within the Covenant Not to
7 Sue by Plaintiffs in Paragraph 53;

8 c. liability for damages to natural resources (including assessment costs) as
9 defined in 42 U.S.C. §§ 9601(6 & 16) within the Commencement Bay Environment resulting
10 from new releases of hazardous substances from any Defendant's operations after the Effective
11 Date of this Consent Decree, or resulting from any Defendant's transportation, treatment,
12 storage, or disposal, or the arrangement for the transportation, treatment, storage, or disposal of
13 hazardous substances after the Effective Date of this Consent Decree;

14
15 d. liability for injunctive relief or administrative order enforcement under
16 any federal or State statute;

17
18 e. liability for costs incurred or to be incurred by the Agency for Toxic
19 Substances and Disease Registry in or regarding the Commencement Bay Environment;

20 f. additional claims for Natural Resource Damages if conditions, factors or
21 information in the Commencement Bay Environment, not known to the Trustees as of the
22 Effective Date, are discovered that, together with any other relevant information, indicate that
23 there is a threat to the environment, or injury to, destruction of, or loss of natural resources of a
24 type unknown, or of a magnitude significantly greater than was known, as of the Effective Date,

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27 Michael McNulty
28 USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
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1 which is attributable to any Defendant (for purposes of this Subparagraph, information known to
 2 the Trustees shall consist of any information in the files of, or otherwise in the possession of, any
 3 one of the individual Trustees, or their contractors or consultants who worked on the Trustees'
 4 natural resource damages assessment and liability allocation projects);

5
 6 g. criminal liability to the United States or State; and

7 h. claims in this action or in a new action based on a failure of Defendants to
 8 satisfy the requirements of this Consent Decree.

9
 10 55. The Parties acknowledge that post-remedial monitoring in the Thea Foss and
 11 Wheeler-Osgood Waterways has shown that some level of recontamination of remediated areas
 12 of waterway sediments is occurring and that the recontamination is evidence that there are on-
 13 going sources of hazardous substances to the waterways. Defendants assert that none of them is a
 14 significant on-going source of such recontamination, and the Trustees agree that they have no
 15 information indicating that any Defendant is a significant on-going source of hazardous
 16 substances to the waterways. The Parties agree the Defendants' assertions, and the Trustees' lack
 17 of contrary information, shall constitute the information regarding the status of Thea Foss
 18 Waterway contamination that is known to the Trustees as of the Effective Date for purposes of
 19 the preceding Paragraph.
 20

21
 22 **XXIII. COVENANT NOT TO SUE BY DEFENDANTS**

23 56. Each Defendant covenants not to sue and agrees not to assert any claims or causes
 24 of action against the United States, the State of Washington, the Puyallup Tribe of Indians and
 25 the Muckleshoot Indian Tribe or their contractors or employees, for any civil claims or causes of
 26
 27
 28

Michael McNulty
 USDOJ/ENRD/EES
 P.O. Box 7611
 Ben Franklin Station
 Washington, D.C. 20044
 (202) 514-1210

1 action relating to Natural Resource Damages.

2 XXIV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

3 57. Nothing in this Consent Decree shall be construed to create any rights in, or grant
4 any cause of action to, any person or entity not a Party to this Consent Decree. Each of the
5 Parties expressly reserves any and all rights (including, but not limited to, any right to
6 contribution), defenses, claims, demands, and causes of action they each may have with respect
7 to any matter, transaction, or occurrence relating in any way to the Commencement Bay
8 Environment against any person or entity not a Party hereto.
9

10 58. The Parties agree, and by entering this Consent Decree this Court finds, that each
11 Defendant is entitled, as of the Effective Date of this Consent Decree, to protection from
12 contribution actions or claims as provided by CERCLA Section 113(f)(2), 42 U.S.C. §
13 9613(f)(2), and RCW 70.105D.040(4)(d), for Natural Resource Damages, provided, however,
14 that if the Trustees exercise their rights under the reservations in Section XXII (Reservation of
15 Rights) with regard to any Defendant, such Defendant will no longer be entitled to protection
16 from such contribution actions or claims for Natural Resource Damages as are within the scope
17 of the exercised reservation.
18

19 59. Each Defendant agrees that it will notify the Trustees and the United States in
20 writing no later than 60 days before bringing a suit or claim for contribution for Natural
21 Resource Damages. Each Defendant also agrees that it will notify the Trustees and the United
22 States in writing within 15 days of service of a complaint or claim upon them relating to a suit or
23 claim for contribution for Natural Resource Damages. In addition, each Defendant will notify the
24

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1 Trustees and the United States within 15 days of service or receipt of any Motion for Summary
 2 Judgment and within 15 days of receipt of any order from a court setting a case for trial for
 3 matters related to this Decree.

4
 5 60. In any subsequent administrative or judicial proceeding initiated by the Plaintiffs
 6 for injunctive relief, recovery of response costs, or other appropriate relief other than Natural
 7 Resource Damages, no Defendant shall assert, and nor may it maintain, any defense or claim
 8 based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-
 9 splitting, or other defenses based upon any contention that the claims raised by the Plaintiffs in
 10 the subsequent proceeding were or should have been brought in the instant case; provided,
 11 however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set
 12 forth in Paragraphs 53 and 56.

14 XXV. NOTICES AND SUBMISSIONS

15
 16 61. Whenever notice is required to be given or a document is required to be sent by
 17 one Party to another under the terms of this Decree, it will be directed to the individuals at the
 18 addresses specified below, unless those individuals or their successors give notice of a change to
 19 the other Parties in writing. Written notice as specified constitutes complete satisfaction of any
 20 written notice requirement of the Decree for Plaintiffs and Defendants.

21 **As to the United States and as to DOJ:**

22
 23 Chief, Environmental Enforcement Section
 24 Environment and Natural Resources Division
 25 U.S. Department of Justice
 26 P.O. Box 7611
 27
 28 CONSENT DECREE - 46

Michael McNulty
 USDOJ/ENRD/EES
 P.O. Box 7611
 Ben Franklin Station
 Washington, D.C. 20044
 (202) 514-1210

1 Washington, D.C. 20044-7611
2 (DJ # 90-11-2-1049/16)

3 **As to NOAA:**

4 Robert A. Taylor
5 NOAA Office of General Counsel GCNR/NW
6 7600 Sand Point Way NE
7 Seattle, WA 98115-0070

8 **As to the United States Department of the Interior:**

9
10 Jeff Krausmann
11 U.S. Fish & Wildlife Service
12 510 Desmond Dr. SE, Suite 102
Lacey, WA 98503-1263

13 **As to the State of Washington:**

14
15 Celina Abercrombie
16 Toxics Cleanup Program
17 State of Washington
18 P.O. Box 47600
Olympia, WA 98504-7600

19 **As to the Puyallup Tribe of Indians:**

20
21 Bill Sullivan
22 Environmental Department
23 Puyallup Tribe of Indians
24 1850 Alexander Avenue
Tacoma, WA 98421

25 **As to the Muckleshoot Indian Tribe:**

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27 Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
28 Washington, D.C. 20044
(202) 514-1210

1 Mr. Rob Otsea
2 Office of the Tribal Attorney
3 Muckleshoot Indian Tribe
4 39015 172nd Avenue S.E.
5 Auburn, WA 98002

6 **As to Advance Ross Sub Company:**

7 Jacqueline Wetzsteon
8 PacifiCorp
9 825 NE Multnomah
10 Suite 1500 LCT
11 Portland, OR 97232

12 Cathy Woollums
13 Senior Vice President
14 Berkshire Hathaway Energy
15 106 East Second Street
Davenport, IA 52801

16 Louis A. Ferreira, Esq.
17 Stoel Rives, LLP
18 900 SW Fifth Avenue
19 Suite 2600
Portland, OR 97204

20 **As to BNSF Railway Company:**

21 Allen Stegman
22 BNSF Railway Company
23 General Director Environmental & HazMat
24 2500 Lou Menk Dr., AOB-3
25 Fort Worth, Texas 76131-2828

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27 Michael McNulty
USDOJ/ENRD/EES
28 P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 817-352-1954
2 Allen.Stegman@bnsf.com

3 Matthew Wells
4 Tupper Mack Wells PLLC
5 2025 First Avenue, Suite 1100
6 Seattle, WA 98121
7 206.407.0502 (direct)
8 wells@tmw-law.com

9 **As to BP Products North America, Inc. and Atlantic Richfield Company:**

10 Douglas S. Reinhart, Esq.
11 Senior Counsel
12 BP America, Inc.
13 150 W. Warrenville Road
14 Mail Code 200-1W
15 Naperville, Illinois 60563
16 Direct: 630-420-5457
17 Fax: 630-420-5172
18 Email: douglas.reinhart@bp.com

19 Cynthia Kezos
20 Strategy Manager
21 Remediation Management
22 BP Corporate North America Inc.
23 4 Centerpointe Drive, Suite 200
24 La Palma, California 90623
25 Direct: 714-228-6708
26 Fax: 714-229-6749
27 E-Mail: cindy.kezos@bp.com

28 **As to Brandrud Furniture, Inc., Nemshoff Chairs, Inc. and Herman Miller, Inc.:**

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 H. Timothy Lopez
2 Herman Miller, Inc.
3 Corporate Secretary
4 855 East Main Avenue
5 PO Box 302
6 Zeeland, MI 49464
7 Fax 616.654.7218

8 **As to CanAm Minerals/Kleen Blast Div.:**

9 Fionn O'Neill
10 CanAm Minerals/Kleen Blast Div.
11 50 Oak ct #210
12 Danville CA 94526

13 **As to Carstens Company:**

14 Guy J. Sternal, Esq.
15 Eisenhower & Carlson, PLLC
16 1201 Pacific Avenue
17 Suite 1200
18 Tacoma, WA 98402

19 **As to Chevron U.S.A. Inc., Union Oil Company of California, Texaco Downstream
20 Properties Inc.:**

21 Mehagan Hopkins
22 Project Manager
23 Superfund and Specialty Portfolios
24 Chevron Environmental Management Company
25 6101 Bollinger Canyon Road
26 San Ramon, CA 94583
27 Tel 925 790 6989
28 Fax 925 790 6772

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 mhopkins@chevron.com

2 **As to City Waterway Investments, Inc.:**

3
4 Dave Bingham
5 Johnny's Dock Restaurant & Marina
6 1900 East D Street,
7 Tacoma, WA 98421
8 Phone: (253) 627-3186

9 **As to Closing Days, Inc., formerly known as Richard A. Johnson Cedar Products, Inc.,
10 formerly d/b/a Johnson Postman Company:**

11 James V. Handmacher
12 Morton McGoldrick, P.S.
13 P.O. Box 1533
14 820 A Street, Suite 600
15 Tacoma, WA. 98401
16 (253) 682-7234
17 jvhandmacher@bvm.com

18 **As to ExxonMobil Oil Corporation and Exxon Mobil Corporation:**

19 Kevin J. Vaughan
20 Counsel, Environmental & Safety
21 Exxon Mobil Corporation
22 3225 Gallows Road
23 Suite 3d 0215
24 Fairfax, VA 22037
25 Phone – 832-625-8251

26 **As to F. S. Harmon Manufacturing Company:**

27 David Walton

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 F. S. Harmon Manufacturing Company
2 2926 South Steele Street
3 Tacoma WA 98409-7638

4 James V. Handmacher
5 Morton McGoldrick, P.S.
6 P.O. Box 1533
7 820 A Street, Suite 600
8 Tacoma, WA. 98401
9 (253) 682-7234
10 jvhandmacher@bvm.com

11 **As to Glacier Northwest, Inc. (Lone Star Northwest):**

12 Ed Owens
13 Vice President-General Manager
14 Glacier Northwest, Inc.
15 5975 East Marginal Way S.
16 Seattle, WA 98134

17 Scott Isaacson
18 Senior Vice President & General Counsel
19 CalPortland Company
20 2025 E. Financial Way
21 Glendora, CA 91741

22 **As to Globe Machine Manufacturing Company:**

23 Loren Dunn
24 Riddell Williams P.S.
25 1001 Fourth Avenue
26 Suite 4500
27 Seattle, WA 98154

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

As to Gull Industries, Inc.:

Robie G. Russell, Esq.
Russell Law Offices
76 South Main Street
Seattle, WA 98104-2514
(206) 621-2102 O
(206) 621-2104 F
robielaw@gmail.com

As to Investco Financial Corporation:

Angela L. Humphreys, General Counsel
Investco Financial Corporation
1302 Puyallup Street
Suite A
Sumner, WA 98390

As to J.M. Martinac Shipbuilding Corporation:

Sally E. Metteer, Esq.
Wilson Smith Cochran Dickerson
1215 Fourth Ave.
Suite 1700
Seattle, WA 98161

As to King County Metro Transit Division:

General Manager, Metro Transit Division
King County Department of Transportation
201 S. Jackson Street, MS KSC-TR-0415
Seattle, WA 98104

Chief Civil Deputy

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 King County Prosecuting Attorney's Office
2 King County Courthouse, Room W400
3 516 Third Avenue
4 Seattle, WA 98104

5 **As to Louisiana-Pacific Corporation:**

6 Bert P. Krages II, Esq.
7 6665 S.W. Hampton Street
8 Suite 200
9 Portland, OR 97223
10 P: (503) 597-2525
11 F: (503) 597-2549
12 E: krages@onemain.com

13 **As to Marine Iron Works, Inc.:**

14 Martin Petrich
15 Marine Iron Works, Inc.
16 5205 Orca Drive NE
17 Tacoma, WA 98422

18 Tod Gold
19 Joyce Ziker Parkinson, PLLC
20 1601 5th Avenue, Suite 2040
21 Seattle, WA 98101

22 **As to McFarland Cascade Holdings, Inc., Cascade Pole and Lumber Company and**
23 **McFarland Cascade Pole & Lumber Company:**

24 Maureen Mitchell, Esq.
25 Summit Law Group
26 315 Fifth Avenue So.
27 Suite 1000

28 CONSENT DECREE - 54

Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 Seattle, WA 98104-2682

2 **As to Menasha Corporation:**

3
4 General Counsel
5 1645 Bergstrom Road
6 P.O. Box 367
7 Neenah, WI 54957
(920) 751-1497

8 **As to Moorage Associates, LLC:**

9
10 Guy J. Sternal, Esq.
11 Eisenhower & Carlson, PLLC
12 1201 Pacific Avenue
13 Suite 1200
Tacoma, WA 98402

14 **As to Mountain States Power (PacifiCorp):**

15 Jacqueline Wetzsteon
16 PacifiCorp
17 825 NE Multnomah
18 Suite 1500 LCT
19 Portland, OR 97232

20 Cathy Woollums
21 Senior Vice President
22 Berkshire Hathaway Energy
23 106 East Second Street
Davenport, IA 52801

24 Louis A. Ferreira, Esq.
25 Stoel Rives, LLP

26 CONSENT DECREE - 55

27 Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
28 (202) 514-1210

1 900 SW Fifth Avenue
2 Suite 2600
3 Portland, OR 97204

4 **As to MUFG Union Bank, N.A.:**

5 Cynthia Wagner
6 MUFG Union Bank, N.A.
7 500 S. Main Street
8 Suite 320
9 Orange, CA 92868
10 (714) 565-5635
(714) 565-5691

11 **As to Nestlé USA, Inc.:**

12 Yun Au
13 Chief Legal Officer and General Counsel
14 Nestlé USA, Inc.
15 800 N. Brand Blvd.
16 Glendale, CA 91203

17 **As to Nichols Trucking Company / John and Eldeena Nichols:**

18 Dianne K. Conway
19 Gordon Thomas Honeywell LLP
20 1201 Pacific Ave.
21 Suite 2100
22 Tacoma, WA 98402

23 **As to Northwest Etch Technology, Inc.:**

24 John Dooley
25 2601 S. Hood Street

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27 Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
28 Washington, D.C. 20044
(202) 514-1210

1 Tacoma WA 98411
2 253-380-8922

3 **As to OfficeMax Incorporated:**

4 Dennis L. Radocha
5 Assistant General Counsel
6 Office Depot/OfficeMax Legal Department
7 1111 W. Jefferson Street, Suite 510
8 Boise, ID 83702

9 Office Depot, Inc.
10 ATTENTION: General Counsel
11 6600 N. Military Trail
12 Boca Raton, FL 33496

13 **As to Olympic Chemical Corporation:**

14 Michelle Ulick Rosenthal
15 Veris Law Group PLLC
16 1809 Seventh Avenue
17 Suite 1400
18 Seattle, WA 98101
19 michelle@verislawgroup.com

20 **As to OMYA, Inc.:**

21 Jeffrey T. Golenbock
22 Golenbock, Eiseman, Assor, Bell & Peskoe LLP
23 437 Madison Avenue
24 New York, N.Y. 10022
25 Phone: (212) 907-7373
26 Fax: (212) 754-0777

27
28 CONSENT DECREE - 57

Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

As to Pacific Northern Oil Corp.:

Thomas M. Kilbane
Attorney at Law PLLC
8164 NE Yeti Lane
Bainbridge Island, W A 98110

As to Petrich Marine Dock, LLC:

Clare Petrich
Petrich Marine Dock
1118 E "D" St
Tacoma, WA 98421

As to Phillips 66 Company:

Stephen Parkinson, Esq.
Joyce Ziker Parkinson, PLLC
1601 Fifth Avenue, Suite 2040
Seattle, WA 98101

Willette A. DuBose
Legal Specialist
Phillips 66 Company
3010 Briarpark DR, PWC-08-8108-09
Houston, TX 77042

As to Precision Machine Works, Inc.:

David Baublits
Precision Machine Works, Inc.
2024 Puyallup Ave. E.
Tacoma, WA 98421

CONSENT DECREE - 58

Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

As to Premier Industries, Inc.:

Courtney Seim
Riddell Williams P.S.
1001 Fourth Avenue
Suite 4500
Seattle, WA 98154

As to Puget Sound Energy:

Courtney Seim
Riddell Williams P.S.
1001 Fourth Avenue
Suite 4500
Seattle, WA 98154

John Rork
Manager, Environmental Services
Puget Sound Energy
10885 NE 4th Street
Bellevue, WA 98004

As to Rainier Plywood Co.:

Shawn O'Day
Richlite Company
624 E. 15th Street
Tacoma, WA 98421
(253) 383-5533

As to Shell Oil Company:

Carol Campagna

CONSENT DECREE - 59

Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 Soil & Groundwater Principal Program Manager
2 20945 S. Wilmington Ave.
3 Carson CA 90749

4 William E. Platt
5 Senior Manager, Discontinued Operations, Downstream US and Canada
6 PCRO and Environmental Claims
7 One Shell Plaza
8 910 Louisiana St.
Houston, TX 77002

9 Kimberly Lesniak
10 Senior Legal Counsel
11 Downstream Manufacturing & Regulatory
12 One Shell Plaza
13 910 Louisiana St.
Houston, TX 77002

14 **As to Shore Terminals LLC:**

15 Stephen Tan
16 Cascadia Law Group PLLC
17 1201 Third Ave.
18 Suite 320
19 Seattle, WA 98101
stan@cascadialaw.com

20 **As to SUPERVALU, Inc.:**

21
22 Lynette K. Stocker
23 SUPERVALU
24 Legal Department
25 11840 Valley View Road
Eden Prairie, MN 55344

26 CONSENT DECREE - 60

27 Michael McNulty
USDOJ/ENRD/EES
28 P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

Office: 952.828.4877
Fax: 952.828.4403
lynette.k.stocker@supervalu.com

As to The Boeing Company:

Leah M. Krider
Senior Counsel, Environment, Health & Safety
Office of the General Counsel
The Boeing Company
Mailcode 7830-NE51
5400 International Blvd.
North Charleston, SC 29418

As to The DIL Trust, including its predecessor the Dillingham Corporation:

Kirk A. Wilkinson
Latham & Watkins LLP
355 South Grand Avenue
Los Angeles, CA 90071-1560
Direct Dial: +1.213.891.8234
Fax: +1.213.891.8763
Email: kirk.wilkinson@lw.com

As to The Jack Morris Estate/Morris Family Trusts:

David J. Morris, Sole Successor Trustee
2319 Hobart Ave SW
Seattle, WA 98116

Charles M. Davis
The Law Office of Charles M. Davis
4767 Wharf St.
Bow, WA 98232

CONSENT DECREE - 61

Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

1 (360) 766-3223

2 (360) 766-4014

3 **As to The Joseph L. Trucco and Jean E. Trucco Living Trust, Colonial Fruit & Produce,**
4 **Inc.:**

5 Kevin Trucco

6 9024 Lake Steilacoom Pt Rd SW

7 Lakewood, WA 98498

8 Phone: 253-272-2102

9 Fax: 253-222-8186

10 **As to The Wattles Company:**

11 Craig Wattles, President

12 The Wattles Company

13 35800 249th Avenue SE

14 Enumclaw, WA 98022

15 Tel: 253-272-7205

16 Email: craig@wattlescompany.com

17 Kurt Peterson

18 Cascadia Law Group PLLC

19 1201 Third Avenue, Suite 320

20 Seattle, WA 98101

21 Tel: 206-292-6300

22 kpeterson@cascadialaw.com

23 Joseph Rehberger

24 Cascadia Law Group PLLC

25 1201 Third Avenue, Suite 320

26 Seattle, WA 98101

27 Tel: 206-292-6300

28 jrehberger@cascadialaw.com

CONSENT DECREE - 62

Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

As to Three Rivers Management, Inc. for the former Hygrade Food Products Corp.:

Douglas B.M. Ehlke, Esq.
28840 11th Avenue South
Federal Way, WA 98003

Robert S. Markwell
Three Rivers Management, Inc.
Manor Oak One, Suite 200
1910 Cochran Rd.
Pittsburgh, PA 15220

Charles E. McChesney II, Esq.
Three Rivers Management, Inc.
Manor Oak One, Suite 200
1910 Cochran Rd.
Pittsburgh, PA 15220

As to Truck-Rail Handling, Inc.:

Robie G. Russell, Esq.
Russell Law Offices
76 South Main Street
Seattle, WA 98104-2514
(206) 621-2102 O
(206) 621-2104 F
robielaw@gmail.com

As to Union Pacific Railroad Company:

Tod A Gold, Esq.
Joyce Ziker Parkinson, PLLC
1601 Fifth Avenue

CONSENT DECREE - 63

Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

Suite 2040
Seattle, WA 98101

Gary Honeyman
Manager
Environmental Site Remediation
221 Hodgeman St.
Laramie, WY 82072

As to Washington Floral Service, Inc.:

Mark Berglund
2701 S. 35th Street
Tacoma WA 98409
253-472-8343

As to Washington State Department of Transportation:

Deborah Cade
Office of the Attorney General
PO Box 40113
Olympia, WA 98504-0113
(360) 753-4964
DeborahC@ATG.WA.GOV

As to Woodworth & Company, Inc.:

Jeff Woodworth
President
Woodworth Capital, Inc
3110 Ruston Way, Suite D
Tacoma, WA 98402

XXVI. EFFECTIVE DATE

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

Decree without written notification to and written approval of the United States Department of Justice and the Trustees, Defendants and the Court. Modifications to this Consent Decree exclusive of the appendices incorporated within that do not materially alter the terms of this Consent Decree may be made by written agreement between the United States Department of Justice, the Trustees and Defendants. Modifications to any of the appendices to this Consent Decree that do not materially alter any of the terms of this Consent Decree may be made by written agreement between the Trustees and Defendants. The following modifications shall be deemed not to materially alter the terms of this Consent Decree or the appendices incorporated herein:

a. Extensions of deadlines contained in Appendix A, provided that the total of such extensions shall equal one year or less;

b. Project design changes that increase the Countyline Project scale, or that decrease the Project scale by no more than 10% (ten percent) of the Project's area; or

c. Extensions of deadlines for reports, accounts, plans or proposals of 45 days or less.

XXX. ENFORCEMENT

66. The requirements of this Consent Decree, including but not limited to deadlines, schedules and Project designs, are independently enforceable and the delay or failure of the Trustees to enforce any requirement will not preclude or prejudice the subsequent enforcement of the same or another requirement.

XXXI. TERMINATION

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

67. This Decree as it applies to each Defendant shall terminate upon written notice, made in accordance with Section XXV, by Defendants to all Plaintiffs that all affirmative actions required under Section VIII, IX and XIII have been taken, all payments required under Sections XV (and under Sections XVI and XVIII, if applicable) have been made and all other applicable requirements of this Decree have been fulfilled, and subsequent written notice by the United States confirming the performance by Defendants of their obligations under this Decree. Such notice by the United States shall be sent within 45 calendar days of receipt by all Plaintiffs of the required payments and notice from Defendants. If the United States fails to send such notice, this Decree shall terminate automatically on the 46th day following receipt by all Plaintiffs of the required payments and notice from Defendant. The following provisions of this Decree shall survive termination: Paragraph 15 (actions on Project Site or adjacent properties); Section X (“Access to Information and Project Site”); Section XIII (“Preservation of “Wheeler-Osgood Site”); (Section XXI (“Covenant Not to Sue by Plaintiffs”); Section XXII (“Reservations of Rights”); Section XXIII (“Covenant Not to Sue by Defendants”); and Section XXIV (“Effect of Settlement; Contribution Protection”).

XXXII. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

68. This Decree will be lodged with the Court for a period of not less than 30 days for public notice and comment. The Plaintiffs each reserve the right to withdraw or withhold their consent if the comments regarding the Decree disclose facts or considerations that indicate this Decree is inappropriate, improper, or inadequate. Each Defendant consents to the entry of this Decree without further notice.

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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

69. If for any reason this Court does not approve this Decree in the form presented, this agreement may be voided at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

XXXIII. SIGNATORIES/SERVICE

70. The Assistant Attorney General for the Environment and Natural Resources Division of the United States Department of Justice and each undersigned representative of the State, the Puyallup Tribe of Indians, the Muckleshoot Indian Tribe and each Defendant certifies that he or she is authorized to enter into the terms and conditions of this Decree and to execute and bind legally the Party that he or she represents to this document.

71. Each Defendant agrees not to oppose entry of this Decree by this Court or to challenge any provision of this Decree unless any Plaintiff has notified Defendant in writing that it no longer supports entry of the Decree.

72. Each Defendant will identify on the attached signature page the name and address of an agent who is authorized to accept service of process by mail on behalf of it with respect to all matters relating to this Decree. Each Defendant agrees to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including but not limited to service of a summons; provided that such agreement and waiver is effective only as to such matters as may relate to or arise out of this Decree, and not as to any other matter.

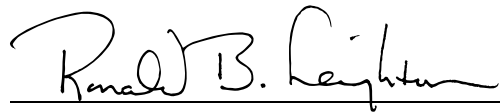
XXXIV. FINAL JUDGMENT

73. Upon approval and entry of this Decree by the Court in the record of the above-
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Michael McNulty
 USDOJ/ENRD/EES
 P.O. Box 7611
 Ben Franklin Station
 Washington, D.C. 20044
 (202) 514-1210

1 captioned matter, this Decree will constitute the final judgment between and among the United
2 States, the State, the Puyallup Tribe of Indians, the Muckleshoot Indian Tribe, and each
3 Defendant. The Court finds that there is no just reason for delay and therefore enters this
4 judgment as a final judgment under Fed. R. Civ. P. 54 and 58.
5

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7 SO ORDERED THIS 2nd DAY OF October, 2015.
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13 Ronald B. Leighton
14 United States District Judge
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Michael McNulty
USDOJ/ENRD/EES
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
(202) 514-1210

Appendix D:

Example of Credit Denomination from Final Lower Duwamish River NRDA Restoration Plan and PEIS (June 2013)

APPENDIX D: HABITAT VALUATION IN THE LOWER DUWAMISH RIVER AND DETERMINATION OF TIME TO SUSTAINED FUNCTION

(Adapted from Appendix C of March 14, 2002 Hylebos Waterway Natural Resource Damage Settlement Proposal Report)

Habitat Valuation Introduction

For the purposes of the Lower Duwamish River Habitat Equivalency Analysis (HEA), habitats are valued by how well they support juvenile Chinook salmon, four bird assemblages that are representative of avian species occurring in the area, and juvenile English sole. These values are based on a habitat's potential to provide attributes that support feeding and refuge needs of these species and groups. Habitats are ranked according to their functional importance as relative rather than absolute values, similar to the concept in the Habitat Suitability Indices (HSI) used with the U.S. Fish and Wildlife Service Habitat Evaluation Procedures (USFWS, 1980).

Representative Species

Fifty three species of resident and non-resident fish were captured in recent remedial studies on the Lower Duwamish River (Lower Duwamish Waterway Group, 2010), including eight species of anadromous salmonids (Kerwin & Nelson, 2000). Chinook, coho, chum, and steelhead are common. Pink salmon, sockeye, sea-run cutthroat trout and bull trout are rare. Juvenile Chinook salmon and juvenile English sole are used as representative fish species to assess the value of habitat to fish. This is because juvenile Chinook salmon and juvenile English sole have feeding modes, behavioral characteristics, and habitat requirements that sufficiently overlap those of similar species found in the LDR so as to consider them appropriate surrogates for fish in LDR.

Bird assemblages rather than individual species are used to assess habitat value to birds along the LDR. The bird assemblages are grouped as a function of their foraging behavior and include both resident and migratory species found in the river. Because birds use similar habitat types as juvenile Chinook salmon and are linked with them through their food webs, habitat value for birds is linked to habitat value for juvenile Chinook salmon.

Scores are assigned to habitat types based on their value to each of these species. These scores are then used to quantify potential injuries to the habitat and to assess the relative value of restoration projects in the manner described below.

LDR Species Specific Habitat and Habitat Values

The LDR is an estuarine waterway. There is considerable information on the utilization of estuarine environments by anadromous salmonids, flatfishes, and birds. However, much of the

information is qualitative and while it is useful in identifying what constitutes essential habitat, it is of less value in determining how specific habitat attributes relate to habitat value.

Habitat for Chinook salmon

Estuaries are particularly important to juvenile Chinook salmon, which may have the longest estuarine residence time of juvenile salmonids. Estuarine habitats are used as refuge from predators, foraging, and temporary residence during physiological transition for seawater acclimation (Simenstad et al., 1982). There is considerable information regarding the value of estuaries to juvenile salmon but much of it is qualitative, describing generalized relationships and attributes, rather than providing value measurements. The few quantitative data sets that exist are not in formats amenable to developing habitat-species relationships or adequately defining the relative value of different habitat types. The Trustees reviewed available information and assigned relative values of habitat for juvenile Chinook salmon based on the reasons set forth below.

Chinook salmon in the LDR consist primarily of summer/fall run fish. Spring Chinook are found occasionally in the Green River, which feeds upstream into the LDR, but it is not known if these fish constitute a self-sustaining run. Chinook in the LDR are a mixture of natural spawning and hatchery fish. Natural spawners are classified as ocean type fish because they typically spend little time in fresh water after emerging from eggs laid in the gravel. It is believed juvenile Chinook migrate from the LDR to the ocean from January through August; however, the complete migratory time period for juvenile Duwamish/Green River fall Chinook is not currently known (Kerwin & Nelson, 2000). Juveniles have been found in the Lower Duwamish through September, and may remain in the estuary even longer. Naturally spawning summer/fall Chinook juveniles generally remain in upstream areas for two to three months following emergence from eggs. They then begin their migration to the estuarine areas of the LDR (Williams et al., 1975, Kerwin & Nelson, 2000). Typically, the Green/Duwamish river basin summer/fall Chinook migrate within their first year of life.

Because of their extended estuarine residence, and the diversity of size classes, juvenile Chinook consume a diversity of prey and use a variety of estuarine habitats, shifting to reflect changes in food habits as they grow (Simenstad et al., 1982). Estuaries provide a diverse array of prey organisms, often in large populations, which allows juvenile salmon to sustain relatively high growth rates while occupying a refuge from predators. Chinook occupy three main zones of the LDR. Smaller individual Chinook occur primarily in the freshwater transition zone in the upper portion of the LDR where they feed on larval and adult aquatic insects, terrestrial insects, and epibenthic organisms. Larger subyearling fish move to tidal flats, gravel-cobble shorelines, and other shallow water habitats where they feed on epibenthic crustaceans such as *gammarid* amphipods, *mysids*, and *cumaceans*. Yearling Chinook occupy the open water habitat of the lower estuary, and may prefer habitats within confined embayments, where they feed on small nekton, insects, mysids, larval fish, and nektonic drift organisms. Sampling in the LDR in 2005 documented the presence of the various life and transitional stages within the LDR as well as the importance of each of these three estuarine zones for juvenile Chinook salmon (Ruggerone et al, 2006).

Growth of juvenile Chinook while in the LDR may help increase their survival rates by narrowing the window of vulnerability to predators once they enter the ocean. Residence time in the estuary is related to foraging success and growth in the ocean, increasing marine survival. This suggests that the distribution and abundance of principal habitat types and the availability of prey for Chinook may be a reflection of salmon populations migrating through the system.

Thus, estuarine habitat is a critical factor in the life history of Chinook salmon, but there are no models available that describe the relationship between habitat types and species utilization. For the purpose of this appendix, relative values are assigned to habitat types using available information on the feeding and refuge functions of different habitats for juvenile Chinook salmon, the functional rarity of habitats in the LDR (e.g., tidal marshes, an important habitat for Chinook, are virtually nonexistent), and best professional judgment. References consulted included not only literature on juvenile salmonid habitat utilization and feeding preferences, but also information on the frequency of occurrence of preferred food organisms (Beauchamp et al., 1983; Northcote et al., 1976; Seliskar et al., 1983; Simenstad et al., 1982; Simenstad, 1982; Simenstad et al., 1985; Simenstad et al., 1991; Simenstad et al., 1993). Values were based on uncontaminated habitats.

Three estuarine habitat types, based on tidal elevation, are used in the LDR injury assessment: intertidal, shallow subtidal and deep subtidal. In addition, other habitats are identified for use in valuing potential restoration projects: marsh (intertidal habitat containing aquatic vascular plants), vegetated buffer (an upland zone adjacent to the aquatic habitat consisting of native floodplain vegetation with trees and shrubs), upland greenbelt (a vegetated zone landward of the vegetated buffer and outside of the shoreline zone, with trees and shrubs) and rip-rap (rock armor placed along shorelines to protect against erosion).

Chinook Habitat Values

Habitat values are unit-less numbers, based on relative, rather than absolute values, similar to the concept used in the Habitat Suitability Index (HSI) (USFWS 1980). LDR habitat types are assigned values for juvenile Chinook salmon using data from sediment composition and water depth surveys.

Habitat values were assigned to estuarine habitats, ranging from one (optimal conditions) to zero (unsuitable conditions). Each habitat value is relative to the value given to marsh with an associated vegetated buffer which is considered to be the best habitat available for the representative species in the LDR. The reason marsh with a vegetated buffer is considered the optimal habitat, and thus given the highest value is based on several factors. Marsh vegetation provides an environment that increases epibenthic and benthic production and available food for Chinook salmon. It provides an important refuge from predators and is a scarce habitat type in the LDR estuary.

Habitat values related to elevation (referenced to mean lower low water (MLLW)) are assigned, from highest to lowest, to marsh (+ 6 to + 12 ft), intertidal (-4 to +12 ft), shallow subtidal (-4 to -14 ft), and deep subtidal (<-14 ft) (Table D1). These are based on larger number of species and greater populations of food for Chinook and on primary productivity and habitat

use (Northcote et al., 1976; Simenstad et al., 1993). With depth, available light decreases, which results in fewer salmonid prey species and hence, a lower habitat value).

Benthic community structure is affected by a variety of conditions. Different species colonize different substrate types, and mixed substrates (sand, gravel, and cobble) can provide abundant prey species and suitable refuge habitat for juvenile salmonids. In this analysis, habitat classifications are based only on depth and silt, sand, coarse sand, and fine gravel substrates are combined. Shallow, low gradient, unconsolidated sediments are assumed to provide more prey organisms consumed by juvenile salmonids and are thus assigned higher values than structurally complex sediments such as riprap. Deep subtidal habitats (-14 ft and deeper) provide fewer prey organisms and are not preferred habitats of juvenile salmon, and are assigned a minimal value.

Birds

Birds utilizing estuarine areas may be classified into four assemblages based on their foraging behavior (Simenstad, 1983):

- (1) Shallow-probing and surface searching shorebirds (e.g. sandpiper, dunlin, plover) that feed on benthic organisms.
- (2) Waders, which prey on similar, though somewhat deeper benthic organisms than those that prey on the surface and shallow water (e.g. Greater yellowlegs), or prey on small fishes and crustaceans (e.g. Great blue heron).
- (3) Surface and diving water birds, which include birds that find prey in deeper waters (e.g. Western grebe, Common merganser, mallard).
- (4) Aerial searchers, which include omnivores and carnivores that find prey in all habitats (e.g. Osprey, belted kingfisher, Glaucous-winged gull).

Different types of estuarine birds use different foraging behaviors and thus, require diverse habitats for feeding and resting. Since certain bird species from these assemblages share common habitats and prey items with juvenile salmon, the value of habitat for salmon is related to its value for birds.

Shallow-probing and surface searching shorebirds, some waders, and some surface and diving birds feed on benthic macroinvertebrates in intertidal habitats. Shorebirds feed in exposed areas, however, they are restricted to the high intertidal area and the part of the lower intertidal area exposed at low tide. Tidal fluctuations affect habitat utilization by waders that feed on benthic organisms and by surface and diving waterbirds. Some waders, surface and diving waterbirds and aerial searchers feed on juvenile salmon and other fish species with similar habitat requirements. For the purposes of the LDR HEA, we assume that the value of a particular habitat type to estuarine birds is the same as the habitat value assigned to salmon (Table D2).

The model presented in “Habitat Suitability Index Models: Juvenile English Sole” (Toole et al., 1987) is used to quantify the habitat value for English sole. The model applies to juvenile English sole in estuaries and coastal lagoons year-round. It is based on the assumption that any environmental variable that has an impact on the growth, survival, distribution, or abundance of juvenile English sole can be expected to have an impact on the capacity of the habitat to support the species (Figure D1). Habitat Suitability Indices (HSI) are calculated based on Suitability Indices (SI) from either the Food or Water Quality component of the model. An HSI value of one indicates optimal conditions, and a value of zero indicates unsuitable conditions. The HSI is based on the concept of limiting factors. A limiting factor is a component of an organisms’ environment that can affect its growth, reproduction, or distribution. The availability of food, shelter or predation pressure, are examples of factors that could be limiting for an organism. Using this concept, the HSI is set at the value of the lowest limiting factor. Habitat values for English sole in the LDR are expressed in terms of HSI. There are two components in the model: water quality, with habitat variables related to bottom salinity, dissolved oxygen, and bottom water temperature; and food, with habitat variables related to the hydrodynamic regime and dominant sediment type.

Because of the river flow and tidal exchange in the LDR, the Water Quality variables (bottom water temperature, mean salinity, and dissolved oxygen concentration) fall primarily in the high suitability value ranges (1.0). Since HSI defaults to the limiting factor, in this situation the SI calculation defaults to use of the Food Component. The Food Component is related to hydrodynamic regime and dominant sediment type, therefore, the HSI value of the habitat is whichever has the lower SI value, that of the hydrodynamic regime or the substrate. Within the hydrodynamic regime model, there are three SI values: 0.2 for high energy areas of rapid erosion and deposition, 1.0 for areas of intermediate energy with stable substrates, and 0.3 for low energy areas with limited tidal exchange. The LDR fits best into the category of intermediate energy with stable substrates and was assigned a hydrodynamic regime value of 1.0. Therefore, the HSI value for LDR habitats is calculated based on dominant substrate.

Substrate SI values are based on data relating density and stomach fullness of English sole to substrate type. Fine substrate provides the best habitat for feeding sole, but sediment with as much as 20% gravel (>2 mm in diameter) are suitable. Values are low where gravel and rocks are the dominant substrate type; however, even 100% gravel is assumed to provide some food for English sole. Depth and cover do not affect habitat value. Intertidal, subtidal, and deep water habitats are used by sole at different life stages (Lassuy, 1989). Sole that have recently metamorphosed and juveniles in the 50 - 68 mm size range are found in intertidal and shallow subtidal areas where they feed primarily on small epibenthic crustaceans. As they grow, they move into deeper water, where prey items shift to polychaetes, mollusks and other infaunal organisms. The existing literature does not identify cover as an important factor influencing abundance or predation. The variable related to the substrate SI value is dependent upon the percentage of the substrate that is made of particles >2 mm in diameter.

Five substrate composition categories are presented in the HSI model, based on the percentage of substrate >2 mm. SI values for these categories are interpolated from the substrate composition suitability graph (Toole et al., 1987) with values ranging from 1.0 for

substrate with less than 20% particles greater than 2 mm in diameter to 0.15 for substrate with less than 50% particles, smaller than two 2 mm in diameter (Table D3). The predominant substrate in the LDR consists of sand/silt, therefore a value of 1.0 is used to value habitats for English sole living in the LDR.

Combined Habitat Values

Seven habitat types were identified for use in this analysis for injury determination and for restoration planning. For restoration, habitats that provide the most benefit to the injured resource may not necessarily be those habitats that are injured, so habitats are included that may not have been injured in the LDR, but may provide considerable restoration benefit.

All habitats provide some value for all three representative species. In order to reduce some steps in the HEA, a single weighted value combining all three species for each habitat type was used in the calculation, rather than calculating the value for each species individually and adding the individual weighted values. There is no difference mathematically. The combined value does not weight the species equally. Chinook salmon in Puget Sound are a high profile species, listed as threatened under the Endangered Species Act. There is considerable regional interest in their restoration, and so they were given a higher weighting in the calculation of a combined habitat value. Species weighting in the final combined value was: 50% juvenile Chinook salmon, 25% juvenile English sole, and 25% birds. Individual and combined values for the habitat types are shown in Table D4.

Value adjustments associated with environmental conditions

Habitat values identified for the HEA are used both in quantifying loss of functional value associated with injuries and in assessing benefits associated with restoration project development. The LDR is in an urban/industrial/commercial setting, with extensive shoreline development. There are only remnant marshes and few upland areas that could be classified as functioning vegetated buffer habitat (TerraLogic GIS, Inc. & Landau Associates, 2004). We created value adjustment categories of “fully functional” and “baseline adjusted” to apply to marsh, intertidal, and shallow subtidal habitats. The “fully functional” category was based primarily on the premise that the presence of adjacent desirable habitat results in an ecological complex that enhances overall production. Habitats considered “baseline adjusted,” have no adjacent habitat to enhance their value. As an example, the presence of insect and organic matter is increased when it is placed adjacent to a vegetated buffer. Also, created marsh habitats provide benefits that increase the value of adjacent habitats. Thus, the creation of a habitat that increases invertebrate recruitment and subsequent juvenile salmonid use of a intertidal area bordered by a marsh or vegetated buffer zone make it more valuable (fully functional) than one that does not have the benefits from these adjacent habitats (baseline adjusted). In restoration planning, adjustments to habitat values are beneficial in identifying habitat mixes to provide maximum benefits (e.g. an intertidal area created in association with a marsh or vegetated buffer area would have more value than one that is created as an isolated habitat).

All of the intertidal and shallow subtidal habitats in the LDR are considered “baseline adjusted,” with little to no adjacent habitat to enhance their value. This provides for the values of 0.75 for intertidal and 0.55 for shallow subtidal. For purposes of restoration planning, an enhancement of 0.15 is added to intertidal and shallow subtidal habitats constructed in association with a vegetated buffer or a fully functioning marsh. Therefore, fully functional values for intertidal and shallow subtidal habitats in LDR are 0.9 and 0.7, respectively (Table D5).

The premise for a fully functional classification in the LDR is that habitat complexes (e.g. a mix of marsh, mudflat and riparian) are necessary for proper ecosystem functioning. Marsh habitat alone and in optimal condition was assigned a value of 1.0. A marsh associated with a vegetated buffer likely has more ecological value than one that does not. Therefore, for a marsh to be considered fully functional, it must have an adjacent vegetated buffer. Marshes without a vegetated buffer are considered baseline adjusted, and do not receive the 0.15 enhancement and are consequently assigned a maximum value of 0.85 rather than 1.0.

In summary, for restoration planning in the LDR, fully functional value is given to the following:

- a marsh must be associated with an adjacent vegetated buffer habitat;
- an intertidal habitat must be associated with an adjacent vegetated buffer or an adjacent fully functioning marsh;
- a shallow subtidal habitat must be associated with an adjacent fully functioning intertidal habitat.

LDR restoration projects involving the creation of each of these habitats will be considered fully functional and valued as such (Table D5). All other types of restoration projects involving less complex habitats will be considered baseline with a lower value relative to the fully functional value.

Development in the LDR has resulted in facilities and activities that physically degrade habitat quality. The presence of large over-water structures such as piers, aprons and buildings creates conditions that limit the use of affected habitats by species considered in this analysis. This situation called for another category to represent these conditions and a “degraded” classification of reduced value (0.1) was created to decrease the value of habitats that are severely impacted by physical obstructions.

Potential impacts associated with severe physical habitat degradation warrant application of a lower habitat value in certain situations. Examples of physical habitat degradation that result in lower values are reduced light and disruption of migration and feeding behavior. There are gradations of impact from overwater structures related to their height over the water, piling type and density, orientation, type of structure, water depth and habitat type beneath them. However, there was no attempt to identify sub-classifications based on these gradations to cover the range of impacts. The degraded classification is applied narrowly and only to situations causing severe physical impacts.

Overwater structures include permanent and semi-permanent structures such as piers, aprons, buildings, boathouses, and houseboats. Because a juvenile salmonids’ visual ability to

adapt from bright to subdued-light conditions proceeds slowly (Ali, 1959), they are reluctant to pass beneath structures where there is a high contrast between bright and low light levels. Smaller juvenile salmonids are shoreline and shallow water oriented. Over-water structures that produce sharp light contrasts may interfere with their feeding and migratory movements. The subdued light conditions found along the periphery of piers are often preferred over bright sunlight; however, lower light levels may also interfere with feeding. Moreover, structures covering intertidal and shallow subtidal habitat limit the available light to bottom substrates in the productive near-shore photic zone and have more impact on epibenthic production than those in deeper water. As a result, with all other factors being equal, only habitats under structures that extend directly from and are contiguous with the shoreline are assigned the degraded habitat value of 0.1.

Piers and docks that have the major pier structure away from the shore, and have a narrow overpass perpendicular to the shore (e.g. T-docks) usually have the major over-water portion in deeper water, and have less shoreline and near shore shading. They have less of an impact than structures extending from the shoreline, and are consequently not placed in the degraded category. Habitat beneath them is included in the baseline adjusted value, dependent on habitat type. Marinas with docks and boat houses are generally in deeper water, and the shoreline connections are usually narrow. They have an adverse impact, but not enough to be included in the degraded category. Habitat beneath them is assigned the baseline adjusted value.

The foregoing guidelines are not intended to represent acceptance or rejection of particular types of structures or activities. All of the in-water/over-water structures mentioned above can have an adverse impact on aquatic habitat and there are exceptions to each situation that could mitigate or exacerbate the expected impact. However, the decision to include or not include particular over-water structures is made in a general sense based on an evaluation of biological information on potential effects to representative species selected for the LDR. It is to be used for the sole purpose of classifying habitat values for the LDR HEA in as simple and as equitable of a manner as possible. Value adjustments associated with environmental conditions are shown in Table D5.

TIME TO SUSTAINED VALUE

Introduction

The assumption that environmental injury or habitat loss can be compensated by ecological restoration is based on the premise that restored habitat should provide the same values as the natural ecosystem (Pacific Estuarine Research Laboratory 1990). This restoration has been termed ecological equivalence, referring to the capacity of a restored, created, or enhanced habitat to reproduce the ecological structures and functions equivalent to an injured or lost habitat (Kentula et al. 1992). Determining the value of a restoration project depends not only on the level of function expected from the habitat, but also the time it takes for the habitat to reach and sustain this level of function. A created, restored, or enhanced habitat goes through natural successional patterns, gradually increasing in value from its initial condition over a period of time until it reaches some assumed endpoint, with a sustained functional value. There are two components to this function, the shape of the curve and the time to maturation.

Shape of the Curve

The shape of the curve means how the recovery appears when graphed and allows for a picture of the rate of increase in a habitat's recovery. The shape of the recovery curve will likely vary with habitat types. It may follow an "S" shaped curve, increasing gradually at first, rapidly approaching a stable maximum, then falling off as the final level of function is achieved; or it may follow some other pattern. A study on the use of different curves to describe the increase in wetland functions as created wetlands develop found that, for the purposes of evaluating restoration, the shape of the curve was not important and resulted in minimal percentage differences in the amount of restoration required (King et al., 1993). Growth rate or population dynamics data from existing restoration projects in the Pacific Northwest are not consistent enough to define specific recovery curves, and for the sake of simplicity, it is assumed that an ecological function will increase along a linear path until sustained value is achieved.

The number of years after construction when the restoration project is expected to achieve sustained value varies with habitat type (Strange et al. 1999). In restored salt marshes on the East coast, vegetative cover was similar to that of a natural marsh within 5 years; however, development of other physical and chemical properties necessary to support fish and shellfish production took 25-30 years. Estimates of time to sustained value for use in this assessment are based on observations made at similar restoration projects in Puget Sound, the scientific literature, unpublished research in the "gray" literature, and best professional judgment of the natural resource trustees. In determining time to sustained value for the various habitat types, the focus is on biological processes that generate and maintain food and habitat for the representative biota, such as benthic and epibenthic invertebrates, number of species present, abundance of individuals, and preferred prey species. Habitats considered are those that may be included in restoration projects: intertidal habitat, shallow subtidal habitat, marsh, vegetated buffer, upland greenbelt and degraded habitats.

Assumptions

The scientific literature suggests that replicating the services provided by a natural habitat with a created one is extremely difficult. Even restoration sites that are essentially identical in physical features to natural habitats may not provide the same ecological functions (Kusler and Kentula, 1990). However, for the purpose of this analysis, a 1:1 productivity ratio is assumed for the level of ecological services provided by created habitats relative to natural habitats. This implies that restored habitats will be as productive as natural habitats in terms of all associated services. There is uncertainty associated with the outcome of restoration projects. Certain types of habitats carry more risk of failure than others. Restoration project implementation in the Pacific Northwest commonly incorporates monitoring, success criteria, and mid-course corrective actions to increase the probability of success (Commencement Bay Natural Resource Trustees, 2000; Elliott Bay/Duwamish Restoration Program, 2000). Actions that can assist natural processes to achieve successful restoration projects include: developing and amending soil, transplanting plants, controlling weeds, including invasive and non-native species and other eco-engineering methods. For the purposes of this analysis, risk of failure is not incorporated. Habitats are assumed to achieve the expected function within the time identified.

Intertidal and shallow subtidal habitats

Achieving the expected sequence of invertebrate recruitment and subsequent use by juvenile salmon, juvenile English sole, and birds is related to the initial condition of the habitat. The farther initial conditions are from a mature steady state, the longer a habitat will take to approach a self-sustaining level (Mitsch and Wilson, 1996). Monitoring data from restoration projects in the Puget Sound area indicate that habitat functions associated with intertidal and subtidal sand/silt and gravel/cobble substrates develop rapidly. Many of these projects used excavation, regrading or filling to create intertidal or shallow subtidal habitats. Some sites showed rapid development of a diverse and abundant assemblage of benthic and epibenthic organisms, achieving within 50-100% of their long term trends within 1 - 2 years after construction, e.g. Milwaukee Habitat Area (Parametrix, 1998). The data indicate that newly placed, newly exposed, and sometimes, newly wetted materials require time to develop the natural processes necessary to support benthic and epibenthic production.

The rate of development of a stable community is related to substrate, slope, elevation, exposure, and salinity. Although the numbers of epibenthic invertebrates were often highly variable from year to year, by years three to four, benthic and epibenthic production at many restoration sites in the Puget Sound area approached long-term production levels and population structure and taxa richness comparable to reference areas. For a newly created LDR habitat, four years is assumed to be an appropriate time to reach sustained value for baseline adjusted intertidal and shallow subtidal habitats (0.75 and 0.55, respectively). Time to sustained value for fully functional intertidal and shallow subtidal habitats (0.9 and 0.7, respectively) is related to the time to sustained value of the adjacent habitat. This is generally eight years for vegetated buffer habitat.¹

Marsh habitats

Marsh habitat is assumed to include both dendritic and fringing marshes. Success in creating estuarine habitats that support aquatic vascular plants has been mixed in the Puget Sound area. In other regions where salt marshes have been created, it is still unclear how well they actually replicate the ecological functions of natural marshes. The report Strange et al. (1999) investigated maturity rates and recovery of particular ecological structures and processes in salt marsh restoration and found that conclusions regarding success were dependent upon the metric used to measure it. If vegetative structure alone is assessed, a restoration project may be considered to have achieved equivalence to a natural marsh within five years. When the metric is community and ecosystem function, recovery was slower and was generally in excess of 15 years. Development of the physical and chemical properties of soils needed to support infaunal development and the production of higher order consumers, can take decades to become fully equivalent to a natural salt marsh. There is some thought in the ecological community that creation of a marsh that duplicates a natural marsh is not possible (Kusler and Kentula, 1990). This is because of the complexity and variation in natural marshes, and the subtle relationships

¹ See Part 1, Value adjustments associated with environmental conditions, for a description of “baseline adjusted” and “fully functional” habitats.

among hydrology, soils, vegetation, nutrients, and animal life. In this assessment, the marsh habitat is not assumed to duplicate a natural estuarine marsh. However, it is considered a habitat that has the structural characteristics to generate and maintain food and habitat for the representative biota within 15 years. Therefore, after this time, it is assumed to be a fully functional marsh with a value of 1.0 or a baseline adjusted marsh with a value of 0.85.

In the LDR, marsh habitat may be created in sand/silt substrates in the + 6 to + 12 ft elevation range. Depending on location, substrate, and salinity, low marsh (+ 6 to + 10 ft) and/or high marsh (+ 10 to + 12 ft) could be expected. This elevation range is included in intertidal habitat (- 4 to + 12 ft). The curve for fully functional marsh habitat is shaped as a stepped function. A newly created habitat intended to reach a marsh endpoint goes through natural successional stages, first becoming an intertidal mudflat, then gradually transforming into a marsh over a period of years as vegetation develops. The value increases in a straight line from its initial state to the value for a fully functional intertidal habitat (having a value of 0.9) in years zero through eight, then increases more gradually to the marsh value of 1.0 between years eight and 15. A baseline adjusted marsh is valued the same as baseline adjusted intertidal habitat with a value of 0.75 through year four, when it then increases gradually to its sustained marsh value of 0.85 between years five and 15.

Vegetated buffer and upland greenbelt

There is considerable information on the value and size requirements of vegetated buffers but much less on rates of development. Planting riparian buffer is part of several restoration projects in the Puget Sound area, e.g. Middle Waterway Shore Restoration Project in Commencement Bay Sitcum Waterway Remediation Project), but there is, as yet, insufficient data upon which to draw conclusions about how long it takes them to become fully functional. Related information is available to infer how fast a vegetated buffer will develop, and whether development follows a straight line or stepped trajectory. Monitoring guidelines for restoration projects include success criteria. Success criteria are defined generally as those measures used to evaluate whether the requirements for functional replacement have been met - if the criteria are met, the project is successful, and functional replacement is achieved.

The supposition used in this assessment is that if these monitoring guidelines are providing a measure of functional replacement, they should provide some determinant of the time frame within which success, in terms of functional habitat replacement, may be expected. This is based on guidance on the selection of functional performance objectives indicating that they should be: 1) known or likely benchmarks of success and 2) achievable on the site within the designated monitoring period (Ossinger, 1999)

In the U.S. Army Corps of Engineers' "Examples of Performance Standards for Wetland Creation and Restoration in Section 404 Permits and an Approach to Developing Performance Standards" (USACOE 1999) most monitoring programs for vegetated buffers (riparian, shrub-scrub, and woody vegetation) extend for five years. Specific project information is not provided for the examples in the document, but expectations as a measure of success for shrub-scrub and forested buffers from temperate zone areas are:

- California - 75% cover by native riparian species by year five
- Maryland - 85% of site vegetated by planted species and/or naturally regenerated vegetation by year five
- Maryland - 85% herbaceous cover, 75% areal cover by planted woody species by year two
- Alaska - vegetative cover equal to 75% of test plot cover in five years
- Washington - 60% cover by native shrub species by year five

An example of Seattle District ACOE 1994 monitoring guidelines for freshwater wetlands required 80% cover of native shrub/scrub species after five years and 40% canopy cover of native species forest vegetation after 20 years (USACOE, 1999). Ossinger et al. (1999), reported on findings of the "Success Standards Work Group," a group of wetland professionals from state, federal and private sectors convened to provide practical guidelines for mitigation planning. This report suggests benchmark values for herbaceous vegetation as 80% cover by year three, and 90% cover by year five. For woody cover (wetland buffer/forested zone) they suggest 50% cover by year five.

Developing guidelines for King County, Mockler (1998) suggested that buffers, defined as dense vegetation that will protect wetland from human encroachment and provide wildlife habitat, should have 60% emergent cover by year one, 80% by year three, and 90% by year five. Shrub or sapling tree cover should be >60% by year three.

A success criterion for establishing riparian vegetation in a recent monitoring program proposal specific to the area (Elliott Bay/Duwamish Restoration Program, 2000; Commencement Bay Natural Resource Trustees, 2000) specifies native trees and shrubs at the end of year five, the shrub layer is expected to be >50% and the tree layer >40 percent. Both native trees and shrubs should cover at least 90% of the upland vegetated area at the end of 10 years. Monitoring data from the Puget Sound area are sparse, but there are some that contribute to an understanding of the rate of development of buffer areas and functions provided. The Gog-Li-Hi-Te wetland system, created in 1986, included a mix of upland and wetland habitats. The 5-year monitoring report (Thom et al., 1991) shows that upland trees increased from 725 m² to approximately 1500 m². The data also show that the transitional zone between the intertidal and upland habitats was rapidly colonized by willow and alder, which increased from 0.4% of the area (160 m²) in 1986 to approximately 4.3% (1,650 m²) in 1990. The riparian vegetation increases are from natural recovery, as planting of these species was not included in the project design.

Duwamish River Coastal America sites included planted upland riparian vegetation, and monitored three years post-construction. Though there was no data provided on the post-construction monitoring (Cordell et al. 1999), insect production and juvenile salmon diets were reported. At the T-105 and Turning Basin sites, there was a shift in species composition of insect populations captured in fallout traps from 1996 to 1997. Insects with aquatic immature stages (shore flies, midges, biting midges) shifted to terrestrial insects and the authors conclude that this was probably due to the large increase in riparian and emergent vegetation at these sites between 1996 and 1997. This change also occurred in the juvenile Chinook salmon diets. The makeup of insects consumed was different between 1996 and 1997. The findings suggested that

within three years after construction, the riparian area developed to the point that insects dependent on riparian plants were beginning to be produced and were utilized as a food source by juvenile salmonids. In 1999, there was a shift back to the insects dominant in 1996, leading the authors to speculate that the vegetation assemblages that support the insects might not yet be stable (Cordell et al, 2001). However, the study reported that although survival and expansion of riparian areas were not monitored, they appeared to have become established successfully.

Monitoring results for riparian vegetation coverage from LDR restoration projects constructed via the Elliott Bay Panel do not provide a good measure of natural succession over time due to complications associated with routine maintenance to remove debris, invasive and non-native species and replanting. The year five goals of >50% tree cover and >40% shrub cover were met at Herring's House, Hamm Creek, and North Winds Weir (USFWS, 2008).

The current definition for a vegetated buffer is native floodplain vegetation, with tree, shrub, and herbaceous layers. Buffers provide a range of functions, from minimizing human disturbance to filtering sediments from surrounding areas and moderating temperatures. In this assessment, buffers are important not only for the typical benefits they provide, but also for the value they add to adjacent habitats. In that regard, the most important benefits are providing organic matter in the form of leaves and litter, providing insects from riparian vegetation, and providing wildlife habitat. Mitigation monitoring guidelines suggest that significant growth and plant cover in vegetated buffer areas can be achieved in five years. Data from the Gog-Li-Hi-Te wetland site in Commencement Bay, WA, show significant increases in riparian vegetative growth within five years. Data from the Coastal America Sites on the Duwamish River show development of riparian vegetation and associated insect production within five years. Mitigation monitoring guidelines specific to Washington State indicate that 90% herbaceous cover may be expected by year five. Woody vegetation/shrub cover ranges from 50% to 80% by year five, to 90% by year ten. By assuming that full plant cover equals sustained ecological value, and by averaging projections of time to full plant cover for woody shrubs, then the time to sustained value for vegetated buffer habitats is about eight years. This eight year time frame is based on monitoring guidelines, which determine the time required for "success" in terms of functional replacement; and inferences from two studies (Gog-Li-Hi-Te wetland and Duwamish Coastal America sites). Upland greenbelts may consist of different species mixes but should be predominately native trees, shrubs, grasses and forbs (flowering plants that are not grasses). The time to sustained value for upland greenbelts is also assumed to be eight years.

Degraded habitat classification

As noted above, intertidal and shallow subtidal areas adversely affected by overwater structures are classified as degraded, so removal of structures and conditions adversely affecting these habitats could restore their habitat value, making them candidates for restoration projects.

Time to sustained value for intertidal and shallow subtidal habitats is four years, based on data from restoration projects in Puget Sound. The projects reviewed were habitat creation projects involving excavating, re-grading, or filling to create intertidal or shallow subtidal habitats. The expected sequence of invertebrate recruitment followed by juvenile salmonid use

is related to initial conditions at the site. The degraded classification applies only to intertidal or shallow subtidal habitats. Prior to the introduction of the physical impairment, these areas likely provided the functions associated with their habitat type. Overwater structures limit production by shading the habitat; removal of this impact should allow the habitat to return to near natural production quickly. A literature review found no data addressing the effects of removing overwater structures. However, based on inferences drawn from studies on the impacts of shading, a time to sustained value following removal of overwater structures was assigned.

The low light environments under overwater structures affect juvenile salmonids by disrupting their behavioral and feeding patterns. Their reluctance to pass beneath piers and aprons and alteration of migratory behavior when encountering piers has been observed (Weitkamp, 1982, Pentec, 1997). The ability of juvenile salmonids to see and capture their prey is also reduced in low light situations. Removal of the overwater structure will eliminate this impact.

Evaluation of epibenthic zooplankton production at pier apron sites in Commencement Bay (Parametrix, 1991) showed that in areas having similar substrates, salmonid prey epibenthos at shaded apron stations was about 83% of the abundance at non-apron stations. One distinct difference was in the occurrence of the harpacticoid copepods *Harpacticus* and *Tisbe*, which are very important prey items for small juvenile salmon entering the estuary. *Tisbe* are found where there is abundant detrital vegetation, and there were no significant differences in abundance of *Tisbe* between apron and non-apron stations. However, in this study, *Harpacticus* is primarily epiphytic on growing algae and eelgrass, and was rarely found under aprons. Investigations on the effect of shading on eelgrass may also be helpful in determining the recovery time associated with removal of overwater structures. Pentilla and Doty (1990) reported that fixed dock structures reduced eelgrass density to zero, even when light attenuation did not approach full darkness. A floating dock site, which moved with the tide and did not cast a continuous shadow over the bottom, did not have negative impacts on eelgrass density. Studies associated with impacts from the Anacortes Ferry terminal showed eelgrass presence related primarily to the height of the docks, which affected the level of shading (Parametrix and Battelle, 1996). Fresh et al. (1995) evaluated dock structures and found measurable declines in eelgrass density under and adjacent to docks in Puget Sound, except for ones that moved up and down and side to side with tidal fluctuations, eliminating constant shading. The investigations all considered sites with similar substrates in areas with homogenous eelgrass coverage, eliminating variables other than shading. While we do not expect there to be eelgrass in the LDR, it is logical to assume that shading would similarly reduce primary production of benthic diatoms and other algae.

Shading appears to be the primary factor impacting primary and secondary production under overwater structures; therefore, the effect of shading on juvenile salmonid behavior will be eliminated immediately upon removal of the structure. The limited data that exist indicate that epibenthic production occurs under piers but at a level lower than unshaded sites. A 1991 study (Parametrix, 1991) linked the absence of particular epibenthic zooplankers under pier aprons to the absence of eelgrass and algae under the aprons, a condition related to the lack of light. Studies on the effects of shading on eelgrass indicate that within a particular substrate type, eelgrass distribution is limited only by the level of shading Pentilla and Doty (1990), Parametrix and Battelle, (1996), Fresh et al. (1995). With the foregoing information, it is

reasonable to expect that once light becomes available to natural intertidal and shallow subtidal habitats currently shaded by overwater structures, algal and vegetative production necessary to support the functions normally provided by these habitats can be achieved quickly, possibly in as little as one year. Time to sustained value for various habitat types is provided in Table D6.

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Table D 1. Habitat classifications used in the HEA.

Habitat Type	Elevation ft. (MLLW)
Marsh (aquatic vascular vegetation)	+6 to +12
Intertidal	-4 to +12
Shallow Subtidal	-14 to -4
Deep Subtidal	< -14

Table D 2. Relative habitat values for juvenile Chinook salmon (and bird assemblages).

Habitat Type	Relative Habitat Value for Juvenile Chinook Salmon (and Bird Assemblages)
Estuarine habitats	
Marsh	1.0
Intertidal	0.67
Shallow Subtidal	0.40
Deep Subtidal	0.05
Rip-rap	0.10
Buffer Habitats	
Vegetated Buffer	0.50
Upland Greenbelt	0.20

Table D 3. Relative habitat values for English sole based on substrate composition.

Substrate composition: percentage by weight of substrate particle size greater than 2mm in diameter	Relative habitat value
<20	1.0
21 - 30	0.86
31 - 40	0.60
41 - 50	0.33
> 50	0.15

Table D 4. Relative habitat values for juvenile Chinook salmon, birds, and juvenile English sole; and species' combined habitat values.

Habitat Type	Relative Value for Salmon	Relative Value for Birds	Relative Value for English sole	Relative Combined Value for all Species
Intertidal	0.67	0.67	1.00	0.75
Shallow Subtidal	0.40	0.40	1.00	0.55
Deep Subtidal	0.05	0.05	1.00	0.29
Marsh	1.00	1.00	1.00	1.00
Rip-rap	0.10	0.10	0.15	0.11
Vegetated buffer	0.50	0.50	0.00	0.38
Upland Greenbelt	0.20	0.20	0.00	0.15

Table D 5. LDR habitat classifications and values applied in the HEA.

Habitat	Value		
	Fully Functioning	Baseline Adjusted	Degraded
Estuarine Marsh	1.0	0.85	NA
Intertidal	0.9	0.75	0.1
Shallow Subtidal	0.7	0.55	0.1
Deep Subtidal	0.3	0.3	0.1
Rip-rap	NA	NA	0.1

Table D 6. Restoration project habitat values and time to sustained value for fully functional (FF) and baseline adjusted (BA) habitats.

Habitat	final value and percent of final value (%) at end of year			
	1	4	8	15
Habitats formed through excavation, regrading, or material placement.				
Marsh	not applicable	0.825 (82.5%) FF 0.75 (88.2%) BA	0.936 (93.6%) FF 0.786 (92.4%)BA	1.0 (100%) FF 0.85 (100%) BA
Intertidal	not applicable	0.825 (91.6%) FF 0.75 (100%) BA	0.9 (100%) FF no change	no change
Shallow Subtidal	not applicable	0.63 (90.0%) FF 0.55 (100%) BA	0.7 (100%) FF no change	no change
Existing FF or BA habitats restored by over water structure removal				
Intertidal	0.9 (100%) FF 0.75 (100%) BA	no change	no change	no change
Shallow Subtidal	0.7 (100%) FF 0.55 (100%) BA	no change	no change	no change
Existing Fully Functional (FF) or Baseline Adjusted (BA) habitats restored by removal or log rafts or wood waste				
Intertidal	not applicable	0.825 (91.6%) FF 0.75 (100%) BA	0.9 (100%) FF no change	no change
Shallow Subtidal	not applicable	0.63 (90.0%) FF 0.55 (100%) BA	0.7 (100%) FF no change	no change

Habitat	final value and percent of final value (%) at end of year			
	1	4	8	15
Other				
Vegetated Buffer	not applicable	0.2 (50%)	0.4 (100%)	no change
Upland Greenbelt	not applicable	0.075 (50%)	0.15 (100%)	no change

Habitat Variables

Component

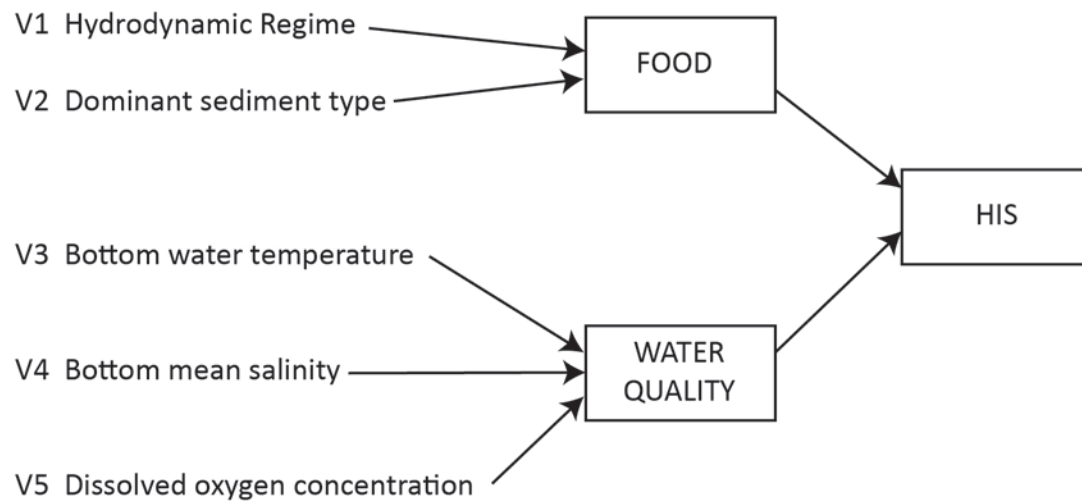


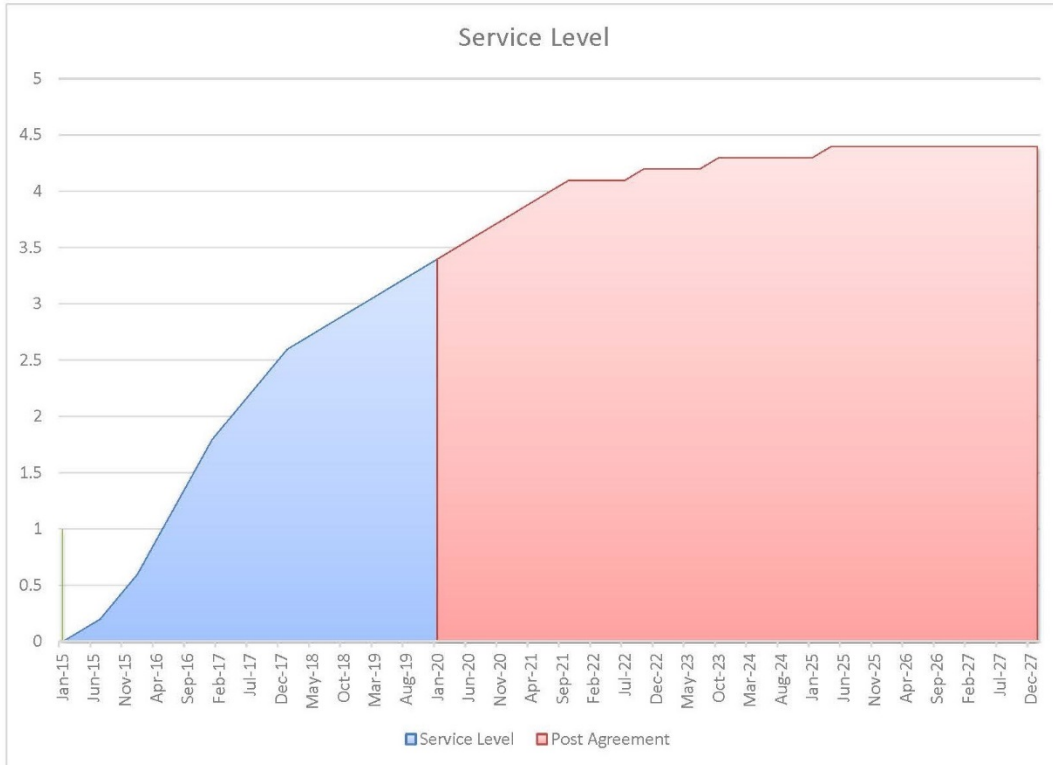
Figure D 1. The relationship of habitat variables, life requisite components, and the habitat suitability index (HIS) for juvenile English sole in estuaries and coastal lagoons. (Toole, C.L., Barnhart, R.A., and C.P. Onuf. 1987. Habitat Suitability Index Models: Juvenile English Sole. U.S. Dept. of the Interior, Fish and Wildlife Service Biological Report 82(10.133) February 1987.)

Appendix E:

Example illustrations of credit acceptance scenarios

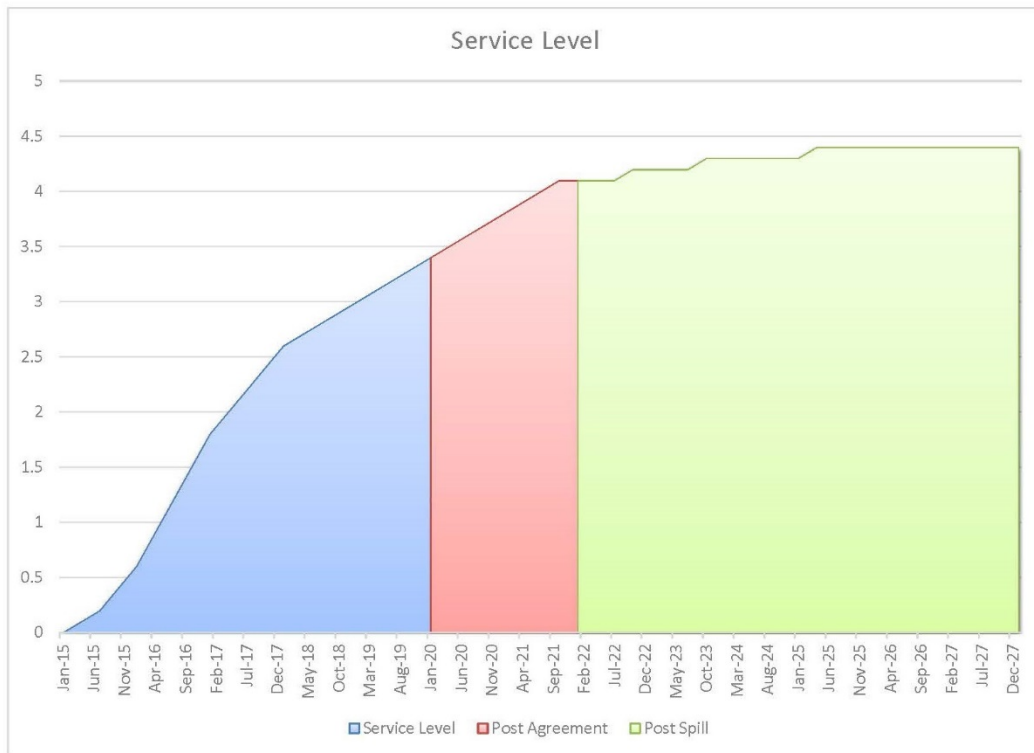
Appendix E: Example illustrations of credit acceptance scenarios

Waste site scenario (pre-existing injuries): Restoration project developed January 2015. Restoration bank agreement entered into January 2020. Trustees may accept and apply only the credit values generated beginning January 2020.



Appendix E - p. 1

Spill Scenario: Restoration project developed January 2015. Restoration bank agreement entered into January 2020. Spill occurs January 2022. Trustees may accept and apply to spill-related injuries only the credit values generated beginning January 2022.



Appendix F:

Examples of Financial Assurances (Types and Forms)

PORTLAND HARBOR NATURAL RESOURCE TRUSTEE COUNCIL- RESTORATION FINANCIAL ASSURANCES

SECURITY	PURPOSE	CALCULATION METHOD	FINANCIAL INSTRUMENT	WHEN FUNDED	WHEN RELEASED	HELD BY/ BENEFICIARY
Construction Security	Ensures that construction will be completed as proposed.	Project proponent submits to Trustee Council for review: 100% of an average of three (3) reasonable third party estimates for construction and the cost estimate for planting/seeding, plus a 15% contingency of the total construction estimate and planting/seeding estimate.	Bond or Irrevocable Letter of Credit ("LOC").	Prior to the first credit release.	Upon completion of construction activities in accordance with the Habitat Development Plan as demonstrated by: submission of as-built drawings; and recognition by the Trustee Council or its designee(s).	NOAA or other entity approved by the Trustee Council serves as beneficiary.
Interim Management and Contingency Security ("IMCS")	An amount set aside to fund management and monitoring, including site-specific lamprey monitoring, of the site during the 10-year Performance Period.	Project proponent submits to Trustee Council for review: 100% of the estimated cost for non-lamprey monitoring and management during the first 10 years following habitat construction plus a 15% contingency. For lamprey monitoring, 100% of the estimated costs of lamprey monitoring for the first 10 years following habitat construction, based on estimate provided to the project proponent by the Trustee Council.	Bond or LOC.	Prior to the first credit release.	Upon meeting Year 5 performance standards, the bond or LOC will be reduced by half. Upon meeting the Year 10 performance standards or when the Restoration Implementer and the Trustee Council agree that the Performance Period is complete, the amount remaining in the IMCS will be released.	NOAA or other entity approved by the Trustee Council serves as beneficiary.

SECURITY	PURPOSE	CALCULATION METHOD	FINANCIAL INSTRUMENT	WHEN FUNDED	WHEN RELEASED	HELD BY/ BENEFICIARY
Site-Specific Lamprey Monitoring, Years 15, 20 Security	An amount set aside as security to fund site-specific lamprey monitoring during years 15 and 20 of the 20 year monitoring plan.	100% of the estimated costs of lamprey monitoring for years 15 and 20 of the site-specific lamprey monitoring plan, based on estimate provided to the project proponent by the Trustee Council.	Bond or LOC.	Prior to the first credit release.	Upon payment from the project proponent for years 15 and 20 of site-specific lamprey monitoring, the amount remaining in the site-specific lamprey monitoring security will be released.	NOAA or other entity identified by the Trustee Council serves as beneficiary.
Adaptive Management Contingency Account	Funds set aside to support adaptive management actions jointly identified by project developer and Trustee Council during the 10-year Performance Period.	Project proponent submits to the Trustee Council for review: 25% of habitat-related construction costs (i.e., land acquisition costs do not need to be included).	Escrow or other account to which both project proponent and Lead Administrative Trustee are signatories.	Prior to the first credit release.	Upon achievement of Year 10 performance standards, any unspent funds may be released to the project developer by mutual agreement with Trustee Council.	Account holder to be a qualified entity agreed to by Trustee Council. Account beneficiary to be NOAA or other entity identified by the Trustee Council.

SECURITY	PURPOSE	CALCULATION METHOD	FINANCIAL INSTRUMENT	WHEN FUNDED	WHEN RELEASED	HELD BY/ BENEFICIARY
Long-Term Stewardship Fund	An account set aside to fund the management expenses of the site in perpetuity.	Property Analysis Record ("PAR") or other similar analysis. Project proponent submits a long-term stewardship funding proposal to Trustee Council for review. Please refer to the separate long-term stewardship information for additional details.	Long-Term Stewardship Fund account identified by Trustee Council.	Long-Term Stewardship Fund must be fully funded by Year 8 of the Performance Period.	Remains in perpetuity.	Qualified entity identified by Trustee Council holds funds.
Site-Specific Pacific Lamprey Monitoring (Years 0-10)	To provide funding for Pacific lamprey monitoring at individual restoration sites and associated reference sites over years 0-10 of the twenty-year monitoring period.	Funding amount provided by project proponent is based on the cost estimate provided by the Trustee Council to the project proponent in advance of each monitoring event.	Per the Trustee Council's direction, funds will be provided to USFWS and a designated Trustee.	Funding must be provided in advance of each monitoring event.	Not applicable.	USFWS and designated Trustee hold funds.

SECURITY	PURPOSE	CALCULATION METHOD	FINANCIAL INSTRUMENT	WHEN FUNDED	WHEN RELEASED	HELD BY/ BENEFICIARY
Site-Specific Pacific Lamprey Monitoring (Years 15 and 20)	To provide funding for Pacific lamprey monitoring at individual restoration sites and associated reference sites in years 15 and 20 of the twenty-year monitoring period.	Funding amount provided by project proponent is based on the revised cost estimate provided by the Trustee Council to the project proponent at the conclusion of the 10 year performance period.	Funds will be provided in the form of a check to an entity to be designated by the Trustee Council.	Prior to the final credit release	Not applicable.	TBD
Trustee Council Oversight	Ensures funds for Trustee Council oversight for project implementation and all monitoring for Years 1-20.	Amount estimated by the Trustee Council for implementation and monitoring oversight in Years 1 through 20.	Funds will be provided in the form of a check to an entity to be designated by the Trustee Council.	For Years 0-5, a check to cover that year's costs will be provided to an entity to be designated by the Trustee Council prior to the beginning of each year. Costs for Years 6-20 will be funded in the same manner.	Not applicable.	TBD

Appendix G:

Calculation of Long Term Stewardship Costs Template (Portland Harbor example)

Portland Harbor NRDA Restoration Project Long-term Stewardship Budget Template DRAFT March 15, 2016

Stewardship Task	Relevant PAR Task	SubTask	Specific Description	Unit	Number of Units	Cost/ Unit	Annual Cost	Frequency	Cont %	Total Cost
Corresponding task in stewardship framework	Corresponding task in PAR software	Specific task	provide detailed info	hrs, #, etc.	number of hours or items	cost per hour or number	# of units * cost/unit	Example: # of years until a GPS needs to be replaced or # of years between easement monitoring visits, i.e. 1	Contingency percentage	annual cost * years * contingency
Monitoring										
	Biotic Surveys	Plant Ecologist		hrs	25	1200	\$ 30,000.00		1	10% \$ 33,000.00
		Wildlife Biologist					\$ -		10%	\$ -
		Biologist (Other)					\$ -		10%	\$ -
		Hydrologist					\$ -		10%	\$ -
		Conservation Easement Monitoring Engineer					\$ -		10%	\$ -
	Monitoring Equipment	Camera (35mm lens)					\$ -		10%	\$ -
		Vehicle					\$ -		10%	\$ -
		Boat					\$ -		10%	\$ -
		GPS					\$ -		10%	\$ -
		Sampling Equipment					\$ -		10%	\$ -
		Shovels & other tools					\$ -		10%	\$ -
Maintenance										
	General Maintenance	Trash container					\$ -		10%	\$ -
		Trash Bags					\$ -		10%	\$ -
		Dumpster					\$ -		10%	\$ -
		Fence Maintenance					\$ -		10%	\$ -
		Trail Maintenance					\$ -		10%	\$ -
		Maintain Signage					\$ -		10%	\$ -
		Travel					\$ -		10%	\$ -
	Habitat Maintenance	Exotic Plant Control					\$ -		10%	\$ -
		Seed Collection					\$ -		10%	\$ -
		Trapping permit					\$ -		10%	\$ -
		Brush Management					\$ -		10%	\$ -
		Erosion Control					\$ -		10%	\$ -
		Exotic Animal Control					\$ -		10%	\$ -
		Maintain Safe Trees					\$ -		10%	\$ -
		Major Flood Clean-up					\$ -		10%	\$ -
		Plant Procurement					\$ -		10%	\$ -
		Remove Trash					\$ -		10%	\$ -
		Revegetation					\$ -		10%	\$ -
		Geomorphic Inspection					\$ -		10%	\$ -
		Stormwater Inspection					\$ -		10%	\$ -
		Travel					\$ -		10%	\$ -
	Maintenance Equipment	Wood for Fence or trail Maintenance					\$ -		10%	\$ -
		Tools for maintenance					\$ -		10%	\$ -
		Erosion control materials					\$ -		10%	\$ -

Portland Harbor NRDA Restoration Project Long-term Stewardship Budget Template DRAFT March 15, 2016

Stewardship Task	Relevant PAR Task	SubTask	Specific Description	Unit	Number of Units	Cost/Unit	Annual Cost	Frequency	Cont %	Total Cost
Corresponding task in stewardship framework	Corresponding task in PAR software	Specific task	provide detailed info	hrs, #, etc.	number of hours or items	cost per hour or number	# of units * cost/unit	Example: # of years until a GPS needs to be replaced or # of years between easement monitoring visits, i.e. 1	Contingency percentage	annual cost * years * contingency
Program Management										
	Office Maintenance	Computer (based on % used for this project)					\$ -		10%	\$ -
		Internet					\$ -		10%	\$ -
		Office supplies					\$ -		10%	\$ -
		Meeting rooms					\$ -		10%	\$ -
	Operations	Insurance					\$ -		10%	\$ -
		Legal & Emergency fund					\$ -		10%	\$ -
		Research					\$ -		10%	\$ -
		Communications/Meeting					\$ -		10%	\$ -
		Supervisor Site Visit					\$ -		10%	\$ -
		Travel					\$ -		10%	\$ -
		Accounting Services					\$ -		10%	\$ -
		Contracting Services					\$ -		10%	\$ -
		Succession Planning					\$ -		10%	\$ -
Community Relations and Enforcement										
	Public Services	Patrolling					\$ -		10%	\$ -
		Working with Volunteers					\$ -		10%	\$ -
		Community Meetings					\$ -		10%	\$ -
	Enforcement	Working with Law enforcement					\$ -		10%	\$ -
		Addressing illegal operations					\$ -		10%	\$ -
		Cleaning up illegal operations					\$ -		10%	\$ -
		Addressing Encampments					\$ -		10%	\$ -
		Travel					\$ -		10%	\$ -
Reporting, Documentation, and Data Management										
	Reporting	Stewardship Plan (Development)					\$ -		10%	\$ -
		Stewardship Plan (Update)					\$ -		10%	\$ -
		Annual Maintenance Plan					\$ -		10%	\$ -
		Annual Monitoring Report					\$ -		10%	\$ -
		Annual Fiscal Report					\$ -		10%	\$ -
		Database/Geodatabase Management					\$ -		10%	\$ -
		GIS mapping					\$ -		10%	\$ -
		GPS mapping					\$ -		10%	\$ -
		Website Management					\$ -		10%	\$ -
Subtotal										\$ -
Administration (25%)										\$ -
Total										\$ -

Users should review task list below and add or remove tasks as necessary given the specifics of their project.

This template is meant as guidance only, and we anticipate that each user will have items that we have not included in our subtask list. Please adjust as needed.

Stewardship/PAR Task	SubTask	Description (example of what these tasks may involve)
Monitoring		
Biotic Surveys	Plant Ecologist	Monitors survival of natives, and need for removal of invasives
	Wildlife Biologist	Biologist specializing in Wildlife, monitor/evaluate mammal or bird use of habitat
	Biologist (Other)	Biologist with other speciality such as fish, etc monitor/evaluate fish use of habitat
	Hydrologist	Hydrologist to evaluate flow, water depths, flooding, structures, fish passage, etc
	Conservation Easement Monitoring	Monitor terms of easement for compliance
	Engineer	Monitor/Evaluate performance of engineered components of restoration design, hydrology, etc.
Monitoring Equipment	Camera (35mm lens)	Camera capacity beyond that typically available on smart phone
	Vehicle	Special vehicles needed to access site
	Boat	Boat if needed to access site
	GPS	GPS to capture locations
	Sampling Equipment	Any water quality, or habitat sampling equipment needed such as temperature probes
	Shovels & other manual tools	Shovels or other manual tools needed for invasive removal (specify type of tool)
Maintenance		
General Maintenance	Trash container	Trash cans
	Trash Bags	Liners or bags to go in trash cans
	Dumpster	Dumpster for larger clean up needs
	Fence Maintenance	Services to maintain or fix fence
	Trail Maintenance	Services to maintain or fix trails
	Maintain Signage	Services or materials to maintain or fix signage
	Travel	Travel costs such as vehicle mileage to and from site for monitoring
Habitat Maintenance	Exotic Plant Control	Services for invasive species control
	Seed Collection	Seed Collection services
	Trapping permit	Permit for trapping non-native species
	Brush Management	Services for brush management
	Erosion Control	Erosion control services
	Exotic Animal Control	Exotic animal control services
	Maintain Safe Trees	Maintainance of tree limbs hazards or other public safety issues
	Major Flood Clean-up	Clean up of trash and debris following major flood
	Plant Procurement	Plants for revegetation as needed
	Remove Trash	Trash removal services
	Revegetation	Revegetation services
	Geomorphic Inspection	Geomorphic inspection services such as channel erosion and sedimentation evaluation
	Stormwater Inspection	Evaluation of stormwater structures
	Travel	Travel costs such as vehicle mileage to & from site for maintenance
Maintenance Equipment	Wood for Fence or trail Maintenance	Wood or other materials for fence or trail maintenance repair
	Tools for fence maintenance	Hammers, drills, screwdrivers, etc.
	Erosion control materials	Materials for erosion control
Program Management		
Office Maintenance	Computer	Computer costs (Divide cost out based on % of time used for Portland Harbor)
	Internet	Internet services (charge based on % of time used for portland harbor)
	Office supplies	Pens, paper, etc., used for portland harbor projects
	Meeting rooms	Meeting room rental for public meetings
Operations	Insurance	Conservation easment insurance or staff workers comp insurance (based on % used for portland harbor)
	Legal & Emergency fund	Fund for legal enforcement and or emergencies
	Research	Research into stewardship techniques
	Communications/Meeting	Staff time for meetings involving this project
	Supervisor Site Visit	Supervisor time for site visits
	Travel	Travel to and from site for supervisor
	Accounting Services	Accounting services directly related to portland harbor (can be a % of overall costs)
	Contracting Services	Contracted services for contractors working on this project such as maintenance crews
	Succession Planning	Planning/data storage, etc. for unforeseen events such as office closure or bankruptcy
Community Relations and Enforcement		
Public Services	Patrolling	Patrolling site for violations
	Working with Volunteers	Supervision/training of volunteer crews to maintain/monitor site
	Community Meetings	Staff time for community meetings
Enforcement	Working with Law enforcement	Staff time to work with and inform law enforcement of issues at site
	Addressing illegal operations	Staff time to address illegal operations such as public use at prohibited sites
	Cleaning up illegal operations	Staff or contractor time to clean up illegal operations
	Addressing Encampments	Staff time to work with law enforcement to address encampment or drug use on site issues
	Travel	Travel to and from site for enfocement and patrolling
Reporting, Documentation, and Data Management		
Reporting	Stewardship Plan (Development)	Staff time to develop stewardship plan
	Stewardship Plan (Update)	Staff time to make periodic updates to stewardship plan
	Annual Maintenance Plan	Staff time to create annual maintenance plan
	Annual Monitoring Report	Staff time to create annual monitoring report
	Annual Fiscal Report	Staff time to create annual fiscal reports
	Database/Geodatabase Management	Staff time to enter data into database/GIS systems and to update periodically
	GIS mapping	Staff time for mapping acres and miles maintained/monitored/stewarded
	GPS mapping	Staff time for GPS'ing areas
	Website Management	Staff time to maintain website showing stewardship work or announcing meetings

Users should review task list below and add or remove tasks as necessary given the specifics of their project.

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	Conservation Easement Monitoring	Monitor terms of easement for compliance
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	GIS mapping	Staff time for mapping acres and miles maintained/monitored/stewarded
	GPS mapping	Staff time for GPS'ing areas
	Website Management	Staff time to maintain website showing stewardship work or announcing meetings

Appendix H:

National DARRP Policy on Long Term Stewardship

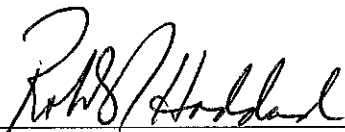
DARRP policy to include long-term stewardship costs in NRDA habitat restoration settlements**Long-term Stewardship Definition**

Activities including monitoring and adaptive management that are necessary to maintain the flow of ecological services for the period of time required in order to achieve full compensation of damages. These activities include both physical asset and ecological management. While stewardship costs are often covered by the potentially responsible party(ies) (PRP) through an initial period where habitat is built, typically as a requirement of project permits, long-term stewardship refers to the period after construction and after habitat has reached full function, but where the project has not yet produced its full compensation value.

Long-term Stewardship Policies and Procedures

1. As a default position, NOAA case team members will only agree to proposed settlements that provide for actions or funding to cover long-term stewardship activities sufficient to ensure that projects eventually achieve their expected compensation values. Achievement of these values means maintaining the flow of ecological services at these sites for the number of years required to realize the ecological services required for full compensation.
2. The nature and amount of long-term stewardship required in a given case will be derived from the DSAY model or other method used to assess and quantify damages. Whatever method is used, an explicit time period for compensation will be written in the settlement agreement.
3. Given that the general purpose of accounting for and recovering long-term stewardship costs is to ensure the flow of ecological services over time through specific management and oversight activities, these costs should be considered reasonable and necessary costs of restoration.
4. If a case team determines that it is necessary to forgo long-term stewardship in order to reach an otherwise appropriate settlement, the case team coordinator may request, and the TMT may grant, authorization to forgo this support. In considering such a request the TMT will ask the case team to assess the likelihood of circumstances arising that may impair long term project performance and what, if any, contingencies or other resources may be available to address such circumstances.
5. NOAA case teams should consider the feasibility of developing relationships or agreements with parties capable of performing long-term stewardship for multiple sites in a watershed or region as a means of achieving economies of scale, broadly applying lessons learned and expertise gained, and developing consistent monitoring and reporting.
6. This policy does not affect cases that have already settled or in which the Trustees have progressed in negotiations with responsible parties to the point that consideration of long-term stewardship would be considered an unexpected or inflated demand.

Effective June 1, 2014, and until further notice, the DARRP TMT adopts the following policies and procedures regarding recovering long-term stewardship costs in habitat restoration settlements.



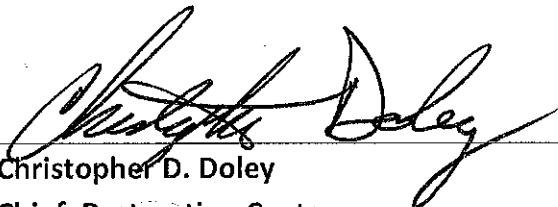
Robert I. Haddad, Ph.D.

Chief, Assessment and Restoration Division

NOAA Ocean Service, Office of Response and Restoration



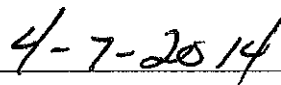
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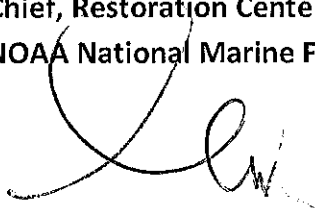
Christopher D. Doley

Chief, Restoration Center

NOAA National Marine Fisheries Service, Office of Habitat Conservation



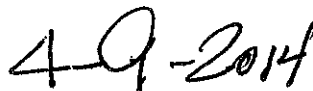
Date



Craig O'Connor

Special Counsel for Natural Resources

NOAA Office of General Counsel, General Counsel for Natural Resources



Date